RIVER WATER DISPUTES IN SOUTH ASIA
A COMPARATIVE PERSPECTIVE

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PREFACE

P_R_E_F_A_C_E

(Water besides being basic to human existence, is the primary input into all economic activity. With the growth of population and expansion of industry and agriculture, demands on water resources are increasing day-by-day. Since rivers supply the greatest amount of fresh water, very often these become the raw nerves of contention when they cut across political boundaries. Contest between and among different political units for maximizing their respective shares of water from such rivers is a phenomenon of great economic and political significance in the study of both domestic and international politics. Especially in the developing regions such as the South Asia, the water disputes call for early solutions so as to accelerate the pace of economic development and social welfare. The present study is a modest attempt in identifying and understanding the 'issues' involved in both the international and domestic river water disputes in South Asia.)

The present study is divided into six chapters. Chapter I gives a background of South Asian rivers and the (1) river disputes, highlighting the importance of the subject under study and how the political boundaries stand in the way of integrated development of a river basin.) Chapter II

discusses the major issues relating to the distribution and exploitation of river waters, and examines the respective rights of the upper and lower riparian states under the provisions of International Law. In Chapter III, the two major international river disputes -- the Indus Water Dispute, and the Ganges Water Dispute -- have been separately discussed and analysed in a comparative perspective. Chapter IV deals with the within-country disputes with special emphasis on India. Here the focus has been turned on issues of such disputes, and the chapter examines a few inter-state water disputes in India which are of great importance and interest. Chapter V portrays the politics and diplomacy involved in the river water disputes, and outlines the behaviour and attitude of the concerned nations and their politicians. In the concluding chapter an attempt has been made to have a fresh look at the issues, especially in a comparative perspective.

The present study draws heavily on the available secondary sources, like articles, books, newspapers, and learned journals. The primary sources like the Lok Sabha Debates, the official documents of the Governments of India and Bangladesh and the U.N. Documents have also been relied upon. However, the author regrets for not being able to visit the neighbouring countries to get a first-

hand account of the nature of their water problems from their local population and government sources. He, however, candidly submits that in view of the broad dimension of the topic full justice cannot be done to it within the narrow ambit of an M.Phil. dissertation. Yet he hopes that the exercise would facilitate an understanding of the problems involved in making an integrated and fuller use of the river waters for the benefit of the South Asian region as a whole.

I owe my sincere and deep gratitude to Professor Sushil Kumar for having suggested me the topic which I found highly interesting and engrossing. His keen interest in my work and constant guidance, encouragement and painstaking correction of my manuscript has enabled me to bring out this dissertation.

I am gratly indebted to Professor K.P. Mishra for his humane understanding and kind help, which are so unique of him. My greatest source of inspiration, everytime I talked to him, he filled me with hope and energy.

I am also grateful to Professor M. Zuberi and Professor K.P. Saksena for having sorted out my problems and at times pulling me out of the woods. They have also encouraged me at various stages of my work.

I have received help from the Jawaharlal Nehru University Library, the Library of the Indian Council of

World Affairs, the American Centre Library, the Nehru Memorial and Museum Library, and the Library of the Ministry of Irrigation, Government of India. I owe my sincere thanks to the Librarians and the staff of these libraries for their kind and polite ever-readiness in providing me with materials.

My thanks are also due to Mr. R. Rangachari, Member of the Joint Rivers Commission (JRC), Ministry of Irrigation, for having given me a brief on the Farakka dispute, which cleared many of my doubts on the Government of India's stand on the issues. However, if I have quoted him or any other official anywhere in this text, these need not be construed to reflect the official position of the Government of India.

I also thank those friends of Bangladesh, Nepal and Sri Lanka, with whom I discussed the water problems confronting their countries. Many of other friends and well-wishers were also of great help and inspiration to me, and though it is not possible to mention them here, I express my gratitude to them.

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CHAPTER I

CHAPTER I

INTRODUCTION

THE BACKGROUND OF RIVER WATER DISPUTES IN THE SUB-CONTINENT

The Subject of Study, Its Importance

Water, since time immemorial, has been recognised as an essential element for the support of life processes. 'It is required in abundance not only to quench our thirst and meet our domestic needs, but also, in vastly greater quantities, to produce and process the food we eat and other materials necessary for human welfare'.[1] 'From time immemorial, water has also served as a medium for the transport of men and material. Water has often provided an important setting for the fulfilment of aesthetic and recreational needs. Water resources serve as a form of power to produce steam for mechanical power or to move turbines for the generation of electricity.'[2]

But water, a universal need, has become in the twentieth century as perhaps never before in history a universal problem.[3] Until recently, the availability of

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1 Samir N. Saliba, The Jordan River Dispute (The Hague, 1969), p. 1.

2 U.N. Document, Conference on Water Resources Development in Asia and Far East, ST/ECAFE/SER.F/23, p. 17.

3 Ludwick A. Teclaff, The River Basin in History and Law (The Hague, 1967), p. 1.

adequate supplies of water could be taken for granted in regions of heavy precipitation, and its non-availability was accepted as a given fact of nature in the regions of water scarcity. But with the dawn of industrialisation, and the success of scientific methods to accelerate economic development, coupled with the problems of rapid expansion of population and its growing demand for food, the situation has undergone a radical change. The adequacy of water supplies is now an acute question in every zone of intense human habitation.[4]

Water resources, while renewable, are limited at the same time. It is an irony that water which covers nearly three quarters of the Earth, is in short supply and is more and more being recognised as a scarce resource. It may be mentioned that not even one per cent of the water on the earth is drinkable. Out of a total volume of water on earth of about 1.4×10^9 cubic kilometers, more than 95% is in the oceans,[5] which is salty and unfit for drinking or irrigation. Of the remaining fresh water about 77 per cent is stored in ice caps and glaciers, 22.4 per cent is in ground water and soil moisture, and atmosphere, there is a bare 0.01 per cent

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4 U.N. Document, Management of International Water Resources: International and Legal Aspects, ST/ESA/5, Sales No. E.75.II.A.2 (New York, 1975), p. 5.

5 U.N. Document, Water Conference Resources and Needs: Assessment of the World Water Situation, E/CONF.70/CPBI and 10 (July 2, 1976).

per cent in streams. It is well recognised that the supply of water is distributed unevenly over the face of the earth and that nations are confronted in greater or less measure with differences in the availability of water when and where it is needed.

With the immense increase in the use of water, contest between and among different political units for maximizing their respective shares of water from such natural sources as rivers is a phenomenon of great economic and political significance in the study of both domestic and international politics. The importance of water disputes consists in the fact that water is an indispensable means of economic growth and social welfare. This is all the more true in the case of those nations which have achieved independence recently and are anxious to modernise their agriculture and step up industrial production.[6] As the main use of water is for irrigation the majority of disputes, are in the field of irrigation. There are other uses of water also. Conflicts arise there also.[7]

Irrigation affects the volume of rivers' flow. The diversion of water from an international river is bound to lessen the normal supply of water to the lower riparian states. To the extent that the various riparian states

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6 J.S. Bains, Indo-Pakistan Water Dispute: India's International Dispute (Bombay, 1962), p. 29.

7 K.L. Rao, India's Water Wealth (New Delhi, 1975), p. 201.

depend on this water, their interests are consequently bound to conflict with each other. It is no accident, therefore, that a great many disputes originating from diversion of such waters have come into existence.[8]

Problems of diversion from international rivers and river basins have multiplied in the present century. Technological improvement has increased the magnitude of feasible projects for the storage and exploitation of waters. And the growth of international cooperation for economic development has improved the prospects of financing such projects. At the same time, as has already been pointed above, the growth of population and the requirements of industry have intensified the demands on water resources. All these circumstances have made states eager to exploit rivers within their own jurisdiction and sharpened their awareness that acts of other riparian States may have most serious repercussions upon them. Hence the "water relations between states have come to form an extensive legal problem" which continues to be full of many uncertainties and unresolved questions.[9]

A group of United Nations experts considering integrated river basin development made the following practical observations:

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8 Bains, n. 6, p. 31.

9 Berber, Rivers in International Law (The Library of World Affairs, 1959), p. 2.

> International co-operation in all fields is essential to peace and progress, but no one will deny that some fields lend themselves to co-operation less readily than others, and in this category are international river waters, especially in relation to irrigation uses... 10

The group went further saying:

> ... lack of accepted international law on the uses of these (international) streams present a major obstacle in the settlement of differences, with the result that progress in development is often held up for years, to the detriment, not only of the countries concerned, but of the economy of the world in general... 11

This study has its focus on South Asia, an area that abounds in rivers and river water disputes. The States of this area have many common rivers, such as the Indus, the Ganges and the Brahmaputra. Harnessing the waters of these rivers is of vital importance to the economies of the region. As in other parts of the Globe, in this part also different political units seek to maximise their advantages from these rivers to themselves. Hence this area has seen such great and historic disputes as the 'Indus Water Dispute' and the 'Farakka Dispute over the sharing of waters of the Ganges'. While the former dispute (between India and Pakistan) was amicably settled by a treaty after a long period of wranglings, the latter dispute (between India and Bangladesh) is still a

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10 U.N. Document, Integrated River Basin Development Report of Panel of Experts Requested in ECOSOC Resolution 599 (XXI), 3 May 1956, E/3066, p. 38.

11 Ibid., p. 43.

living one that hangs fire on the relationships of these two countries. Also water relations between India and Nepal are not so happy, though these have never assumed the proportion of an international dispute such as the Indus and Farakka. But because of certain irritants, many proposed joint projects in Nepal have remained stalled for years, the commissioning of which would have augured a new era in the region.

(Besides, the international river waters disputes, this study also examines the within-country disputes over river waters, since the disputes of the latter category are equally vital, but have a different political framework. The study seeks to put these disputes in a comparative perspective highlighting the issues involved and the similarities and dissimilarities of these issues across the subcontinent.)

The Rivers of South Asia

South Asia is of continental dimensions.[12] Its total area is nearly two million square miles — an area that exceeds by 2,75,000 sq. miles. The distance from the extreme Western part of Pakistan to the eastern border of the Indian Union is somewhat in excess of 2,100 miles. The north-south expanse of the subcontinent is approximately the same. As important as the geographic size is the fact that one-fifth

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12 This study takes into account only the following states of South Asia: India, Pakistan, Nepal, Bangladesh and Sri Lanka, with marked emphasis on India.

of mankind occupies this region. In the context of a study of rivers or river water disputes in the region, it is interesting to note that one of the earliest civilizations appeared in this area, in the cities of Mohenjodaro and Harappa, on the plains of one of its mighty rivers, the Indus.

In South Asia, there is a vast network of rivers, of which the three great rivers are the Indus, the Ganges and the Brahmaputra. In The Discovery of India, Jawaharlal Nehru writes:

> The mighty rivers of India that flow from the great mountain barrier into the plains of India attracted me and remind me of innumerable phases of our history. The Indus or Sindhu, from which our country came to be called India or Hindustan, and across which races and tribes and caravans and armies have come for thousand of years; the Brahmaputra, rather cut off from the main current of history but living in old story, forcing its way into India through deep chasms cut in the heart of the north-eastern mountains, and then flowing calmly in a gracious sweep between mountain and weeded plain; the Yamuna, round which cluster so many legends of dance and fun and play, and the Ganga, above all 'the River of India', which has held India's heart captive and drawn uncounted millions to her banks since the dawn of history. The story of the Ganga from her source to the sea, from old times to new, is the story of India's civilization and culture, of the rise and fall of empires, of great and proud cities, of the adventure of man and the quest of the mind which has so occupied India's thinkers, of the richness and fulfilment of life as well as its denial and renunciation, of ups and downs, of growth and decay, of life and death. 13

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13 J.L. Nehru, The Discovery of India (London, 1956), p. 38.

INDIA

Hydrologically, India's river systems fall into two broad groups, viz. the Rivers of Himalayan origin and those flowing in the peninsula.[14] The differences between the two groups are fundamental and of the greatest importance.[15] Although the volume fluctuates enormously, these rivers are never dry, i.e. on account of extensive snow over the Himalayas, the rivers are perennial. However, the geologically unstable conditions of the mountain formations and the friable nature of the terrain cause considerable meandering and uncertainty in the behaviour of these rivers. The high seismic influence prevalent in these ranges often cause land slides which make them meander and sometimes change their course and become problem rivers.[16]

In sharp contrast, the peninsular rivers, originating at comparatively lower altitudes, drain areas which are comparatively more stable geologically and do not therefore meander so much. The rainfall densities in the peninsular zones except in the small western coastal strip of Kerala are also comparatively less intense; and this feature and the smaller temperature variation obtaining, contribute to well-defined and rigid channels and smaller sediment loads in these rivers.[17]

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14 G.K. Vij and R.C. Shenoy, "Hydrology of Indian Rivers", in B.C. Law, ed., Mountains and Rivers of India (Calcutta, 1968), p. 259.

15 L. Dudley Stamp, Asia (London, 1962), p. 200.

16 Vij and Shenoy, n. 14, p. 259.

17 Ibid., p. 260.

Yet, as has already been pointed out, the Himalayan rivers are not dependent on monsoon rainfall alone for their water supply, but also have a source in the melting of Himalayan snow. Their seasonal regime is more valuable as it brings a maximum of water at the height of the hot weather -- February to April -- when the peninsular rivers are at their lowest. The latter depend entirely on monsoon rainfall, which is concentrated in only four to six months of the year. Streams which may be half a mile wide or more during the high-flood monsoon season shrink to a trickle only a yard or so across during hot weather.[18]

The Himalayan river system comprises three principal systems, the Indus, the Ganges and the Brahmaputra. These are discussed below.

The Indus

The Indus rises in the snowy ranges of the Himalaya at an altitude of 5,180 metres in Tibet, near the Mansarovar lake. It flows west and north-westwards and enters Indian territory in Jammu and Kashmir. The river forming a spectecular gorge in this reach pierces the Kailash range several times. It flows through Ladakh, Baltistan and Gilgit to finally turns south west into Pakistan. The Indus receives its Himalayan tributaries such as Gartang, Zanskar, Dras, Shyok, Shigar,

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18 B.L. Sukhwal, INDIA: A Political Geography (New Delhi, 1971), p. 22.

Nubra, Gilgit and the Hunza in Jammu and Kashmir. Near Attock (in Pakistan) it receives the Kabul and its tributaries. Some of the important tributaries below Attock include the Kurram, Tochi and the Zhob-Gomal. The collective flow of its well-known Punjab tributaries -- Sutlej, Beas, Ravi, Chenab and Jhelum -- goes to make Panjnad which falls into the mainstream a little above Mithankot. The Indus flows south-westwards across Pakistan to reach the Arabian Sea east of Karachi. With a total length of 2,800 kilometres the Indus is considered as one of the larger rivers of the world. It has a catchment area of 11,65,000 sq. kms. of which as much as 3,21,290 sq. kms. lies within India. India can, however, utilise only a total amount of 4,195 million cubic metres (only 20 per cent) out of its total discharge under the regulations of the Indus Water Treaty with Pakistan.

Among the Punjab tributaries of the Indus, the Jhelum rises in the Kashmir Valley and flows through Srinagar and Wular Lake. In India, the river is 400 km. long, navigable for 160 km., and drains an area of 28,490 sq. kms. before it enters Pakistan. While Chenab, Ravi and Beas have their main headstreams in the Himachal Pradesh mountains, the Sutlej rises in Tibet. The Chenab is the largest of the five tributaries. It is 1,180 km. long in India and its basin in India is 26,755 sq. kms. The Ravi has a catchment of 5,957 sq. kms. in India. It flows for nearly 725 kms. in India

before it enters Pakistan near Shahdara. The Beas, which is entirely on the Indian side, is 470 km. long and drains 25,900 sq. kms. The Sutlej is 1,050 km. long in Indian territory and drains 24,087 sq. kms.

Rainfall variation in the Indus basin is very great. The precipitation inclusive of snow is much heavier in the hills than in the plains. In the plains the rainfall occurs mostly in summer. In the upper sub-basins of Indus and Jhelum the winter precipitation is nearly equal to that in summer. The flows in Indus are subject to extreme variations. The maximum flow is in summer. The low winter flows are mainly from the ground storage built up during summer. Thus a drought in winter can follow a flood in summer.[19]

The Ganga

The Ganga, the most important river of India, flows through the populous alluvial plains and has a very fertile valley. The Ganga emerges from the Himalayan at Hardwar. Thus rising from the snow bound Himalaya, the river is 2,071 km. long in India and drains an area of 9,51,600 sq. kms. The five source rivers of the Ganga, viz. Bhagirathi, Mandakini, Alakananda, Dhauli Ganga and Pindar are found in Uttarkhand division of Uttar Pradesh. They join at Devaprayag to form the Ganga.[20] The set of tributaries which rise in the

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19 Vij and Shenoy, n. 14.

20 S.C. Bose, "Source Rivers of the Ganga", in B.C. Law, ed., Mountains and Rivers of India (Calcutta, 1968), p. 361.

Himalayas are Yamuna, Ghaghara, Gandak, Kosi and Tista. Another set of tributaries of the Ganga consists of the Chambal, Sind, Betwa, Son and Damodar. They rise either in the Vindhya or in the Chota Nagpur region. The total length of 2,525 kilometres is shared by Uttar Pradesh (1,450), Bihar (445) and West Bengal (520). The Ganga drainage basin encompasses an area of 861,404 sq. kms. in India alone.

The Ganga has a large number of spill channels running north-south to the Bay of Bengal. The largest and the most westerly is the Bhagirathi-Hoogly. About a century back it was the main channel of Ganga. Beyond Farakka, the other main stream of the Ganga that flows east-south eastwards into Bangladesh is known as Padma.

Before falling into the Bay of Bengal below Chandpur in Bangladesh, the Padma receives the Brahmaputra (known here the Yamuna) and the Meghna.

Brahmaputra

The Brahmaputra drains a smaller catchment than the Ganga or the Indus. Its drainage area is about 580,000 sq. kms. out of which 293,000 sq. kms. lies in Tibet and 47,000 sq. kms. in Bangladesh. It rises in Tibet and flows through Tibet, India and Bangladesh. Its total length is 2,580 kms. out of which 885 km. is in India. Its valley is comparatively thinly populated. In sharp contrast to the Ganga, the turbulent nature of Brahmaputra and the wayward nature of its various tributaries were not conducive to the settlement and

growth of vast populations. It is practically untamed and untapped.

In Tibet, the river is known as Tsangpo, meaning "the purifier". In India, it has the unique privilege of being called in masculine gender, though all the other Indian rivers are named in feminine gender. Its mighty and turbulent behaviour seems to justify such differential treatment. Rising at an elevation of 5,150 metres in the Himalayas, it flows east in southern Tibet parallel to the main Himalaya for 1,100 km. Its important tributaries in Tibet are Raja Tsangpo, Ngang Chu, Kyichu, and Grienda Chu.

The river enters India across Sadiya frontier tract, west of Sadiya town into the Assam valley. Here it is joined by two more tributaries, the Dibang and the Luhit, after which the river is known as Brahmaputra. This mighty river then rolls down the Assam Valley east to west for a distance of 720 metres with its channels oscillating from side to side and forming many islands.

Traversing round the spurs of the Garo hills near Goalpara, the river enters Bangladesh and flows foraa distance of about 270 km. across the alluvial plains of Bangladesh before joining the Ganga at Goalundo. The united stream of the Brahmaputra and the Ganga flows under the name of Padma. About 105 km. below Goalundo, the mainstream is joined on the left bank by another large river, the Meghna, having its source in the high mountains in Assam. From the confluences southward, the river now known as Meghna, makes a very broad estuary before it enters into the Bay of Bengal.

PENINSULAR RIVERS

Peninsular rivers can be considered under two categories, viz. Inland and Coastal.

The coastal rivers consist of a number of comparatively small streams all along the West Coast from Saurashtra to Cape Comorin and a few on the east coast near delta areas. There are as many as six hundred tiny streams which alone drain the western face of the Western Ghats. They have very narrow plains to cut across before they join the Arabian Sea, and are known for their steep slopes draining quickly the abundant rainfall experienced in their catchment areas.

The inland rivers of the peninsular comprise of Narmada and Tapti flowing towards the west, and the Mahanadi, Brahmani, Subranarekha, Godavari, Krishna and Cauvery which are all east flowing. These inland rivers (both east flowing and west flowing) have their origin in Central Plateau. These are also characterised by gentle gradients, their water courses having no sharp drops, and irrigation has a high claim over their water resources. However, these rivers are also important in that they are useful in power-generation, which is possible by building high dams in some upper reaches of these rivers.

Some of the important implications of Indian rivers are too clear. In India, the political boundaries are not drawn around drainage basins or along existing streams. The political boundaries of states in India have been drawn mainly

on a linguistic basis and do not coincide with the river basins. A glance at the map of India would show that none of its major rivers is confined to a single state, be it the Ganga in the north or the Kaveri in the south. Therefore, any endeavour for the exclusive control of the water of any river by any state, or even maximization of such control, has created tension among neighbouring states. Such conflicts have taken place between Mysore (now Karnatak) and Maharashtra over the Cauvery river and between Madhya Pradesh and Maharashtra over Tungabhadra River, among Tamil Nadu, Karnatak and Kerala over the Cauvery river and between Madhya Pradesh and Maharashtra over the Narmada river. While there are a score of such disputes on river waters between and among the component units of the Union of India, agreements have been reached on many disputes and presently the two most important disputes crying for some agreement again are on the waters of Cauvery and the Beas. The latter is a hotly contested issue between Punjab and Haryana.

PAKISTAN

The availability of water for agriculture has always been of vital importance to Pakistan.[21] The natural rainfall for crops is adequate only in the Himalayan foothills. Although use of underground water is increasing Pakistan may be said to be dependent on its rivers, and all its useful

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21 K.U. Kureshi, A Geography of Pakistan (Karachi, 1977), p. 25.

rivers are part of the Indus system. Smaller rivers, principally in Baluchistan, peter out in areas of inland drainage.

The Indus System: The Indus system includes a large number of tributaries, but the principal affluents are the Jhelum, Chenab, Ravi, Beas and Sutlej. Two of these, the Beas and the Sutlej, combine near Harike in India, before entering Pakistan. The Indus and its important tributaries traverse long distances through the Himalayas and Indian territory and have captured most of their flow before debauching into the plains of Pakistan.

The volume in the rivers is subject to vast seasonal and monthly fluctuations. It is small in winter, and increases gradually with the approach of summer, as the snows in the mountaineous catchment areas begin to melt.

In Baluchistan, the main rivers sprawl out in all directions. Rivers draining to the north-east and east of the main divide generally join the Indus System. These include the Zhob, with its main tributary the Kundar, the Loralai, and the Kulachi. The Bolan and Tula Rivers, flowing south or south east from the main divide, dissipate themselves in the Karachi-Sibi Plain. Southward flowing rivers drain to the Arabian Sea. The Hab, Porali, Hingol, with its main tributary, the Maskhai, are the chief of these. Rivers flowing west or south-west generally dissipate their water in shallow depressions of varying size called hamuns. The

more important of rivers draining into the inland basins are the Pishin Lora, the Baddo, and the Makhshan. The rivers of Baluchistan generally flow only during the rainy season, and some small rivers are dry not only for the greater part of the year, but for many consecutive years. Some of the larger rivers, such as the Zhoab, Lorailai, Pishin Lora, Hingol, Porali, and Hab, are perennial only in their lower reaches, and the volume of water is small except in the rainy season.

In spite of the arid climate, agriculture is the main occupation in Pakistan. This has been made possible by the fine network of irrigation canals, which is the world's largest single network. It is therefore rightly known as the land of canals.

BANGLADESH

On three sides Bangladesh has a common border with India. The country is a maze of rivers and their tributaries. It occupies the major part of the world's largest delta, namely the Genga-Brahmaputra delta. Bangladesh is a level land with only a few hill ranges in the east.

It is quite obvious that the numerous rivers which criss-cross Bangladesh are of fundamental importance to the life and work of Bangladesh. They have created the land and are still fashioning it; they serve as drainage channels, provide an abundant supply of fish and, with their numerous interconnections, they form perhaps the most complete and easy

system of inland navigation in the world. Above all, they act as a gigantic and efficient fertilizing agency for a large part of the country.

A vast amount of water flows through Bangladesh. It is estimated that in an average year 870 million acre feet (MAF) of water flows into the country from India. The amount of rainfall received within the country is estimated at 203 MAF. Evaporation, evapotranspiration, and deep percolation losses probably account for about 120 MAF. This means that about 953 MAF flow out to sea, 914 MAF through the rivers of the Chittagong Region and the eastern part of Noakhali.[22] However, there is a close correlation between the heavy monsoon rainfall and the flow through Bangladesh. Since nine-tents of the flow is received from outside the country, the rise and fall of the rivers is governed principally by the amount of rainfall in the Assam, Bhutan and Nepal Himalayas.[23]

The great rivers of Bangladesh are the Ganges (called Padma in Bangladesh), the Jamuna-Brahmaputra system and the Meghna. The Ganges reaches Bangladesh at the Western extremity of Rajshahi district, and after forming the boundary between India (West Bengal) and Bangladesh for 90 miles it enters Bangladesh. Flowing south-east, it receives the Jamuna (Brahmaputra) near Goalundo and, some 90 miles downstream,

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22 Haroun Er. Rashid, Geography of Bangladesh (Dacca, 1977), p. 55.

23 Ibid., p. 56.

the Meghna. The Jamuna-Brahmaputra system gathers the drainage of the Assam ranges and of the eastern Himalayas, areas of heavy rainfall.

Bangladesh is an agricultural country and has only a few industries. Hence the main use of water in Bangladesh is for irrigation. Though the problem with Bangladesh is the abundance of water in lean season, in some parts, the shortage of water affects its agriculture.

NEPAL

Nepal is a mountainous country that lies on the lap of Himalayas. There are many snow-fed rivers, which increase in volume in summer when the snow melts. The three main big rivers -- the Kosi in the eastern part, the Gandaki in the central part, and Karnali in the western part -- after breaking through the mountain barriers like the Tibetan plateau rim, the main chain of Himalayas, the Mahabharat Range, the Churea Range and turning to the east and the west, then draining almost all of Nepal, ultimately make their way to India and join the Ganges at several points. These first-grade rivers having a permanent source of snow and glaciers are full of water all the year round. Among these rivers, the Gandaki, the Bagmati, the Karnali, and the Kosi assume awesome forms in the rainy season on reaching the plains. After plunging through deep gorges, the waters of these streams drop their heavy sediments and debris on the plains. The presence of fertile alluvial soil at streams, confluences

or at valleys, is a major factor in determining areas of settlement, so the concentration of population is mostly along the river basins and valleys. The vast flow of water through a widely spread network of narrow river channels presents great possibilities for hydro-electric development such as those of Trisuli, Kosi, and Gandaki hydel projects. These rivers, if properly exploited, can lead to the generation of a good amount of hydro-electricity. The volume of water flowing in the second grade rivers, like the Bagamati, Kamala, Rapti and their tributaries originating from the springs of the Mahabharat Range, varies according to season though having a permanent source. The rivers originating in the Churean Range from the temporary source are third-grade. These are Sirsia (Bara Parsa), Bangari (Bara), Tilawa (Parsa), Hardinath (Mahottari) and Banaganga, etc. They get water mostly from the monsoon rains only. The important river systems of Nepal are, the Sapta-Kosi River System (seven rivers collectively known as Sapta-Kosi, the biggest of all rivers in Nepal are in the eastern part), the Gandak River System (of Central Nepal), and the Karnali River System (of Western Nepal). Other noteworthy rivers are Budhi Ganga, Madi, Rapti, the Bagmati, Kamala, Kankai and Babai.

BHUTAN

Bhutan situated in the Eastern Himalaya, borders upon Assam and Arunachal Pradesh in the east, the plains of Assam and Bengal in the south, Bengal and Sikkim in the west,

and Tsang (southern Tibet) and Chumbi Valley of Tibet in the north.

The rivers Manas, Sankosh, Raidak, and Torsa drain Bhutan. The Union of Lhobrak Chu, the Tashi Yangtse, the Bumthang, and the Tongsa forms the Manas, Bhutan's largest river. The Lhobrak Chu, the main tributary of the Manas, rises in the Tibet beyond the Great Himalaya. The Sankosh, the Raidak, and the Torsa, known in their upper courses in Bhutan as the Sankosh, the Wang Chu, and the Amo Chu respectively, flow to the plains of Bengal. The Sankosh is the dividing line between the Eastern and Western Duars as well as between Assam and Bengal. Alongwith its tributaries, the Wang Chu which rises in the south-western slopes of the 23,930 feet-high Chomolhari, drains the valleys of Thimpu, Paro and Ha. It joins the Brahmaputra at Kurigram. The Amo Chu which rises in the 15,219 feet-high Tang La, drains Western Bhutan and the entire Chumbi Valley of Tibet. The Amo Chu, known as the Torsa in its lower course, joins the Brahmaputra south of Alipur Dhar. The Dhansiri River forms the boundary between the lower parts of Bhutan and the north-eastern region of India. The Jaladhak River, called De Chu in the upper parts of its course in the hills, separates Bhutan from the Darjeeling and Jalpaiguri districts of North Bengal.

SRI LANKA

Sri Lanka is an island state in the south of the sub-continent. It shows a radical drainage pattern. All the significant streams take their rise in the hill country and,

with the exception of the Mahaweli Ganga, are relatively short. Despite their shortness, the rivers have a bad reputation for flooding as might be anticipated from their flatened long profiles. Extremes of variability of flow are characteristic of all the rivers, and many of these rise mainly in the dry zone, may dry up completely for a season. The Mahaweli Ganga is the only major river flowing through the dry zone which has an appreciable watershed within the wet zone; yet at Peradeniya close to Kandy, before it leaves that wet zone, its peak discharge of 180,000 cusecs contrasts with an average flow of 2,421 causecs. This river, more then 200 miles in length, follows a circuitous course through the hill country and then flows almost directly northwards before debauching into the sea just south of Trincomalee. The Aruvi Aru, 104 miles long, is the second longest river. The rivers, unimportant for navigation are important for irrigation. Torrential rains and steep slopes result in rapid run-off and flooding. Flood control presents a serious problem, especially in the south-western part of the island.

The general radical pattern of drainage combined with its incised nature makes it excessively expensive to attempt any major artificial readjustments in Sri Lanka hydrology by transferring surplus flow from wet zone to dry. So far schemes such as on the Gal Oya are limited to controlling water within a single catchment.[24] Sri Lanka,

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24 B.L.C. Johnson, South Asia (London, 1969), pp. 148-149.

launched in 1970 a massive project on the river Mahaweli-Ganga, known as the Mahaveli Project. It is a diversion project, with the aim of irrigating the eastern area where new settlements are proposed to be set up. The project when complete, is expected to make Sri Lanka self-sufficient in rice.

Political Boundaries in Relation to River Water Resources in South Asia - An Inter-Country and Intra-Country Situation

A simple fact fundamental river development everywhere is that 'rivers ignore political boundaries, that watersheds are not defined by political lines'.[25]

Water in its natural state has never respected man's political boundary lines.[26] As a result of its physical qualities the water which is today in state (x) and forms part of its territory flows tomorrow into state (y) and becomes part of that state's territory.[27] The U.N. study made the same observation. 'Even when a stream has been employed as the frontier feature between countries, water has opted in such a way as to shift its entire course or main

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25 Eric Johnson, "The Problem of Water: A Key to the Future in Middle East", New York Times, 19 October 1958, quoted in Samir N. Saliba, The Jordan River Dispute, 1968, p. 140.

26 U.N. Document, n. 4, p. 6.

27 Berber, n. 9, p. 4.

channel, or otherwise to create difficulties along the line of political demarcation'.[28] Thus the changing nature of the flowing waters, i.e. waters which flow from one sovereign state to another sovereign state, raises complicated questions in international law.

Moreover, man's activities along the stream in one state may cause interference with the uses to which the water may be put downstream, or on the other side, in another state.[29] Where waters drain and flow across political boundaries, other difficult problems may be presented when significant changes occur in water quantity or quality, or in the timing of the flow. For example, natural upstream erosion in one state may endanger downstream ports, channels and reservoirs in another state. Irrigation upstream may deprive a downstream state of adequate supplies of water for established navigation or municipal, industrial and agricultural uses: works, or lack of works, downstream may deprive an upstream state of the ability to use the river for navigation or timber floating. Pollution from uses upstream may make necessary expensive purification works in downstream states to avert danger to health and industry and to allow for future development. Ice formed upstream may break away and pile up in another state downstream, farming obstacles to navigation

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28 U.N. Document, n. 4, p. 6.

29 Ibid.

and timber floating, reducing flow and causing inundation and damage to life and property. These are only a few examples of transnational impact of water and water-related action where this resource flows, or cycles, over state-frontier.[30]

In South Asia, the major river systems, political such as the Indus, the Ganges and the Brahmaputra are not confined to any single country; they cross political boundaries -- both national and international. While it is true that river waters do not respect political boundaries the latter no doubt in many cases do pose problems insofar as the development of water resources are concerned. While it is agreed on all accounts that a river basin ought to be developed as a single unit, it is not easy to achieve it in the face of a political boundary which separates two peoples hostile to each other historically. The story of the Indus Water dispute which finally led to the partition of the basin and the quantitative division of water, precisely tells that while this dispute was already there between the two provinces of undivided India under the British Rule -- the East and West Punjab much before the partition cut across the Indus river systems, the drawing of the political boundary no doubt accentuated the feelings on both sides against each other.

Similarly, the Ganges, which is another international river, has become a subject matter of dispute since the time

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30 Ibid., p. 7.

of Indian proposal to divert some of its waters in lean season to flush off the silt in river Hoogly (which was earlier the main channel of Ganga) to resuscitate the Calcutta Port. The dispute over the sharing of its waters, popularly known as Farakka Dispute, is a much exercised dispute between India and Bangladesh. While both the countries have agreed that Ganga does not have sufficient water to meet their requirements, and alternative sources are to be tapped to augment its (Ganga's) flows, an agreement to this effect has been alluding both the countries till today.

Since almost all the rivers that rise in Nepal eventually flow into India, exploitation of water resources of Nepal is the most important aspect of economic relations between India and Pakistan. Here co-operation between these two countries is vital, without which the development of water resources and certain other measures like flood control, required for both the countries would be well-nigh responsible. While both the countries have cooperated to facilitate certain projects, the area of disagreement between the two is not small, insofar as certain other issues and projects concerned two countries are concerned.

Geographically situated as it is, India in South Asia is at the centre of international disputes and co-operation so far as river water resources are concerned. Political boundary in relation to river water resources is also an intra-

country situation and again India is the glowing example as its political units have had a number of disputes over river waters. Especially the Ravi-Beas water disputes between Punjab, Haryana, and Rajasthan has defied solution for a very long time.

India has a network of long rivers -- most of which run across more than one state -- and some like Ganga and Brahmaputra across more than one country. This country, as a developing one, badly needs irrigation and electricity, and protection for devastating floods, but unfortunately, many projects are bogged down in inter-state disputes.

CHAPTER II

CHAPTER II

MAJOR ISSUES RELATING TO DISTRIBUTION AND EXPLOITATION OF RIVER WATERS

Upper and Lower Riparian Rights

Publicists have approached the problem of the uses of waters flowing through more than one state by espousing (1) the principle of unrestricted territorial sovereignty under which a state is free to take any action regarding waters within its own territory without regard to the interests of other states; or (2) the principle of absolute riparian rights under which a state is entitled as against an upper riparian state to the continuance of the natural flow of a river in its own territory and is not allowed to alter conditions there to the detriment of a lower riparian state; or (3) some concept of a restriction on the right of a state to use the waters of an international river without regard to injurious effects on neighbouring states.[1]

It is not difficult to agree that of the different theories of water rights, some are of the extreme type. The principle of unrestricted territorial sovereignty, which has gone by the name of 'Harmon doctrine', obviously falls

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1 Marjorie M. Whiteman, Digest of International Law, Vol. 3, Deptt. of State Publication 7737 (October 1964), p. 921.

into the later category. The US Attorney-General, Harmon enunciated in 1896 that every nation has absolute sovereignty of the waters flowing in its own territory. The Attorney-General based his argument on the premise of the territorial jurisdiction of the sovereign state to justify the action of the United States in reducing the flow of the river Rio Grande which was ordinarily used by the people in Mexico. This doctrine found favour with upper riparian states, while the lower riparians considered it totally unjust. The doctrine was expressly reserved in the American-Mexican Treaty of 1906 and it continued to receive lip service by the United States until 1939. But it was expressly disclaimed as a principle of municipal law in 1922 by the U.S. Supreme Court. The doctrine has not been applied by the United States during its negotiations with Mexico since 1944. The United States also assumed a radically different attitude and repudiated the doctrine when as a lower riparian on the Columbia river the application of the doctrine would have operated to its distinct disadvantage.[2] The doctrine has been rejected by Smith as 'essentially anarchic ... permitting every state to inflict irreparable injury upon its neighbours without being

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2 State Department Memorandum, Legal Aspects of the Use of Systems of International Waters, quoted by V. Ramaswami, "Law Relating to Equitable Apportionment of the Waters of Inter-State Rivers in India", Journal of the Indian Law Institute, vol. 20, no. 4, October-December 1978.

amenable to any control save the threat of war'.[3]

The principle of absolute riparian rights is another view, which is derived from English common law principle of riparian rights. This principle is that every riparian proprietor is entitled to the water of the stream in its natural flow without sensible diminution and and without sensible alteration in its character or quality. Pushed to its logical conclusion this principle would enable a state at the mouth of a big river to insist that no state higher up shall make any substantial diminution in the water which comes down the river. There may be desert areas in the upper states needing irrigation and there may be vast quantities of waters running waste to the sea past the lower states, nevertheless on the application of this common law principle a lower state can insist that the water shall flow down the river without sensible diminution, even if this means that the upper desert areas shall for ever remain desert.[4]

The third principle which has been advocated is that of 'equitable apportionment'. According to this theory, every riparian state is entitled to a fair share of the waters of an inter-state river. What is a fair share must depend on the circumstances of each case, but the river is

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3 H.A. Smith, The Economic Uses of International Rivers (London, 1931), pp. 144-145.

4 Ramaswami, n. 2., p. 506.

for the common benefit of the whole community through whose territories it flows even though those territories may be divided by political frontiers. This concept obviously envisages the distribution of the waters of an international river on the principle of maximum benefit for each co-riparian state with the minimum of detriment to each.

The concept of equitable apportionment has been discussed and debated upon in practically all the river water disputes that have been decided by international tribunals, U.S. Supreme Court and other bodies. The Committee of the National Reclamation Association of USA,[5] in its report, pointed out that many factors may be involved in the determination of equitable apportionment of the waters of inter-state streams, and the United States Supreme Court has not announced any specific formula. Each case is considered on the basis of facts involved. The report states that judicial process is not a suitable process for solving inter-state controversies as it is too fixed to meet the changing needs of the region. It points out that if states want to exercise their legitimate functions respecting the water resources they should be active in adjusting controversies. The Chairman of the Committee of

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5 US, National Reclamation Association, Preservation of Integrity of State Water Laws: Report and Recommendations, October 1943, quoted by M. Basheer Hussain, Indian Journal of International Law, vol. 7, 1977, p. 49.

the National Reclamation Association, Clifford Stone, pointed out significantly that one principle of equitable apportionment is that a lower state cannot call upon an upper state to release water unless it has made full use of the water available to it. The very basis of rights in water is the beneficial use and unless one state has used its own waters it cannot claim other waters for beneficial use. In the distribution of the quantum of waters the factors to be taken into consideration are:

> For example, studies were made of the potential use of water in each state, the total quantum of water available, the economy of the engineering works necessary for the utilisation of water in each state, the contribution to the total water by catchment in the concerned states. All these factors and the existing developments are taken into consideration and the margin of disagreement which is subsequently a matter of bargaining or horse trading, is limited to a very narrow field -- something of the order of 10 per cent of the total was involved. 6

There has been much concern in recent years in regard to the paucity of recognised principles of law for application to the development of international rivers. It is on account of the fact that the concept of 'development' of river systems as entities is quite new. Hydro-economy in the present sense of the term dates only from the turn of the century and is the product of a rapid development in technology.[7] Formerly, as has been already pointed out, the

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6 Niranjan D. Gulhati, Indus Waters Treaty: An Exercise in International Mediation (Bombay, 1973), p. 78.

7 Research Project on the Law and Uses of International Rivers, University School of Law, New York.

known methods of utilization of water did not give rise to serious international questions except in the field of navigation. But the diversion of waters and other artificial interference with the natural course of international rivers, has created new problems for international law as there are conflicting opinions about the prevalent rules, if any, of the international law for equitably settling these disputes. The urgency in the matter was felt by the U.N., when the General Assembly in Resolution 1401 (XIV) of 21 November 1959, decided that "preliminary studies" should be initiated on the legal problems relating to the utilization and use of international rivers with a view to determining whether the subject was appropriate for codification.[8] Since then official agencies of the U.N., viz. WHO, FAO, IMCO, ECE, and ECAFE and other international non-official agencies, viz. the International law Association are involved in the matter and consider it on priority basis. The General Assembly, in its Resolution 2669 (XXV) of 8 December 1970, called for the development and codification of the rules of international law relating to international water courses and ... to urge early consideration of the topic by the International Law Commission.[9] But with regard to the task of codifying the law of the International Rivers,

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8 U.N. Document, Management of International Water Resources: International and Legal Aspects, ST/ESA/5, Sales No. E.75.II.A.2 (New York, 1975), p. 1.

9 Ibid.

the International Law Commission has not started detailed treatment of the subject.[10]

The International Law Association (ILA), a non-governmental agency, devoted its attention to evolve certain rules for the use of waters of international rivers. The Association at its New York Conference in 1958, unanimously agreed that the best way to apportion waters of an international river is to 'treat the entire basin as an integrated whole and not piecemeal.'

According to the basin concept, the water resources of a drainage basin comprise both the surface waters within the basin's total watershed and the underground water resources that are physically interconnected into one system of waters.[11] The basin is a naturally delimited area within which the waters appear and are stored or discharged to the common terminus. Changes, natural or man-made, within the basin are likely to produce effects only on the water resources within that basin. The basin concept provides, therefore, a much needed rational basis for dealing with non-maritime water and water-related problems.

With the unanimous agreement on basin concept, the work of the ILA finally culminated in the adoption of the Helsinki Rules in 1966. According to the Helsinki Rules,

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10 S.P. Jagota, "The Role of International Law Commission in the Development of International Law", Indian Journal of International Law, vol. 16, 1976, p. 468.

11 U.N. Document, n. 8, p. 7.

the following factors have to be taken into consideration in determining the equitable share of international river waters:

Article V:

(1) What is a reasonable and equitable share within the meaning of Article IV is to be determined in the light of all the relevant factors in each particular case.

(2) Relevant factors which are to be considered included but are not limited to:

(a) the geography of the basin, including in particular the extent of the drainage area in the territory of each basin state,

(b) the hydrology of the basin, including in particular the contribution of water by each basin state,

(c) the climate affecting the basin,

(d) the past utilization of the waters of the basin, including in particular existing utilization,

(e) the economic and social needs of each basin state,

(f) the population dependent on the waters of the basin in each basin state,

(g) the comparative costs of alternative means of satisfying the economic and social needs of each basin state,

(h) the availability of other resources,

(i) the avoidance of unnecessary waste in the utilization of waters of the basin,

(j) the practicability or compensation to one or more of the co-basin states as a means of adjusting conflicts among users, and

(k) the degree to which the needs of a basin state may be satisfied, without causing substantial injury to a co-basin state.

(3) The weight to be given to each factor is to be determined by its importance in comparison with that of other relevant factors. In determining what is reasonable and equitable share, all relevant factors are to be considered together and a conclusion reached on the basis of the whole.

The efforts of the ILA culminating in the Helsinki Rules is certainly laudable. But it can be said that these rules cannot be mechanically applied to all river basins without causing injustice to one party or the other. The concept of drainage basin, as defined by the Helsinki Rules, does not seem to have found general acceptance as it is considered to be too broad a concept.

The Helsinki Rules certainly mark an improvement on the concept of prior appropriations. The concepts like 'historical flow', 'natural flow' and 'rule of prior appropriation' are inconsistent with the modern practice. Of course, there are various views as to what the law of prior appropriation should be:

> Some take the position that a pre-existing use shall be given preferred treatment and that only overriding public interest can justify refusing protection to a prior appropriation, and that only with proper reparation. On the other hand, there are those who reject the doctrine of prior appropriation and maintain that it should not be applied in international dispute because it is often wasteful and is not conducive of optimum economic development of the river and drainage basin.

> Falling somewhere between these two views is the one maintained by those who believe that while prior appropriation is an important factor, it should not be applied as an abstract absolute that would stifle progress. 12

Here in this context, mention may also be made about the statement of the U.N. Report on Legal Aspects of Hydro-Electric Development of Rivers and Lakes of Common Interest:

> Even where by virtue of an ancient right on special circumstances one use is of paramount importance, this should not put an absolute veto on the complete economic development of the waterway, but should merely impose certain substitutes on subsidiary rules. 13

The picture today is perhaps not as gloomy as is suggested by Harting when he says, "there is only one rule and that is that there is no rule at all'.[14] More stress is being given by the state parties on the Helsinki Rules while basing their arguments on the rules regarding the apportionment of waters of an international river. While difficulties still remain with the Helsinki Rules, these however are the best in the present context, as it advocates the concept of 'equitable apportionment' which compromises the two extreme concepts, viz. 'the theory of absolute

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12 Jerome Kipper, "Equitable Utilization", in A.H. Garretsen, R.D. Hayton and C.J. Olmstead, eds., The Law of International Drainage Basins (New York, 1967), pp. 50-51.

13 U.N. Document, No. E/ECE/136 (1952), p. 36.

14 Proceedings of the Dubrovnik Conference, 1958

sovereign rights' and the 'absolute riparian[illegible]l rights'. The equitable utilization theory, to cite another authority on the subject, has become the most widely advocated by the international legal community, as evidenced by treaties, judicial decisions, academics and international bodies.[15]

However, the fact remains as David Le Marquand writes: 'Despite the apparent consensus, the equitable utilization and related supporting principles do not provide a clear-cut guideline for international agreement that can overcome a country's disinclination to accept agreement on what it feels may be unfavourable terms.'[16]

Similarly Ved P. Nanda, another celebrity on the issue of International Law and International River Waters, writes: 'It seems that although the interplay over a period of the last several decades between customary practices and specific multilateral, regional and bilateral treaties has resulted in some broad, general guidelines on the use of international water courses, on cohesive body of rules has yet not been widely accepted by states'.[17]

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15 Utton, "International Water Quality Laws", 13 Nat. Res. J. (1973), quoted by Albert E. Utton and Ludwick Teclaff, eds., Water in a Developing World (Colorado, 1978), p. 154.

16 David Le Marquand, "Politics of International River Basin: Cooperation and Management", in Ibid., p. 155.

17 Ved P. Nanda, "Emerging Trends in the Use of International Law and Institutions for the Management of International Water Resources", in his own edited book, Water Needs for the Future (Colorado, 1977), p. 34.

He further states:

> However, while there seems to be consensus that territorial sovereignty and integrity have to be limited, no generally agreed formulation exists of the criteria to be used in weighing and balancing the co-riparians' interests. The often-used prescription -- prohibition from causing substantial damage or injury to a co-riparian -- is negative, again lacking precision. 18

Unresolved Issues and Changing Concepts

With scientific progress and technological innovations, concepts in water management have undergone change. Until recently, rivers were harnessed with a single purpose in view, according to the needs of a particular community. But this was resulting in the haphazard development of a river basin. It became increasingly apparent that integrated development of water resources of a river basin, could only serve the best interests of the community. The concern for integrated basin development came to be reflected in the United Nations Report in 1958.[19] The stress was to put the river basin to the maximum use by planned and long-range development. Such an integrated development, it was believed, would achieve full exploitation of water resources, which would have its impact on practically every phase of economic activity,

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18 Ibid., p. 35.

19 U.N. Document, Integrated River Basin Development: Report of a Panel of Experts, Sales No. 58/IE/B.3, (1958).

viz., agriculture, industry, transport, social services, etc. Obviously, the emergence of the international river basin concept was in keeping with the growing concern for 'integrated development'.

The shift from the 'International drainage basin concept' to the 'International Water resources system concept' is the most recent development. The latter concept allows the optimum utilization of all water resources. White, an authority on Water, is of opinion that today the concept of integrated river development plays a less central part in thinking about water management than in the 1950s.[20] The major changes have to do with perspective on what constitutes development in world context. The system concept, encompasses 'a complete transnational, non-maritime hydro system', by recognising (1) thewalue and functioning of all portions of the hydrologic cycle -- surface water, ground water, and atmospheric water; (2) international frozen water resources including glaciers and polar ice; and (3) the many inter-relationships which exist among various natural and human resources affected by such a system.[21]

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20 Marjorie M. Whiteman, "Introduction", in Utton and Teclaff, n. 15, p. 2.

21 U.N. Document, n. 8, p. 12.

It is but obvious that the nation states have not been able to keep pace with the changing concepts of water management. When uncertainties and disagreements still prevail over the river basin concept, it is too much to expect states to go a step beyond and embrace a global approach in water resource development.

As will be seen in the subsequent pages, India's proposal for Brahmaputra-Ganga Link Canal, is a proposal in the direction of optimum utilization of water resources of the region, whereas Bangladesh is only inclined to treat the two basins (the Brahmaputra and the Ganges) as independent ones. In India, the proposed Ganga-Cauvery link, is a similar proposal for transfer of water from one basin to another. Such transfer may be necessary to meet the pressing need of water in another basin. There are many examples of such transfer in India in the past. A portion of Periyar river has been diverted to Vaigai to feed the parched lands in Madurai district. Similarly, some of the chronically affected drought areas of Rayalaseema are irrigated partially from Krishna waters by transfer to Pennar basin through Kurnool-Cuddapah Canal and partly by the high and low level canals from Tungabhadra dam. Rajasthan deserts are also supplied water from Indus System.[22] Such examples are also found elsewhere in the

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22 K.L. Rao, India's Water Wealth (New Delhi, 1975), p. 213.

world. Without such transfer, the parched lands would remain parched for all time to come.

What exactly constitutes a river basin, is still a fundamental issue. Does it include only the areas within the watershed determined strictly according to the geographical consideration? In one of the earlier decisions on Colorado, the basin is defined as any area in the United States where beneficial use of Colorado waters could be made.[23] Opposed to this view is the other view that watershed boundary provides a definite area within which to ration the waters. Departure from the stand would mean no end to the claims that may be made on the scarce resource.[24] Similarly, the transfer of in-basin areas of a basin to a non-basin state raises complicated questions. Such transfer, it is contended changes hydrological status.[25] The reorganisation of the United Punjab into Punjab and Haryana, has precisely raised this question, whereby the latter has been rendered non-riparian according to the contention of Punjab.

Similarly, the rational basis for equitable apportionment of river waters is not fully settled. It is because causing injury or damage to a riparian by any method of appropriation by another cannot be altogether

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23 Ibid., p. 213.

24 See Dhillon, The Tale of Two Rivers (Chandigarh, 1983), p. 23.

25 Ibid., p. 13.

avoided. Even the most equitable utilisation of water is bound to cause injury to the neighbouring state.[26] But what can be avoided is substantial injury, which can only be determined by the technical experts. For example, in case of inter-state rivers in India, if utilization of surface waters of a river in one state can be compensated adequately by tapping underground water resources in the neighbouring states, it cannot be said that the latter is injured.[27]

Despite a significant trend towards cooperative action by states on international water course, states are still split on the appropriate scope of the definition of an international water course for the purpose of studying the legal aspects of the uses and pollution of such waters. In reply to an International Law Commission questionnaire[28] in 1976, several states expressed opposition to the use of an international drainage basin concept as the appropriate basis for a study of the legal aspects both of non-navigational uses and the pollution of international water courses. Poland suggested that from the legal point of view

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26 Garreston, Hayton and Olmstead, n. 12, p. 45.

27 M. Basheer Hussain, "The Law of Inter-State Rivers in India", The Indian Journal of International Law, vol. 17, 1967, p. 51.

28 U.N. Document, The Law of Non-navigational Uses of International Water Course, A/CN.4/294 (1976), pp. 8-9.

one can not speak of the unity of the international drainage basin extending on the territory of more than one state until the states of the basin will not recognise the restriction of their territorial sovereignty on internal waters under their control.[29]

Issues relation to priority of Uses - Existing Use vs. New Use - Sharing of Costs and Benefits - Pollution and Ecology

As has already been pointed out, the river water has uses such as irrigation, navigation, hydro-electricity, fishing, municipal and recreational needs. When one use competes with another, the question arises as to which one should be given priority over the other. It requires delicate balancing to give greater weight to a particular use. Under the principle of equitable apportionment, obviously, greater weight ought to be given to the uses of great benefit. But whether a particular use is of 'great benefit' will remain a matter of dispute. While the survival of 'Calcutta Port' may be of greater importance to India, 'Pisciculture & ferry transport' may be the same to Bangladesh.

Similarly, when a 'new use' comes to affect an 'existing use', the question arises which should be given preponderance over the other. This is invariably a problem

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29 Ibid., p. 39.

between the upper and the lower riparians. Demand for protection of existing use has its corollary in the theory of 'prior appropriation'. The Helsinki Rules also take into account the 'past uses' among other factors. Diversion of Ganga water at Farakka by India to flush off the silt of the Calcutta Port, is a 'new use' as alleged by Bangladesh at the cost of 'existing uses' of Padma (Ganga) basin in Bangladesh. In the Cauvery Water Dispute between Karnataka and Tamil Nadu, these issues have been raised. People in the upper Cauvery basin have become irrigation-conscious only recently. Can they be denied a right to irrigation only to protect the rights of past uses in the lower basin in Tamil Nadu?

Difficulties also arise in working out an equitable division of costs and benefits, when developing a river basin requires the co-operation of the two contries. Flood control measures in one state may also require action in another state, where some area may be submerged by the storage dam. Thus the potentiality for storage may be in one state, and potentiality for use in another state. As was the case with the Columbia river, undeveloped natural storage sites were in Canada and the natural hydro-electric power sites were in the United States. Agreement on the Columbia river was bedevilled, for a long time, by these types of problems. Little progress was possible so long as each party insisted on the maximum benefits for itself. But

once the parties became willing to share in the costs and benefits, a constructive settlement was facilitated.[30] Certain projects of great importance like 'Karnali' and 'Pancheswar' in Nepal have been bogged down for years, because of this problem of apportioning costs and benefits between Nepal and India. The proposed Brahmaputra-Ganga link Canal also involves this problem of sharing costs and benefits. The problem of equitable division of sharing costs and benefits is further complicated by the wide range of alternative schemes of development which can be drawn for most rivers, each of which entails different distribution of costs and benefits.

Dispute between two riparian states may arise not only for the 'quantity' but also for the 'quality' of the river water. A river is not only a source of supplying water, but also a means of drainage and disposal. An upper riparian may harm a lower riparian by harmful discharges into the stream. The United States had to desalt part of the water it passes on to Mexico on the Colorado River.[31] In South Asia, it appears, 'pollution' is not that great 'issue' as the quantum of water. Nonetheless, 'effects on aquatic life' and 'effects on plant growth' are the issues

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30 See, David Le Marquand, "Politics of International River Basin: Cooperation and Management", in Utton and Teclaff, n. 16, p. 151.

31 In 1971, the United States agreed to build a desalting plant to treat irrigation waters flowing to Mexico.

for which concerns havebbeen shown in South Asia. Bangladesh has raised complaints that 'Farakka' has had a disastrous impact on acquatic life (i.e. fish) in its western part. Similarly, the Silent Valley Project (a hydro-electric project) in Kerala had to be abandoned for the greater concern for the green forest and the ecology in general.

CHAPTER III

CHAPTER III

INTERNATIONAL BOUNDARIES AND INTERNATIONAL RIVERS: DISPUTES RELATING TO THE INDUS AND THE GANGES

The international rivers and their basins, since the beginning of the civilization, have been the prime determinants of economic development in the regions they flow. The rivers of China, India, Iraq, Egypt, France, Germany and England have played important roles in their country's history and economy. Dozen of other rivers in the Americas and elsewhere are equally noteworthy. Some of these international river basins cut across frontiers, others form the frontiers themselves. Creation of new states has also led to the drawing of new boundaries across and along the basins, and as a result the number of international rivers has steadily increased. The international frontier, when it runs across or along a river, at times, creates psychological barriers to the development of basin as a hydrological unit, which is often more difficult to remove than the physical obstacles. The allocation and development of fresh water for various needs can provoke intense rivalries among the riverine states. Thus the rivers have been the raw nerves of contention among people living along their banks, and also with understanding, the channels of peaceful co-operation.[1] This is true of more than one hundred streams

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1 Gilbert F. White, "River Basin Planning and Peace: The Lower Mekong", in Saul B. Cohen, ed., Geography and the American Environment (Voice of America Radio Programme, 1968), p. 203.

that cut across international boundaries. While this is also true of the thousands of rivers that rise and reach the sea within the area of a single country, these, unlike the international streams, are not so difficult to develop. Generally, the task of developing the international stream is slower, because of the greater complications involved in getting more than one nation to co-operate. Europe, where such major rivers as the Danube and the Rhine are located, was among the first regions of the world to face the problem of river basin management and to arrive at solutions of conflicts over water rights through peaceful adjustment. During the 19th century, Europe was experiencing a commercial and industrial revolution which put heavy demand on water and which required a reconciliation of the conflicting interests of the sovereign states and principalities. The latter upto that point had jealously guarded their own stretches of the continent's longest rivers — the Rhine and the Danube. In the early middle and 20th century, major North American rivers, such as the Columbia, the Rio Grande, the Colorado and the St. Lawrence, came to be placed under systems of international administration. Today no continent remains immune to the world's increasing experience with integrated river management, and co-operative settlement of disputes. In the second half of this century, such major rivers as the Nile in Africa, the Indus and the Mekong in Asia, have been placed under systems of international administration.

The Mekong (the Lower Mekong Basin of Southeast Asia), provides a unique illustration of river basin development and co-operation. The basin has been planned and executed by the United Nations Economic Commission for Asia and the Far East. The river Mekong rises in the high mountains of the Great Tibetan plateau, flows through mainland of China, and from there into the territory of Burma, Laos, Thailand, Cambodia and the Republic of Vietnam. The Lower Mekong Basin includes Laos, Thailand, Cambodia, and the Republic of Vietnam. Water management in the Lower Mekong Basin is intended to bring benefits in at least five ways: (i) irrigational facilities and a second crop during dry season, (ii) generation of low cost electric power, (iii) river transport facilities, (iv) fishing in both stream and lake, (v) reducing the disrupting effects of floods. All these benefits are also expected to generate many other allied benefits. It has been observed that the key factor in the remarkable success of the Mekong venture, has been the U.N. presence. Though the Mekong Committee was in the charge of this basin, its statute was drafted by the office of the Legal Affairs of the United Nations. A total of sixteen U.N. agencies co-operated with this committee in its various stages of development. The technical experts were provided by the United Nations Development Programme. The international co-operation in the Lower Mekong is all the more remarkable, for the international tensions and

bitter guerilla warfare, for which the region is so distinguished.

Though there are more than 300 agreements between and among states on international water courses,[2] there are also some disputes which are yet to find agreeable settlement. We discuss below two disputes, one which has found settlement (The Indus Water Dispute) and the other (The Ganges Water Dispute) where agreements have been ad hoc and need long-term settlement.

I

THE INDUS WATER DISPUTE

In 1947 when the Indian subcontinent was partitioned between India and Pakistan, the political boundary between the two on the west was drawn right across the Indus basin, leaving India and Pakistan respectively as up-stream and down-stream riparian states. The partition left the head-waters of the Chenab, Jhelum, Ravi and Sutlej, and the whole of the Beas in India, while the greater portion of the Indus proper and the lower courses of the Jhelum, Chenab, Ravi and Sutlej lay in Pakistan. In addition, the boundary cut across the canal system built by the British, as out of twenty-three canals, only two lay in India as against twenty in

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2 See, U.N. Document, Legal Problems relating to the Non-Navigational Uses of International Water Courses, A/CN.4/274 (1974).

Pakistan, while one was divided between the two. The partition left India in control of the headworks of the three rivers which fed the canals.[3] Pakistan received the larger part of the irrigated lands while India got lands with meagre irrigation facilities and could be developed only by the use of the river waters.[4] By partition 21 million acres of irrigated land went to Pakistan and only 5 million acres of irrigated land came to India. Thus, 25 million people in Pakistan who depended on the Indus had 21 million acres of irrigated land while 21 million people on the Indian side had only 5 million acres of irrigated land and about 35 million acres were crying out for irrigation on the Indian part of the Indus basin.[5] In contrast, India's contribution to the flow, from its catchment, was 69 per cent while Pakistan's was only 19 per cent and that of Tibet and Afghanistan 12 per cent.[6]

The Standstill Agreement And Its Aftermath

The Indian Independence Act of 1947, the Boundary Commission, and the Arbitral Tribunal which was established

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3 K.P. Karunakaran, "Relations with Pakistan", in India in World Affairs, 1950-53 (Calcutta, 1958), p. 185. Also see, The Indus Water Dispute - Facts and Figures (Delhi, Publications Division, 1954).

4 Marjorie M. Whiteman, Digest of International Law, vol. 3, Deptt. of State Publication 7757, October 1964, p. 1023.

5 See A.N. Khosla, "Development of Indus River System - An Engineering Approach", India Quarterly, vol. XIV, no. 3, July-September 1958, pp. 239-43.

6 Ibid., p. 233.

to resolve questions arising out of partition did not specifically provide for the continuation of water deliveries from India to Pakistan. Sir Cyril Radcliffe, the Chairman of the Punjab Boundary Commission, expressed the hope that "a solution may be found by agreement between the two states for some joint control of what has hitherto been a valuable common service". He made it no secret that the task of demarcating the new boundary between East Punjab and West Punjab was "complicated by the existence of canal system". Radcliffe had stated:

> I am entitled to assume with confidence that anyaagreement existing at the time of partition as to the sharing of the waters of these canals, or otherwise, will be respected by whatever Government thereafter assumes jurisdiction over the headworks concerned. 7

As Radcliffe's proposal "that Punjab water system should be a joint venture run by both countries", did not find favour with either country, the only thing they could agree upon was the 'Standstill Agreement' to continue the status quo till 31st March, 1948.

The Standstill Agreement came to an end in March 1948 and Pakistan did not show any interest in renewing it. Eventually a new agreement was negotiated and signed in May 1948. In this agreement, Pakistan had agreed to the Indian position in regard to the canal waters problem.

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7 See, Karunakaran, n. 1, p. 185. Pakistan's contention on the issue was based on this statement of Radcliffe.

The Inter-Dominion Agreement of 7 May 1948, was signed by the Prime Minister of India and the Finance Minister of Pakistan. According to this agreement, India was to diminish the supply of water to the Pakistani canals gradually and Pakistan was expected to tap alternative sources of supply. Pakistan recognised India's anxiety to develop her vast areas where water was scarce.[8]

The 1948 Agreement worked smoothly for about one year. Later, Pakistan's Prime Minister began to allege that the agreement was signed under duress, i.e. it was a forced one. The Indian Government maintained that it could not recognise unilateral termination of a bilateral agreement which did not provide for such termination.

Pakistan could not tap within a short period alternative sources of water as per the terms of the 1948 Agreement. She wanted water supplies to be continued from East Punjab without any diminution. Tapping alternative sources, however, required an investment which Pakistan was not willing and perhaps unable to make.[9] The canal water dispute was an additional argument in Pakistan's case on Kashmir, and it provided an emotional base for the antipathy towards India in the minds of the people of West Punjab in

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8 See the Text of the Indo-Pak Joint Agreement on Canal Water Dispute Issued in New Delhi on 7 May 1948, in Foreign Policy of India: Texts of Documents, 1947-59 (New Delhi: Lok Sabha Secretariat, December 1959), p. 7.

9 Sisir Gupta, "The Indus Water Treaty, 1960", Foreign Affairs Reports (New Delhi), vol. IX, no. 12, December 1960, p. 155.

Pakistan.[10] Thereafter Pakistan insisted that she had legal rights over all the waters as the lower riparian State and made efforts to refer the matter to the International Court of Justice. India opposed the move on the ground that there was no precedent of a river dispute having ever been referred to the Court; moreover, such a procedure would only delay a settlement, while India needed an agreement urgently. In the early years of the dispute, India's anxiety was for an early settlement, just as Pakistan's was for continuing the status quo.[11]

Behind the unilateral termination of the 1948 Agreement were the apprehensions of the Pakistan Prime Minister, which were based on the progress of irrigation projects in India. The Indian Government was justified in developing her own territory, but in this executing her five-year plan she had not done anything contrary to what had been agreed upon in the 1948 Agreement. Pakistan's contention, that this question of the execution of the Five Year Plan in this area was the very question to be adjudicated obviously looked fantastic to India. In a letter of 24 November 1950, the Indian Prime Minister stated:

> In our view there is sufficiency of water in the Indus basin for all your purposes as well as ours provided that we approach the problem in a spirit of accommodation. We have persistently urged a joint inquiry to

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10 Ibid., p. 155.

11 Ibid., p. 155.

> confirm this but Pakistan has avoided such an investigation. That I venture to say is no reason why the development of East Punjab should be held up. 12

While Pakistan's insistence was to refer the matter to the International Court of Justice, India offered to refer the matter to a tribunal consisting of equal number of Judges from India and Pakistan. Pakistan did not agree to this proposal, as it felt that matters would be deadlocked. India then proposed that any deadlock could be referred to another tribunal consisting of additional number of judges. This proposal was rejected by Pakistan and was characterized as a scheme of 'endless delay'. The Indian Prime Minister also proposed that no proper consideration of the canal water's question could take place without a technical survey carried out by engineers. This instead of delaying matters would rather expedite them.

Mediation by the World Bank

The World Bank offered its good offices to India and Pakistan to settle the dispute. In doing this, the Bank was encouraged by the possibility of a technological and engineering solution of the problem.[13] Thus encouraged, the IBRD President, Eugene R. Black, broached the matter to

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12 Karunakaran, "Canal Water Dispute", India in World Affairs, 1950-53, n. 3, p. 186.

13 Such a possibility was mooted by David Lilienthal, who was associated with the Tennese Valley Authority (TVA), in his writing "Another 'Korea' in the Making?", The Collier's (July-Sept. 1951), no. 5, 4 August 1951, pp. 22, 58.

the Prime Ministers of India and Pakistan. Both the Governments accepted the offer. The Bank suggested that during the period of negotiations, neither side should take action to diminish the supplies available to other party for 'existing uses' -- a restriction which applied to India only since Pakistan did not supply any water to India. The Indian Government's acceptance contained a reservation that work on the Bhakra Canals, which had been going on before the partition would not be interrupted.

The World Bank set up in March 1952 a Joint Working Party, consisting of an engineer each from India and Pakistan, and a third selected by the Bank, for investigating the water resources of the Indus Water Basin and preparing a comprehensive plan for its utilization by the two countries. But, because of the divergent views of the Indian and Pakistani engineers, the Group was unable to prepare any mutually agreed plan even after several meetings. It was ultimately agreed upon that the Indian and Pakistani representatives should submit their separate plans, which they did. The Pakistan Plan was confined to the Pakistani part of the basin. The Indian plan provided for both the countries. Their approaches to the problem were widely divergent. In the words of the Bank:

> ... The plans put forward by the two sides differ fundamentally in concept. An essential part of the Pakistan concept is that existing uses of water must be continued from existing sources. Moreover, 'existing uses', in the Pakistan plan, include not only the amounts of water that have actually been put to use in the

> past, but also allocations of water, which have been sanctioned prior to partition, even though the necessary supplies have not been available for use. This concept protects Pakistan's actual and potential uses on the eastern rivers and reserves most of the water in the western rivers for use in Pakistan.
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> The corresponding concept of the Indian plan, on the other hand, is that although existing uses (here defined to include only actual historic withdrawals) must be continued, they need not necessarily be continued from existing sources. This concept permits the water in the eastern rivers, which is now used in Pakistan to be released for use in India and replaced by water from the western rivers. 14

As the approach to the problem by the two sides was widely divergent, the Bank, on the basis of the plans of the two sides and the deliberations of the working party, put forward on 5 February 1954, a proposal for a plan for the development and use of the Indus Basin Water.

Briefly, the Bank proposals[15] were:

(a) the water of the three Eastern Rivers (Ravi, Beas and Sutlej) should be for the use of India;

(b) the water of the three Western rivers (Indus, Jhelum and Chenab) should be for the use of Pakistan;

(c) there should be a transition period, during which Pakistan would construct a system of link canals to transfer water from the Western Rivers to replace the irrigation uses in Pakistan hitherto met from the Eastern Rivers; and

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14 International Bank for Reconstruction and Development, Press Release, No. 380, 10 December 1954, App. I, p. 4.

15 For summary of Bank proposals, see Indian Yearbook of International Affairs (1959), pp. 59-60.

(d) India should pay the cost of constructing these replacement link canals.

Under the Bank proposals, India was to bear the costs of the link canals in Pakistan 'to the extent of the benefits to be received by her therefrom'. This sum was estimated to amount between Rs.400 million and Rs.600 million. Under the proposals, India was to receive 20 per cent of the total flow of the Indus basin rivers for its more than 30 million acres of cultivable area, while Pakistan was receive 80 per cent for its 39 million acres.

The Bank's proposals differed from that of Pakistan which had contended till now that existing uses were to be met from existing sources. It, however, recognised Pakistan's claim to water to the extent of providing that India should pay the cost of building the replacement link canals. The gain to India, according to the Bank, would be that the water of the eastern rivers would then be available for the expansion of irrigation in undeveloped Indian lands. The Bank representative contended that it provided "a fair division of the water. It protects existing irrigation uses from disturbance and allocates surplus supplies, to those already developed and those that may be developed, in accordance with the principle of equitable apportionment."[16]

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16 IBRD Press Release No. 390, 10 December 1954, App. I, pp. 5, 10.

The central point of the Bank Plan was the Scheme of Division of Rivers -- three and three -- between India and Pakistan. The three eastern rivers would be available for the exclusive use of India (after a transition period), and the three western rivers for Pakistan. In the light of the state of Indo-Pakistan relations, as it obtained them, it was futile to envisage a single authority for the development of the Indus Valley. The present merit of the Bank's proposal was, therefore, that each country's irrigation system was to be made almost independent of the other's and not subject to the interference by any.

The proposal, no doubt, involved heavy sacrifice on the part of India by depriving her permanently of the water of the Chenab (which originates in India and flows through Indian territory for a long stretch and whose waters were then considered invaluable for irrigation purposes in the desert areas of Rajasthan) and by being made to finance the huge cost of link canals in Pakistan.[17] The volume of water allotted for India's exclusive use, was also not adequate for India's growing requirements.[18] Nevertheless, in the interests of a speedy and constructive settlement of

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17 Indian News, vol. 6, no. 28, 10 July 1954, p. 1.

18 The Indus, the Jhelum and the Chenab, carried about four-fifths of the waters of the entire system, leaving only one-fifth for India in the three other rivers. See The Indus Water Dispute, n. 3.

long-drawn-out dispute and of friendly relations with a neighbour, India accepted the plan, notwithstanding the sacrifice it would involve.

When India accepted the Bank's proposal in March 1954, Pakistan failed to give a reply. On India's insistence, the Bank authorities asked Pakistan to give a reply by a firm date. The Pakistan Foreign Minister made a hurried visit to Washington allegedly to seek certain clarifications. Pakistan neither accepted nor rejected the proposals and asked for time to study them, which it did with the help of a private US engineering firm. It seems Pakistan was advised against acceptance of Bank's plan.[19] When in May of that year (1954), the Bank appealed to Pakistan to accept or reject the proposals within a week, i.e. to give a clear reply, the Pakistan Government resorted to the subterfuge of saying that they accepted 'the principle' underlying the proposals, but that they could not give a final reply unless the whole picture of development under the plan was clear. It was India's hope that while a comprehensive agreement on the basis of the Bank's proposal was being worked out, it would be possible to reach ad hoc agreements in regard to the operation of the Balloki-Suleimanke Canal in Pakistan and the Bhakra Canals in India.

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19 Sisir Gupta, India's Relations with Pakistan, 1954-57 (New Delhi: Indian Council of World Affairs, 1958), p. 40.

India was anxious to operate her newly completed Bhakra canals as expectations were running high in Punjab and Rajasthan, which were crying out for irrigation. India had given several indications earlier of her intention to open the Bhakra Canal in 1954 and had made specific mention of this in her formal letter of acceptance of the Bank proposal, which had been duly passed on to Pakistan. Pakistan had formally opened the Balloki-Suleimanke link in 1954. This was brought to the notice of President Black. While Pakistan could develop new uses from the link, India could not operate the Bhakra canal, because of the 1952 understanding which required India not to diminish the supplies then available to Pakistani canals. India kept on urging the Bank to use its good offices in working out an ad hoc agreement which would enable India to open the Bhakra Canal, limiting the withdrawals by it to the surplus in Sutlej and to such water as Pakistan could replace from the Chenab by the Balloki-Suleimanke Link and Bombanwala-Ravi-Bedian Link, which were already completed. Thereupon the Bank urged on Pakistan to take early steps to negotiate ad hoc agreement as proposed by India. But Pakistan did not respond. India had no alternative now but to open the Bhakra Canals. Serious arguments between India and Pakistan went on on the propriety of the opening of the Bhakra Canal in India (8 July 1954). The Pakistani Press called it 'naked aggression' and reported that "some individuals and organisations even suggested waging a jehad and called for

a 'do or die' stand on the issue." While opening the Bhakra Canal system, Prime Minister Nehru said:

> India looked at the issue of water supply to Pakistan from the human, not legal, point of view. India would not only not reduce the quantum of water supply that Pakistan was receiving but would also help her to the best of her ability and with money to construct other sources of supply. 20

Pending the formulation of a comprehensive scheme for canal waters distribution, the Governments of India and Pakistan negotiated from time to time ad hoc agreements for the distribution of canal waters. In June 1956, the World Bank submitted slightly modified proposals, suggesting that India, besides bearing the cost of construction of the link canals, should share the cost of providing storage fecilities as well. In spite of the additional burden involved in the revised proposals, but with a view to settling the dispute once and for all, India agreed to these proposals. But Pakistan was still hesitant.[21]

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20 Jawaharlal Nehru, India's Foreign Policy: Selected Speeches, 1946 - April 1961 (New Delhi, 19), p. Sisir Gupta also similarly says:

> India upheld her right to open the Bhakra Canal, at the same time stating that she had no intention of developing herself at the cost of the common man of West Pakistan.

Sisir Gupta, n. 19, p. 41.

21 Rejecting the Bank proposal, Suhrawardy, the Pakistan Premier, told journalists in London: "There can be a reasonable settlement of the dispute but not by dividing the rivers. What really should happen is that the strict law regarding an upper riparian state should be applied. The law is that the waters we used to get historically we should be allowed even today." See The Hindu, 27 June 1957.

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The delaying tactics of Pakistan finally led Irrigation Minister S.K. Patil to declare in 1957 that India would not wait beyond 1962 and would start withdrawing the waters. This lent an urgency to the negotiations. Patil also reiterated his stand in the course of a speech made during the budget debate in Parliament in 1958: "We shall not wait a day longer than 1962". Agreeing with the content of Patil's speech, Nehru had written to the Bank that while India was anxious not to do anything which might cause any harm or suffering to the peasantry of Pakistan, it could not be unconcerned with its own peasantry and it was obviously not possible for India to wait indefinitely for an agreement with Pakistan if they simply refused to agree to any reasonable proposal made.

The World Bank now made a more exerted effort to arrive at a settlement. And on 19 September 1960 the Indus Waters Treaty was signed at Karachi by Nehru for India and by Ayub Khan for Pakistan and Iliff for the World Bank.

The Treaty followed the Bank proposals of 1954 that the rivers should be divided between the two countries. The main features of the Treaty were as follows:

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Against this view of the law was the view of the 'informed sources' which was quoted by Dawn on 30 June 1957: "It was stressed that there was no defined international law relating to the distribution of the waters and the only law would be any agreement between the countries concerned in this respect", which here meant, the Inter-Dominion Agreement of 1948. This was also basically the Indian viewpoint.

(i) The waters of three eastern rivers -- Ravi, the Beas and the Sutlej -- would be available for unrestricted use by India, after a transition period.

(ii) Pakistan would receive for her unrestricted use all the waters of the western rivers -- the Indus, the Jhelum and the Chenab -- which India was under an obligation to let flow except for some limited use of Chenab water in Kashmir.

(iii) During the transition period of ten years, India would continue to give Pakistan supplies from the eastern rivers, in accordance with detailed regulations set out in the Treaty.

(iv) Pakistan would build works in the transition period to replace, from the western rivers and other sources, water she used to get in her canals from the eastern rivers.

(v) Each party undertook to prevent, as far as practicable, undue pollution of the water of the rivers, which might affect adversely the other party.

(vi) India would make payment towards the cost of the replacement works, chiefly the link canals. The payments of 174 million or Rs.83.3 crores were to be made for this purpose to the International Bank for Reconstruction and Development in ten equal instalments.

(vii) Both countries recognised their common interest in the optimum development of the rivers, and declared their intention to co-operate by mutual agreement to the fullest possible extent.

Apart from the Indus Waters Treaty, two other agreements were signed in Karachi on 19 September: an international financial agreement to create the Indus Basin Development Fund to finance the irrigation works in Pakistan and a $90 million loan by the World Bank to Pakistan.

Dispute Settlement in Retrospect

The treaty paved the way for an unprecedented development effort, particularly in Pakistan. The signing of the treaty marked the start of a ten-year construction programme in Pakistan, which was unprecedented.

The issue relating to the use of the Indus Waters was such that both India and Pakistan were anxious to reach a settlement, though there were occasions when a settlement was consciously delayed for a short period. But these delays were of the nature of strategic demarches to secure better terms, and did not alter the overall desire for a final settlement of the dispute.

During the thirteen years from 1947 to 1960, the period of the dispute, India had a stable government which was the case in Pakistan. This can probably be a reason why the political will to settle the dispute was lacking in Pakistan. The dispute was a handy means of raising tensions against India. Pakistan from the very early stages of the dispute, maintained an active publicity front, making little distinction between an Indian action actually taken or planned and the extremes to which India as an 'upper riparian'

might go to injure or even to strangle the economy of Pakistan, the 'lower riparian'. This was done by Pakistan to arouse international sympathy and gain support for its attitude in the dispute. River flow cannot be just shut off. It has to be diverted or water has to be stored. No major diversions of water were possible from the Indus, the Jhelum or the Chenab in their upper Himalayan reaches in India. Also the headworks of all or most of the canals that fed Pakistan were not in India. In fact, the headworks of only three of the numerous canals in Pakistan were in India.

The explanation, being given by Pakistan, even as late as 1957, for the delay in reaching an agreement, was that the matter was highly complicated and needed careful intensive study.[22] But the delay in arriving at a settlement was caused by considerations of calculated advantage. An early settlement of the problem was more advantageous to India than to Pakistan. It suited Pakistan to delay a solution because India agreed in 1952 that "while the cooperative work continued with the participation of the Bank, neither side will take any action to diminish the supplies available to the other side for existing uses."[23] This stipulation applied only to India.

In India, the treaty came in for severe criticism from different quarters. The grounds of criticism were:

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22 See for example Pakistan Times, 14 May 1957.

23 Indian Express, 12 March 1957.

(a) the fixed contribution of Rs.83.3 crores was an unfair burden on India even a sum of Rs.60 crores was earlier thought to be excessive in official and non-official circles; (b) the fixed contribution ought to have been set off against Pakistan's partition debts to India; (c) the fixation of water charges from Pakistan at 62 lakhs was considerably less than the estimated total of 1.43 crores; (d) the 80:20 basis of division of waters completely ignored India's own requirements; (e) the transition period was too long. Reacting to the treaty, the Times of India wrote editorially: "Almost on every major point in dispute it has yielded to Pakistan's wishes often at the cost of its own interest."[24] Some Members of Parliament also gave vent to their sentiments during a brief debate on the treaty in the Lok Sabha on 30 November 1960. A member said, "it has not been give and take. It has been more of 'give'."[25] Ashok Mehta said that the country had been let down by those whom it was accustomed to trust. He further said:

> After the distribution of waters under this treaty, Pakistan will permit very valuable water to flow into the seas, even after the fullest of development. We, after the fullest development, will always be short. We have larger irrigable areas and our supplies of water are not adequate. Pakistan has more water than its irrigable areas. 26

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24 Times of India, 20 September 1960.

25 Mr. Tangamani, Lok Sabha Debates, 12th Session, Second Series, vol. XLVIII, no. 13, 30 November 1960, col. 3209.

26 Ashok Mehta, Ibid., p. 3185.

Harish Chandra Mathur, an M.P. from Rajasthan, said:

> Rajasthan has been very badly let down in this treaty... Not only that ... this is the general feeling all over the country. 27

Another M.P. Mohanty, who termed ~~xx~~ the treaty as the "Treaty of Surrender", said: "Never in the history of two sovereign nations were a group of commercial bankers entrusted with arbitrating upon such issues of great moment."[28] Prime Minister Nehru, however, defended the treaty:

> But the mere fact that this has taken twelve years, would atleast convince the House that nothing, not a comma, not a full stop has been accepted without the longest argument and the closest attention to each detail. 29

The credit for the successful conclusion of this treaty should go to India. It had agreed to accommodate the interests and wishes of Pakistan, sometimes even at the expense of her own vital interests. It is clear from the contents of the Treaty that it is India rather than Pakistan which, in the interest of good neighbourliness and peace, climbed down from a position which was legally unassailable and economically beneficial.[30] India had agreed to the uses of waters of the three eastern rivers by Pakistan, for still

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27 Ibid., col. 3179.

28 Ibid., col. 3213.

29 Ibid., col. 3216.

30 J.S. Bains, Indo-Pakistan Water Dispute: India's International Disputes (Bombay, 1962), p. 60.

another ten years which was the transition period. This was a substantial concession when viewed in terms of the vital and immediate needs of its own desert areas and parched lands in Punjab and Rajasthan. Over and above this, India had agreed to pay a large sum of money for the Indus Basin Development Fund in order to help Pakistan build the replacement works.

II

THE GANGES WATER DISPUTE

The dispute over sharing the waters of the Ganges at Farakka, between India and Bangladesh, is a longstanding dispute. In order to save the Calcutta Port from getting choked up with silt, the Government of India planned in 1951 a barrage at Farakka across the Ganga. Calcutta, India's largest city, is the commercial nerve centre and the industrial heart of Eastern India.[31] The port of Calcutta is rightly described as the life-line of Eastern India, and has a vast hinterland in India as well as the neighbouring countries, Nepal and Bhutan. The entire trade from Calcutta Port to the sea is carried through the river Hoogly (i.e., Ganga downstream near Calcutta), Calcutta itself being 200 Kms. from the sea. Sea tides from the south and the lack of

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31 The Farakka Barrage: Relative Importance of Ganga for India and Bangladesh (New Delhi: Ministry of External Affairs, Government of India, n.d.), p. 5.

flow of adequate water from the north on account of a change in the main course of the river Ganga that took place some 200 years ago, have contributed to the progressive silting of the Hoogly over the years.[32] Consequently, the efficiency of the port had suffered and its very survival was in danger. India tried to meet the situation by constructing a barrage at Farakka, with a view to diverting some water by a canal into the Hoogly river. A 26-mile long feeder canal was to take off from the barrage for the purpose. It was to make the current of water strong enough to flush down the silt and keep the Calcutta port clear and thus arrest the deterioration that had threatened the existence of the Port. It was also calculated to supply fresh water to Calcutta, which was affected due to the salinity of the river.[33] Another purpose intended to be served by the Farakka Project was to reduce the flood-hazards downstream.[34]

The idea of the barrage to save Calcutta port was mooted by the British engineers more than a century ago.[35]

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32 Ibid., p. 3.

33 C.N. Vakil and G. Raghav Rao, Economic Relations Between India and Pakistan (Bombay: Ministry of External Affairs, 1968), p. 210.

34 See, "A Project to Save Calcutta" (New Delhi: Ministry of External Affairs, Government of India, 1961), pp. 2-3.

35 Sir Arthur Cotton (1853), Vernon Harcourt (1898), Resk (1913), Stevenson-Moore Committee (1916-19), Sir William Willocks (1930), T.M. Oag (1939) and A. Webster (1946), all applied their minds to the problem of saving the Calcutta Port and came to the conclusion that the only way out was to augment and provide controlled headwater supply by constructing a barrage on the Ganga. See, The Farakka Barrage, n. 31.

It is precisely for this reason, in 1947, Sir Cyril Radcliffe, Chairman of the Boundary Commission, considered Farakka so important for the Port of Calcutta that he felt justified in deviating from the principle of contiguous Muslim majority areas forming the new State of Pakistan and awarding the Muslim majority district of Murshidabad, where the Farakka Barrage is situated, to India in exchange for the non-Muslim district of Khulna which went to the then East Pakistan.[36]

A description of the river Ganga, in its lower reaches is necessary for a fuller understanding of the problem. Farakka is situated 160 miles north of Calcutta close to the Bangladesh border. At a distance of 38 Kms. from Farakka, the main river Ganga bifurcates into two principal arms, the Bhagirathi and the Padma. The Bhagirathi arm which in its lower reaches is called the Hoogly, was the principal arm of the Ganga till about 200 years ago and used to carry the bulk of the Ganga flows. Subsequently, the Ganga changed its main course and the Padma developed more and more as a principal carrier channel of the Ganga, thus marking the beginning of the threat to the survival of Calcutta Port. The Padma, after providing a common boundary between India and Bangladesh for about 112 Kms. turns south-east to join the mighty Brahmaputra and the Meghna, forming the vast network of the river system of Bangladesh.[37]

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36 The Farakka Barrage, n. 31, p. 4.

37 Ibid., p. 4.

The construction of the Farakka Barrage was started in 1962 and completed in 1971. The Feeder Canal took four years longer to complete. The Barrage and the Canal were commissioned on 21 April 1975 following an agreement between India and Bangladesh on 18 April 1975.

The Farakka Project received opposition from Pakistan since it was mooted as an idea. In 1951 itself the Pakistan Government suggested that India should consult Pakistan before going ahead with the Farakka Plan. The latter contended that the proposed Barrage at Farakka, if constructed, would jeopardise the irrigation projects in East Pakistan and would also pose a threat to her security.[38] India, on the other hand, had repeatedly assured Pakistan that Farakka would not disturb the irrigation schemes of East Pakistan, as owing to the meteorological conditions of East Pakistan, the problem with the latter was not the shortage of water, but an abundance of it. East Pakistan was served by the Brahmaputra, which carried copious supplies of water throughout the year. With an annual rainfall varying from 55 to 100 inches and large areas inundated for a good part of the year, the problem of the region was essentially one of the drainage and flood control.

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38 See, J.S. Bains, "The Farakka Barrage: International Law Aspects", Modern Review, vol. 112, no. 5, November 1962, p. 366.

From 1960 to 1970, India and Pakistan had as many as ten rounds of talks to resolve this dispute.[39] The experts of both the countries had met four times between July 1960 to January 1962 without finding an agreement. The issue also figured in the discussion between Prime Minister Nehru and President Ayub at the Commonwealth Prime Ministers' Conference in London in March 1961. While Nehru was for referring the matter first to the technical experts, Ayub was for holding the Ministerial Level Conference first. The suggestion for the Ministerial Level Conference had also been repeated by Pakistan later on. The Government of India had conveyed to Pakistan that the Ministerial Level Conference could only be held after the exchange of data regarding the project.[40]

The Government of Pakistan made quite an effort to internationalise the issue. It raised the issue at the International Water for Peace Conference held in Washington in May 1967. In 1968, Pakistan tried the same at the Afro-Asian Legal Consultative Committee meeting held in Bangkok. Owing to India's firm stand that use should not be

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39 See for details, Chronological Statements of Meetings between Bangladesh and India on Ganges Water Dispute, White Paper on the Ganges Water Dispute (Dacca: Government of the People's Republic of Bangladesh, September 1976), Table 1.

40 The Press Note of September 27, 1962, by the Government of India, in Foreign Affairs Records, vol. VIII, September 1962, pp. 203-4.

made of international forums to raise bilateral issues, which under their respective statutory provisions did not have the competence to discuss such problems, Pakistan's attempts failed.

The bilateral talks (the 5th Expert Level Meeting) were held in New Delhi from 13-26 May 1969 to solve the barrage dispute. The Government of India submitted data and charts to prove that the diversion of the Ganga Water was the only means to save Calcutta Port. It was also explained that the barrage would help East Pakistan to meet the recurring flood menace. It was decided that Pakistan engineers would visit Farakka while Indian engineers would inspect Ganga-Kobadak Project which, according to Pakistan, was being planned to irrigate three and a half million acres of land. However, the talks were finally concluded on 26 May, without the signing of an agreement because of Pakistan's insistence on adjudication by a third party.[41]

The talks on the Farakka were held again in December 1968 at the Secretaries' level. These talks, however, could not yield any result. But it made an advance over the previous meetings, as Pakistan indicated its willingness to provide certain data which it had withheld so far.[42]

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41 Hindustan Times, 27 May 1968.

42 "Water Talks", Indian Express, 20 December 1968.

During the course of negotiations, India had been asking for technical details to satisfy itself as to how the various figures had been arrived at on the basis of which Pakistan's reasonable requirements could be ascertained. India held the view that the question of the reasonable requirement could be known by the study of data of Farakka at Hardinge Bridge (in East Pakistan then) during the summer, as the problem was more specifically a problem of dry season.[43] A comparative study of the data had shown that the flow of water at Hardinge Bridge in East Pakistan was considerably more than the flow at Farakka. This was due to the phenomenon called "regeneration of water". In summer months, when the level of water in the river gets low, the water which accumulates in the areas during the rest of the year, seeps back into the river. It is the process of regeneration that accounts for the rise in the flow at the Hardinge Bridge.[44]

During 1969-70, India and Pakistan had met across the table as many as four times (at the Secretaries' level) but had failed to find a solution. The domestic milieu of Pakistan was also not favourable, especially during the 1968-1970 talks. During this period, President Ayub stepped

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43 Hardinge Bridge is situated 100 miles down Farakka. Records of flow of water under the bridge were maintained since it was built over 60 years ago.

44 R.K. Dixit, "Indo-Pak Talks on Farakka Barrage and Related Matters", Indian Journal of International Law, vol. 9, 1969, p. 218.

down and Yahya Khan assumed office. In the meantime, the movement for autonomy in East Pakistan was itself gaining momentum gradually, and by accentuating the crisis over Farakka, the West Pakistan leaders were purporting to divert the attention of the people of East Pakistan and the opposition parties against India in a calculated attempt to counter the autonomy movement.[45] Thus, the political use of the dispute was obstructed in the settlement of the dispute.

With the emergence of Bangladesh, in which liberation struggle India had played a positive role, it was hoped that Farakka issue would find an amicable settlement. Under the leadership of Sheikh Mujibur Rahman, Bangladesh's relations with India were most cordial. India and Bangladesh signed a Treaty of Friendship, Co-operation and Peace on 9 March 1972, when Mrs. Indira Gandhi, Prime Minister of India, visited Bangladesh. The treaty provided for the high contracting parties to make a joint study and to take joint action in the fields of flood control, river basin development and the development of high electric power and irrigation. (Art. VI). Pursuant to the Joint Declaration of March 1972, a Joint Rivers' Commission (JRC) was set up by the Governments of both the countries on 14 November 1972.[46] The JRC was the most remarkable achievement of the

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45 See, S.S. Bindra, Indo-Pak Relations: Tashkent to Simla Agreement (New Delhi, 1981), pp. 100-101.

46 Asian Recorder, 23-31 December 1972, p. 12037.

bilateral consultations. Mrs. Gandhi gave a commitment in May 1974 during Sheikh Mujibur Rahman's visit to New Delhi, that India would not commission the Farakka Barrage before an agreement on sharing of the Ganga water was reached.[47]

On 21 April 1975, the Farakka Barrage and the Canal were commissioned on an experimental basis, following an agreement signed by India and Bangladesh on 18 April 1975. Representatives of Government of Bangladesh participated in the commissioning of the Feeder Canal and also in the ceremony dedicating the project to the nation in 1975.[48] It was agreed under the aforesaid agreement of April 1975 that during the lean season -- from 21 April to 31 May 1975 -- India would be allowed to draw 11,000 to 16,000 cubic feet of water per second (causecs), as shown below, from the Ganga, while the remaining flow would go to Bangladesh.

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47 See, Joint Indo-Bangladesh Declaration on 16 May 1974 (New Delhi: Press Information Bureau, Government of India, 1975), para 18. The two sides expressed their determination that before the Farakka Barrage was commissioned they would arrive at mutually acceptable allocation of the water available during the periods of minimum flow in the Ganga.

48 The Farakka Barrage, n. 31, p. 4.

Table 1[49]

Month	Ten-day period	Withdrawal (Cusecs)
April 1975	21st to 30th	11,000
May 1975	1st to 10th	12,000
	11th to 20th	15,000
	21st to 31st	16,000

Under this agreement, it was also provided that "joint teams consisting of experts of two Governments would observe at the appropriate places in both the countries the effects of the agreed withdrawals at Farakka, in Bangladesh and on the Hooghly river for the benefit of Calcutta Port. A joint team would also be stationed at Faraldka to record the discharges into the feeder canal and the remaining flows for Bangladesh. The teams would submit their reports to both the Governments for consideration."[50]

The agreement (of 18 April 1975) obviously gave major share to Bangladesh. The remaining flows for Bangladesh, though not tabulated in the joint press release, were of the following manner:

Table 2

Period	Cusecs
April 21 - April 30	44,000
May 1 - May 10	44,500
May 11 - May 20	44,250
May 21 - May 30	40,500

49 See, Joint Indo-Bangladesh Press Release, dated Dacca, the 18th of April 1975.

50 Ibid.

Dedicating the Farakka project to the nation, India's Minister for Agriculture and Irrigation, Jagjiwan Ram, said on 21 May 1975 at Farakka that it would be the forerunner of greater co-operation between India and Bangladesh in exploiting the waters of common rivers for mutual benefit. He also hailed the agreement as "an outstanding example of mutual understanding and co-operation between the two neighbouring countries in the development of the water of an international river."[51]

Within a short period of that stop-gap arrangement, Mujib was assassinated and the political landscape in Bangladesh underwent important transformations. The domestic compulsions in the turbulent socio-political climate of Bangladesh, led the new leaders to raise the accusing fingers at India, and Farakka was too handy for that matter. Speaking before the Special Political Committee of the UN General Assembly in 1976, the representative of Bangladesh claimed that under International law, it was entitled to the natural flow of the Ganga in order to satisfy its human and ecological needs, particularly during the months of scarcity. In marked contrast to Sheikh Mujibur Rahman's approach of bilateralism, Bangladesh was now all set out to internationalise the issue.[52] In this way, the political use of the dispute further complicated a settlement.

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51 Indian and Foreign Review, 1 June 1975, p. 8.

52 See, K.P. Mishra, "The Farakka Accord", World Today, February 1978.

India told the committee that the issue was intrinsically a bilateral one, and the internationalisation of it would only complicate and politicise the problem. The problem was one of sharing the limited flow of Ganga during the season from Mid-March to mid-May. There was no need for the intervention of any third party to decide the extent to which each country would be affected by the sharing of shortages. Under any practical approach, India contended that Farakka problem lent itself to a solution only on a bilateral basis. India, however, did not agree that Bangladesh was entitled to the entire natural flow of the Ganga, nor did India agree that prior consent of Bangladesh was necessary to draw water. Nonetheless, it was ever ready, India said, to co-operate in the search for a long-term solution for augmenting the flow of Ganga. The UN, India felt, should urge the two countries to persist in their efforts to reach a solution to this problem.

In India also political changes occurred in 1977 when Janata Party came into power. India under the new Government and Bangladesh resumed negotiations. After several rounds of talks, an agreement was signed in Dacca on 3 November 1977 by the Indian Agriculture & Irrigation Minister, Surjit Singh Barnala, and Adviser to the Bangladesh President on Flood Control and Irrigation, Rear Admiral Musharraf Hussain Khan.

The agreement provided for both short-term and long-term solutions of the complex problem. According to the

short-term provisions the agreement fixed the quantum of water for the two sides during the lean period (1st of January to 31st of May) when the water is in short supply. The lean period was divided into fifteen 10-day periods.

A schedule annexed to the accord tabulated the average flow of water reaching Farakka. It then laid down the quantity that India was allowed to draw and the entitlement of Bangladesh out of the total availability during each of the 10-day periods:

Table 3

Sharing of Water at Farakka Between 1st January and 31st May (Every Year)

Period	Flows reaching Farakka (based on 75% availability from observed data (1949-73)	Withdrawal by India at Farakka	Release to Bangladesh
1	2	3	4
	Cusecs	Cusecs	Cusecs
January 1-10	98,500	40,000	58,000
11 - 20	89,750	38,500	51,250
21 - 31	82,500	35,000	47,500
February 1 - 10	79,250	33,000	46,250
11 - 20	74,000	31,500	42,500
21 - 31	70,000	30,750	39,250
April 1 - 10	59,000	24,000	35,000
11 - 20	55,000	20,750	34,750
21 - 30	55,000	20,500	34,500
May 1 - 10	56,000	21,500	35,000
11 - 20	59,250	24,700	35,250
21 - 31	65,500	26,750	38,750

The accord, as would be seen from the above table, provided for an optimum withdrawal of 40,000 causecs by India in the lean season. During the leanest 10-day period (21-30 April), India was to withdraw 20,500 causecs and Bangladesh 34,500 causecs; the Indian share was thus to be 37.5 per cent of the total estimated flow of 55,000 causecs and was to increase in the subsequent period to 40 per cent of the total flow, which would also grow due to melting of snow in the Himalayan catchment area. Briefly, under this agreement, "India's share begins to go down from 1 January, when it is at its optimum, and continues to decrease at different rates till it reaches the last day of the leanest period (30 April). From this point onwards, it starts increasing till the end of May, when the problem of scarcity of water disappears.

This agreement was to remain valid for five years, and could be reviewed by the two Governments at the end of three years and again before six months, before the expiry of the agreement. It could be extended further for a specified period by mutual agreement in the light of such reviews.

The agreement also provided that, if actual availability of the Ganga water at Farakka during a 10-day period was higher or lower than the available water was to be shared in proportion applicable to that period. It was also provided that if during a particular 10-day period, the Ganga water flows at Farakka come down to such a level that the share of Bangladesh was lower than 80 per cent of the

value shown in column 4 of the Table 3, the release of water to Bangladesh during that 10-day period should not fall below 80 per cent of the value given there.[53]

Another important feature of the short-term solution was that India would be able to draw water between Farakka and Bangladesh border not exceeding 200 cusecs and that too for a reasonable uses.[54]

With regard to the long-term arrangements, it was agreed to reactivate the Joint Rivers' Commission, established by the two Governments in 1972. The JRC was given a mandate to carry out investigation and study of schemes relating to the augmentation of the dry season flows of the Ganga, proposed or to be proposed by either Government with a view to finding a solution which was economical and feasible. It was to submit its recommendations to the two Governments within a period of three years.

The 1977 Agreement was bilateral in nature and the differences that would arise in the interpretation in the agreement were to be resolved bilaterally.[55]

The agreement received a mixed reaction from the press and public in India. The West Bengal Government of

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53 Art. II of the Agreement between the Government of the Republic of India and the Government of the People's Republic of Bangladesh, on sharing of the Ganga Waters at Farakka and on augmenting its flows (New Delhi: Press Information Bureau, Government of India,), p. 2.

54 See Art. III of the Agreement. Ibid.

55 Asian Recorder, 5-11 November 1977, p. 14013.

of Jyoti Basu (CPM) was highly critical of the agreement which, it alleged, would be harmful to Calcutta. Political leaders of all hues in West Bengal were dissatisfied with the agreement. Even a Janata leader, Kashi Kanta Moitra, expressing his disappointment over the agreement, asked, "what was the point in spending over Rs.150 crores on the Farakka Barrage Project?". The Financial Express wrote that New Delhi had gone more than half-way not only to mollify Dacca, but also to ensure that a settlement was reached.[56] The Economic Times observed that "it was also a happy point of the agreement that it was for five years."[57] An Indian scholar on the subject commented: "India's central political leadership has cast away the advantage bequeathed by the British."[58]

The critics' view basically was that the water provided to Calcutta Port was less than 40,000 causecs while Indian as well as foreign experts who had studied the Calcutta Port had established that 40,000 causecs was the minimum requirement for the Port.

In January 1980 Indira Gandhi again came into power. On 24 February 1980, in a statement in Calcutta, A.P. Sharma,

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56 "Beyond the Accord" (Editorial), Financial Express, 3 October 1977.

57 "Accord on Farakka" (Editorial), Economic Times, 10 October 1977.

58 J.K. Ray, "The Farakka Agreement", International Studies, vol. 17, no. 2, April-June 1978, p. 240.

Shipping and Transport Minister, said: "The short-term agreement between India and Bangladesh on the sharing of the Ganga Waters at Farakka, is detrimental to the interests of Calcutta, which needs more water." He further stated that the matter would be taken up with the Government of Bangladesh at the time of the review of the agreement.

The Joint Rivers Commission (JRC) held its eighteenth meeting at New Delhi from 27-29 February 1980 in which the differences between the two parties were quite manifest. The meeting started with the two sides wanting a review of the 1977-Agreement. It reopened all the issues connected with the sharing and augmentation of the flow of the Ganga. It is well known that a few ideas, though not mentioned in the 1977-Agreement, had been put forward relating to the problem of augmentation of dry season flows at Farakka. These included India's proposal to link the Ganga with the Brahmaputra within a specified time frame and the Bangladesh proposal for the construction of storage reservoirs in the upper reaches of the Ganges in Nepal and India. These approaches are continuing to be a matter of debate between the two nations.

Bangladesh has informed India that it could not accept the Indian scheme for the construction of a canal through its territory because that would seriously disturb the ecology of the region. This outright rejection of the Indian proposal has led to a deadlock which continues to-date.

It needs to be mentioned that the first review of the 1977-Agreement commenced on 5 November 1990 and was concluded on 4 April 1991. It was agreed between the two Governments that the second review would be held in June 1992. Accordingly, Bangladesh and India held a meeting at ministerial level on 26 June 1992 in New Delhi.

In respect of the short-term provision of sharing water at Farakka, both sides noted that the sharing of water had been fully implemented in conformity with the provisions of the Agreement. The two sides, however, differed as to the impact of the sharing on their respective countries.

In respect of the Agreement concerning augmentation of the flows of the Ganga during the dry season, the two sides recalled that the subject was no longer before the Indo-Bangladesh Joint Rivers Commission. It was now a matter for decision between the two Governments at a high political level.

Pursuant to the visit of the Gen. Ershad, President of Bangladesh, to India in October 1992 and his meetings with Mrs. Gandhi, an Indo-Bangladesh Memorandum of Understanding was signed on 7 October 1992 by the Foreign Ministers of India and Bangladesh. According to this, the two leaders recognised that the basic problem of inadequate flow of water in the Ganga at Farakka imposed sacrifices on both the countries and that it was necessary to arrive at an equitable sharing of water available at Farakka. They further agreed that the long-term solution lay in

augmenting the flow available at Farakka and to this end directed their experts to expedite studies of the economic and technical feasibility of the schemes which had been proposed by the two sides. It was decided that the JRC would complete the feasibility study and decide upon the optimum solution within 18 months, at the end of which the two Governments would immediately implement the augmentation proposal agreed upon by the JRC. Meanwhile, the two leaders agreed on the sharing of water available at Farakka for the next two dry seasons and the joint inspection and monitoring arrangements for this purpose.[59]

Commenting on the Memorandum of Understanding, the Times of India wrote, "both sides have shown understanding for each other's difficulties. They have candidly admitted that the 1977-agreement has been unsatisfactory. But despite its expiry on 4th November, Bangladesh will continue to get during the next two dry seasons (January-May), the same quantity of water that it has been receiving under it during the previous five seasons. The basis for computation and regulations of supplies will however be new. The two sides have also agreed that if the flow during the next two dry seasons falls precipitately below the normal the two Governments would enter into negotiations to cope with the situation."[60]

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59 Bhagirath, vol. XXX, January 1983, pp. 37-38.

60 Times of India, 9 October 1982.

The 18-months' mandate given to the JRC was to lapse on 6 April 1984. The JRC made another attempt to find an agreement relating to the augmentation problem. The JRC meeting in this connection took place in New Delhi in February 1984. However, it failed to reach an agreement and it was decided to hold the talks again in Dacca on 29 March 1984.

It has been reported that the "optimum solution" is not going to be easy to accomplish since Bangladesh has so far been rejecting the Indian proposal for constructing a link canal between the Brahmaputra and Ganga, part of which is to run through Bangladesh territory. India has also been expressing grave reservations on the Bangladesh proposal to build reservoirs in Nepal.[61]

The JRC meet at Dacca in March 1984 also could not reach an agreement because of the repetition of earlier stands by the two sides. While uncertainties still prevail over the sharing of Ganga waters at Farakka, India has claimed that the mandate given to the JRC, under the 1982 Memorandum of Understanding, has thus expired.

III

A COMPRATIVE STUDY OF THE DISPUTES WITH RESPECT TO THE MAJOR ISSUES

Both the disputes (the Canal Water Dispute and the Farakka Dispute) are examples of complications arising

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61 Times of India, 17 February 1984.

from international boundaries. The canals built by the British in the Punjab were a significant contribution of their rule in India. The canals made irrigation possible in an otherwise arid zone. The canal systems were mainly carved out in West Punjab (the western part of the Basin). The East Punjab (i.e. the eastern part of the Basin) equally needed irrigation facilities but here the canals were not as much developed as in the West. Thus, the development was lopsided. East Punjab was bound to be dissatisfied with the supply of water to it. After independence, any scheme, however small it was, to meet even partially the need of East Punjab, was opposed by West Punjab, whether or not it interfered with the supply of water to West Pakistan. Pakistan's argument was that India should not take up any new project in Punjab whatever be its needs, 'the flow should be let alone' -- even though copious water was flowing down the Indus.

Similarly, in the context of water disputes in the eastern part of the Indian subcontinue, credit must go to the British engineers for making a study of the problem 'how to save the Calcutta Port from siltation', and from pointing to the need for Farakka Project. But the Project was not implemented by the British. Nor did they take up projects to minimise the flood ravages of Brahmaputra, and harness its waters, which still to-date flow wastefully into the Bay of Bengal. Had these projects been taken up by them, the post-independence wranglings for a few causecs

of water (that too only one in one season) would have been avoided.[62]

In both the west and the east, India has been accused of diversion of water. Both Pakistan and Bangladesh regard the diversion as illegal. In case of the 'Indus Dispute', Pakistan's argument was based on the 'natural flow theory', or on the 'theory of proprietary rights'. Little did they realise that the theories so put forward implied the vetoing of all developmental works of the Upper Riparian nations by the lower riparian nation. But in the two cases the purposes of India were different; in the west, it was irrigation, while in the east it was to save the Calcutta port from siltation. To Bangladesh, the latter use was not only a new use but also a wasteful one. India disagreed with this view because it was an old use on which the city of Calcutta and the port were established centuries ago. In India's view the 'use' is neither new nor wasteful.

The Ganges water problem is chiefly a lean-season problem, when there is not sufficient water in the river Ganges to meet the requirements of the two countries. But the water problem on the Indus front was not limited to a particular season. It was viewed as a year-long, all-season problem.

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62 See, Aolad Hosain, "Water Resources Development in East Pakistan", in Seminar on Evaluation of Water Resources with Scarce Data, held in Tehran, Iran, March 4 to 8, 1969, Central Treaty Organisation (CENTO), p. 42, where it is stated: "Prior to independence in 1947, the part of the subcontinent (East Pakistan) was completely neglected and no development work of any importance was carried out in this area."

Both the disputes have also followed another similar pattern. In case of Indus, the 1948 Standstill Agreement, was at least an understanding to approach the problem in a cooperative manner. Byt no sooner had its inks dried up, than Pakistan raised a hue and cry, that the treaty was not beneficial to it and had been entered into under coercion. Similarly, it did not take long for the 1975 Agreement on Farakka to be decried by Bangladesh.

It was because of the geographical situation, in case of the Indus Water Dispute, there was never a proposal for augmentation of flow in the upper reaches of the Indus. Thus a third country's involvement did not feature in the scheme of things. But in the case of the Ganga Water Dispute, Nepal a third country has always loomed large in Bangladesh's thinking.

The Indus Water Treaty 1960, both India and Pakistan would claim, was an agreement freely arrived at by two sovereign states, notwithstanding the participation of the World Bank in the process of negotiation. The role of Bank is played down to the minimum. In lines with this, both India and Bangladesh are not favourably disposed towards a third party involvement. Nor they would favour the reference of the dispute to Arbitration, or to adjudication.

In both the disputes, India's approach has been to study the problem first on scientific basis, i.e. on the basis of data. It has therefore all along stressed the need of exchange of data. But data has been suspect in the

eyes of its co-riparians. Allegations against India have been rather founded upon emotions and concoted stories. More or less, the stress of both Pakistan and Bangladesh has been the same -- water first, data next. In other words, they have not been prepared to take a scientific and rational approach to the disputes.

CHAPTER IV

CHAPTER IV

WITHIN COUNTRY DISPUTES IN SOUTH ASIA

(Within country disputes over the distribution and utilization of river waters are inevitable. But the disputes become more vocal among the constituent units of a federation. In unitary states, when there is only one central government these disputes are normally in the form of claim addressed to the Central Government and the local population making such claims is not always politically organised, and hence has to yield to the decisions of the Central Government. It is for this reason the disputes are more vocal in India which is federally organised and not much is heard of disputes in several other South Asian nations where Central Government is far more powerful than the local population making claims on river waters and benefits accruing from them.)(This can be generally said without going into details relating to the political systems in these nations.) The United States of America (which is a federation), in addition to its international disputes over river waters, had a number of inter-state water disputes. It was inevitable, as majority of rivers and its tributaries within the United States are inter-state in character. A number of inter-state water disputes have been settled there either through adjudication by the U.S. Supreme Court or through compacts between the states concerned. Similarly,

in Australia which is also federally organised inter-state disputes over river waters centred on its great river system -- the Murray and its major tributaries, the Darling and Murrimbidge,[1] which involved the three states of New South Wales, Victoria and South Australia. The snowy mountain scheme -- whose main object is to utilise the headwaters of Murray, Murrimbidge, Tumut and Snowy Rivers for hydro-electricity generation and supplement the waters of the Murray and Murrumbidge for irrigation -- is a notable example of inter-state co-operation in the management of water resources in Australia. Canada, which has many inter-provincial river systems, had a dispute among the three provinces of Manitoba, Alberta, Saskatchewan over the utilization of the River Saskatchewan. However, river water problems which have arisen in Canada are international (between the US and Canada), rather than inter-provincial or federal.[2]

INDIA

(India has a network of long rivers -- most of which run across more than one state (and some like Ganga,

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1 The Catchment of the Murray-Darling-Murrumbidge is approximately 414,000 sq. miles (i.e. one-seventh of the continent of Australia) -- the river Murray proper being 1,600 miles long, and Darling and Murrumbidge being 1,700 miles and 980 miles respectively.

2 See, S.N. Jain, Alice Jacob and Subash Jain, Inter-State Water Disputes in India (New Delhi: The Indian Law Institute, 1971), pp. 85-86.

Brahmaputra and the Indus across more than one country). According to the Constitution of India, the Union Government deals with all matters concerning rivers with international ramifications, whilst the state governments deal with water resources falling within the state subjects, of course, to certain controls and regulations imposed by the Parliament.

All major Indian rivers are inter-state rivers. They cut across political boundaries of two or more states. Prior to independence, water disputes were resolved by instituting special commissions of investigators and final decisions thereon were taken by the Governor-General or His Majesty in Council.[3]

After independence, provisions were made for resolving the disputes either by agreement between the parties or through adjudication, under the Inter-State Water Disputes Act of 1956, amended in 1968. This Act lays down that if the dispute cannot be resolved through negotiations, a tribunal may be set up consisting of three judges who must be sitting judges on the date of appointment. The tribunal may also be assisted by assessors. The decisions of the Tribunal would be final and binding, and can't be appealed against before any court. The parties, however, can ask for clarifications or guidance on points not

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3 K.L. Rao, India's Water Wealth (New Delhi, 1975), p. 214.

originally referred, within three months after the announcement of the decision.

It needs mention that while cases such as pertaining to Krishna, Godavari and Narmada have been settled by instituting Tribunals, the general approach of the Union Government has been to settle the inter-state water disputes through negotiations. It is because, the tribunals like regular courts are time-consuming and also involve a lot of expenditure. It is better to get the parties at negotiating table and help them reach an agreement.

The inter-state river disputes have highlighted the following issues:

(i) The sharing of waters of an inter-state river or stream.

(ii) Apportionment of costs and benefits of a joint project.

(iii) Questions of compensation.

(iv) Interpretation of agreements.

(v) Allegations of excess withdrawal.

As elsewhere in the world, most of the disputes in India relate to the quantum of water, i.e. the question of sharing of waters of a river by different riparians. The current dispute between Punjab and Haryana over the Ravi-Beas waters is basically a dispute over shares. In the past, Mysore (Karnatak) and Andhra Pradesh, the lower riparian states on the River Krishna, objected to the action of Maharashtra, the upper riparian state, to divert

more Krishna waters at Koyna for hydro-electric project than what was approved by the Planning Commission. Similarly, Andhra Pradesh, the lower most riparian state of the same river objected to the construction of dams for irrigation purposes by the upper riparian states of Maharashtra and Mysore (Karnatak) on the ground that its established riparian uses would be affected.

(v) Even while states do agree in principle to develop a river and implement schemes jointly, problems at times arise with regard to the sharing of costs and benefits among them. Musakhand dam between Bihar and Uttar Pradesh; Bajaj Sagar Dam between Rajasthan and Gujarat; the Tungbhadra dam between Andhra Pradesh and Karnatak provide examples of this sort.

(vi) The lower riparian states' proposals in developing the inter-state river waters may result in the submersion of lands of upper riparian states, bringing in its wake the problems of land acquisition, compensation, rehabilitation, and resettlement of displaced people. The construction of Navagam dam by Gujarat on the river Narmada raised all these questions on which Madhya Pradesh and Maharashtra, the affected upper riparian states waged a battle against Gujarat's above project. Similarly, Rajasthan Government's plan to build a reservoir at Banswara on the Mahi River posed a similar problem of submergence of land of the upper riparian state of Madhya Pradesh. The plan of Gujarat,

the lower-most riparian on the Mahi, to construct a dam at Kadana, also posed a similar problem for Rajasthan. All these necessitated prolonged negotiations to arrive at an agreement.

(iv) Disputes also arise over the interpretation of agreements entered into by states with regard to the allocation of inter-state river waters. The Cauvery water dispute is a case on the point. In 1924, Madras (now Tamil Nadu) and Mysore (now Karnatak), as the two riparian states of the Cauvery, had concluded an agreement with respect to the use of its waters. But after independence in 1958, Mysore, the upper riparian, accused Madras, the lower riparian of violating the 1924 Agreement in taking up new irrigation projects. Both states accused each other for not exchanging information regarding the new projects taken up by them in contravention of the 1924 Agreement which provided for such exchange of information.

(v) Complaints by the states against the upper riparian's excessive withdrawal of water from a common river are not uncommon. Rajasthan very often has aired its grievance against Punjab, on the ground that it (Rajasthan) has not been getting its due from the Ravi, Beas and Sutlej. Similarly, Karnatak and Andhra Pradesh have often complained that Maharashtra has been drawing waters in excess of permissible limits.

The territorial changes as a result of reorganization of states has obviously given rise to a number of inter-state water disputes owing to new states succeeding the parties to previous agreements. Thus the dispute between Punjab and Haryana over Ravi-Beas waters is an offshoot of the division of the erstwhile composite Punjab into Punjab and Haryana. Similarly, reorganization gave rise to a dispute between Mysore (Karnatak) and Andhra Pradesh over the waters of Tungabhadra (i.e. over the 1944 Agreement between Madras and Hyderabad). The dispute between Karnatak, Kerala and Madras relating to the 1924 Agreement over the utilization of the waters of the Cauvery is also due to reorganization of the two states -- Madras and Mysore.

Narmada Waters Dispute

The Narmada is India's fifth largest river. It courses through three states -- Madhya Pradesh, Maharashtra and Gujarat -- before falling into the Arabian Sea. Several projects have been taken up on this river and its many tributaries, which go by the name of Narmada Valley Project. The idea of tapping the waters of the Narmada was mooted way back in 1946 by the concerned provincial governments. But after extensive studies had been conducted, these provinces (later the states of Madhya Pradesh, Gujarat and Maharashtra) quarrelled among themselves on several issues -- mainly sharing of water, the areas to be irrigated in each

state, and the level of one of the major dams (at Navagam) in Gujarat. The Narmada Waters Dispute Tribunal was set up in 1969 and it submitted its report in 1978, which facilitated this massive river valley project.[4]

As already noted, the Narmada Waters dispute raised an important issue -- one state proposing to build a dam, which would submerge extensive areas in another state.

On behalf of Madhya Pradesh, it was argued that the proposed Navagam Dam Project, if executed at any level above FRL 210 would involve submergence of portions of the Madhya Pradesh territory. It was contended that Madhya Pradesh owned land within its territory and its title was absolute. It argued that the state of Gujarat cannot claim to inundate the land in the state of Madhya Pradesh and invade its constitutional title to land. It was further submitted that the proposed Navagam Dam Project generated a dispute relating to the submergence of land in the territories of Madhya Pradesh and Maharashtra and not an inter-state water dispute.

The Tribunal could not accept the above arguments. On the constitutional position, it held that the decision

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4/ The Narmada Valley Project is the biggest single river valley project to date whose master plan envisages the construction of 30 major dams, 10 of these on the main river and 20 on the tributaries. Its cost estimate for the whole project is Rs.9,000 crores and is likely to go up to Rs.25,000 crores by the time the project is completed.

of the Tribunal overrides the legislative and executive acts of the states so far as the inter-state water dispute is concerned.[5] The Tribunal was of the opinion that the submergence of territory was integrally and inextricably connected with the equitable apportionment of an inter-state river waters between the claimant states.[6] It held that the dispute between Gujarat and Maharashtra and Madhya Pradesh was in substance a dispute with regard to apportionment of Narmada waters and the question of submergence of land in Maharashtra and Madhya Pradesh was merely incidental and consequential.

Another question the Tribunal considered was whether it was obligatory for Gujarat to obtain the prior consent of Madhya Pradesh or Maharashtra before proceeding to execute the Navagam Dam Project. On behalf of Maharashtra and Madhya Pradesh, it was argued that such prior consent was necessary. Both Madhya Pradesh and Maharashtra based this argument on the Madrid Declaration of 1911.[7] The Tribunal rejected this argument on the ground that Madrid

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5 The Tribunal inferred this from Sec. 5 and Sec. 6 of the Inter-State Water Dispute Act 1956, read with Art. 262 of the Constitution of India.

6 See, V. Ramaswami, "Inter-State Water Disputes: Problem of Submergence of Territory", Indian Journal of International Law, vol. 19, 1979, pp. 3-4.

7 Briefly, the Madrid Declaration of 1911 provides that in boundary as well as in successive rivers neither of the riparian states can change the natural flow of such waterways without the consent of the other, especially if the alteration in the stream is injurious to one of the riparian states.

Declaration of 1911 was no longer relevant in the changed context. The Tribunal, however, took the position on par with the international law that the state which uses the territory of another state for storage purposes, must pay compensation to the latter. Such compensation was also provided in the following cases: (i) Nile Waters Agreement of 1959 between Egypt and Sudan, where compensation was to be paid by Egypt for injury to Sudanese property due to flooding of land by the construction of High Aswan Dam; and (ii) the treaty concluded between the United States of America and Canada, over the Columbia river, where compensation was paid to Canada.

Krishna Waters Dispute

Krishna, another important peninsular river which drains Maharashtra (26.8%), Karnatak (43.8%) and Andhra Pradesh (29.4%), and in the process courses a distance of 1,400 Km. The river passes through some of the semi-arid regions of the country and had been practically untapped till the middle of the last century. Only the Vijayawada river was an important work to be taken up as late as in the middle of the 19th century, for irrigation of deltic lands and it yielded good results. It banished famine from the delta and converted it into one of the richest granaries of the country. In 1951, the Planning Commission wanted some large irrigation projects to be undertaken to increase the food production in the country. A meeting of the states

involved was held under the auspices of the Planning Commission and Krishna water was distributed among them. But later, the Memorandum of Agreement was not ratified by Karnatak while other states had done it. Karnatak claimed some amount of additional water. The Planning Commission, however, went ahead and sanctioned projects, notably the Nagarjunsagar Project to irrigate 0.8 million h.a. in the first stage. In the meantime, basin states were organised in 1953 and again in 1956. Some of the newly formed states demanded fresh allocation. A commission was set up to report on the availability of supplies, taking into account the existing uses. Its report was submitted in 1962. Since the report could not furnish alternate measurement of water flow, the Ministry of Irrigation and Power proposed an interim allocation of 11,328, 16,992 and 22,656 million cum. m. (400 TMC, 600 TMC, and 800 TMC) to Maharashtra, Karnatak and Andhra Pradesh respectively.

Differences still persisted in spite of the interim allocation. But unlike Narmada, where new projects could not be taken up, on Krishna several new works were sanctioned in all the basin states, based on the interim allocation.

While both Maharashtra and Karnatak were in favour of referring the matter to a tribunal, the Union Government tried to settle the dispute through negotiations. But having failed in its effort, a Tribunal was finally set up in 1969.

The Tribunal handed down its decision in 1973. It assessed that the 75 per cent dependable flow in the river is 58,333 million cu. m. (2060 TMC) and awarded 16,000 and 19,680 million cu. m. (565 TMC and 695 TMC) respectively to Maharashtra and Karnatak. It laid down that Andhra Pradesh, the lowest riparian, will be at liberty to use any water (June 1 to May 31) of the succeeding year), the remaining water that may be flowing in the Krishna river, but thereby it shall not acquire any right whatsoever to use in any water year nor be deemed to have been allocated in any water year of Krishna river in excess of 22,656 million cu. m. (800 MTC) plus allowance for reservation.

Ravi-Beas Waters Dispute

The Ravi-Beas Waters Dispute, between Punjab and Haryana and Rajasthan is the bitterest of all inter-state water disputes. The Ravi, and the Beas, as discussed earlier, are the two tributaries of the river Indus. The Indus Water Treaty 1960, assigned three eastern tributaries to India, namely the Ravi, the Beas and the Sutlej. Since 1960 the waters of Sutlej stood committed for the old Sirhind Canal and the Bhakra Nangal Project, only the surplus waters of the Ravi and the Beas were to be apportioned among the basin states of India.

Under the Indus Water Treaty with Pakistan 15.8 MAF of waters of Ravi and Beas, flowing into Pakistan was to be impounded by India as from April 1, 1970. In lieu of it, India had paid Rs.100 crores to Pakistan.

In anticipation of availability of this additional water, an inter-state agreement had already been evolved in 1955. In that year an inter-state conference had been held under the chairmanship of the Union Minister for Irrigation and Power. It was agreed among the concerned states to allocated as follows the annual mean supply of the Ravi and Beas, over and above the actual pre-partition uses:-

Punjab	5.90 MAF
PEPSU	1.30 MAF
J & K	0.65 MAF
Rajasthan	8.00 MAF
Total	15.85 MAF

The water of the Ravi was to be impounded in a dam to be constructed at Thien on the border of Kashmir and Punjab. Beas water was to be impounded at Pong.

The dispute between the present Punjab and Haryana is in regard to 7.2 MAF of water allotted to United Punjab (i.e. Punjab and PEPSU). In 1966, Punjab was split into Punjab and Haryana (there were changes also in the boundaries of Himachal Pradesh).

After this reorganization, the dispute arose between Punjab and Haryana over the share of Ravi-Beas waters, i.e. the surplus water which was to be available for distribution after 1970 when the transition period, as provided in the Indus Treaty of 1969, was over.

In 1969, the Haryana Government had put forth a claim for 4.8 MAF of water out of the 7.2 MAF. A committee appointed by the Union Government had recommended 4 MAF to Haryana.[8] But Punjab was not willing to share any water with Haryana out of the 7.2 MAF Ravi-Beas water. Punjab opposed Haryana's claim on Ravi-Beas water on the following grounds. According to Punjab:

(1) Haryana is not a riparian state. The rivers Ravi and Beas fall exclusively in the territory of Punjab. Rivers like all other 'natural resources' belong to the territories in which they fall. Haryana cannot channelise physically the Ravi-Beas waters into its territories as the beds of the two rivers nowhere touch its territory.

(2) There is the impassable barrier of the river Sutlej in between Haryana and the two Punjab rivers (Ravi and Beas). Therefore, Haryana should

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8 The committee of officials appointed by the Union Government known as Mitra Committee, its report was not, however, published. See, Hindu, 28 August 1974.

have no claim whatsoever on the additional water of the rivers.

(3) There was no mention of the division of Ravi-Beas waters in the Punjab's Reorganization Act 1966, though the quantity and the timing of the availability of the additional water were very well known at that time. When all the identifiable assets and resources had been divided between the two states, the division of the additional water of Ravi-Beas had not been mentioned in that statute.

Haryana contested Punjab's arguments on the following grounds:

(1) River waters, even though 'natural resources', were nonetheless 'national resources' and Haryana had a rightful claim on it. Punjab's plea of exclusive ownership of Ravi-Beas waters on territorial grounds were, therefore, not tenable.

(2) The absence of a specific mention of Ravi-Beas waters in the Reorganization Act was an 'omission'. For remedying such lacunae, a reference of unanticipated disputes to the Centre, had been provided in Section 65 of the Act and as a successor state, Haryana had a valid claim on Ravi-Beas waters.

(3) Under the Indus Waters Treaty 1960, the surplus waters were acquired from Pakistan with the specific purpose of providing irrigation to desert areas of Rajasthan and Punjab and all the desert areas of Undivided Punjab fell in Haryana territory. Therefore the lion's share of water out of the 7.2 MAF was its rightful due.

In 1974, at the instance of the Centre, the two states appointed teams of experts to thrash out the problem. But they failed to come to any agreement. Again the Chief Ministers of the two states were persuaded to resolve the deadlock.

/The two Chief Ministers (Zail Singh, Chief Minister of Punjab, and Bansi Lal, Chief Minister of Haryana) held a round of talks in Delhi under the auspices of the Centre.

t no settlement could be reached and the dispute was

lly referred to the Central Government in accordance with the provisions of the Punjab's Reorganization Act. The Central Government entrusted the matter to the Chairman of the Central Water and Power Commission, and both the states placed their cases before him.

In the meantime Haryana had raised its claim from 4.8 MAF to 6.2 MAF of water whereas Punjab was determined not to concede a drop of water more than 0.9 MAF.[9] It was

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9 See, "Dispute over sharing of Ravi-Beas Waters, Chandigarh Correspondent", Hindu, 28 August 1974.

assessed that the one million acre of water could step up farm production to the extent of Rs.50 crores a year.[10]

While the sharing of the water was still an unsettled issue, disputes arose over the sharing of power at the proposed Thien Dam. Originally conceived in 1927, it assumed a practical shape only after the Indus Water Treaty was signed in 1960. A 432 feet high dam was to be built on the Ravi at the village Thien on the northern-most tip of Punjab territory bordering the Jammu and Kashmir to impound 1.9 MAF of water of the river which was flowing into Pakistan. The Punjab Government had submitted a preliminary survey report of the Thien Project to the Centre (i.e. Central Water and Power Commission) in 1964. Then estimated to take six year for its completion, the work on this multipurpose project could not start, even while the 10-year period allowed to Pakistan expired on 1 April 1970. After 1 April 1970 the Ravi waters which should have been impounded by India, continued to flow into Pakistan as a free gift, which monetarily speaking meant Rs.125 crores loss to India, in addition to the loss on account of not harnessing 315 MW of electricity which was the firm potential of the multipurpose project.

The delay in executing the project was due to the three complex problems: (a) a constitutional hitch in the

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10 At the 1974 price level. See Ibid.

way of acquisition of land, (b) unresolved inter-state disputes over sharing of water and power, (c) want of financial resources.

A constitutional hitch over the acquisition of land arose as the 20,000 acres of land to be submerged by the reservoir fell in the territory of Jammu and Kashmir. 12,000 acres Similarly, the dam was to span one-half in the territory of Kashmir and the other half in Punjab. Under the Constitution of India, Kashmir enjoyed a special status.[11] No outsider except the Central Government could own land in Kashmir. Hence it was not Punjab, but the Central Government which could only acquire land for the project, and hence the former should come forward. Only in 1972, the Union Minister of Power and Irrigation, Dr. K.L. Rao, declared that Thien Dam Project would be executed by the Government of India as a Central Project.

The inter-state dispute for sharing of power arose as a result of three circumstances:

1) The earlier 1955 Agreement had only provided for the sharing of water among the basin states. The power potentials of the project, in harnessing waters of the three rivers did not seem to have been visualised at that early stage. On the strength of that argument Rajasthan now put forward

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11 Article 370 of the Constitution of India.

its claim for power. Since large compensation had been paid by the Centre, Punjab could not deny the claim, it said.

(2) Under the Punjab Reorganisation Act 1966, Haryana was entitled to 40 per cent of the assets of the United Punjab. On that ground the latter staked its claim for share in power but Punjab resisted this claim on the ground that there was no mention of Ravi waters in the Reorganisation Act.

(3) While the dam was to span the borders of both Punjab and Kashmir, as Ravi forms the natural boundary between the two states, 85 per cent of its catchment in India lay in Himachal Pradesh. The latter put forward a claim for 42.5 per cent of the power generated by the project on the analogy of a similar agreement with U.P. in respect of power generated by the Yamuna waters.

In 1976 an accord over Ravi-Beas waters was signed and the 10-year dispute between Punjab and Haryana was then thought to have been settled once and for all.

The Centre decided to give .2 million acre feet of water to Delhi and divided the remaining 7 MAF water equally between Punjab and Haryana.[12]

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12 Statesman, 21 February 1976.

Thus the shares would be as given below:

Punjab	3.5 MAF
Haryana	3.5 MAF
Delhi	0.2 MAF

In fixing the share of the respective states, Jagjiwan Ram, the Union Minister of Agriculture, took into account, besides poor irrigation potential, the existence of large tracts of arid and drought-prone land in Haryana.[13]

Legally speaking, Delhi did not have claim on water. Its share was apparently decided on an ad hoc basis with voluntary concurrence of both the states.[14]

In 1977, there were change of governments. In place of Congress governments in both the states, Akali Dal came to power in Punjab and Janata Party formed the government in Haryana. Conflicts over river waters started again as Punjab claimed higher share than provided under 1976 Agreement. Morarji Desai, Prime Minister, initially took the stand that it was difficult to reopen old cases which were already decided. However he wanted Punjab Government to expeditiously furnish data which the Union Irrigation and Power Minister had called for.[15] This led Punjab to claim that the issue stood opened, which Haryana contested. Rizk Ram, a senior Janata MLA, said that Janata

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13 Hindustan Times, 27 March 1976.

14 Hindustan Times (Editorial), 27 March 1976.

15 National Herald, 15 June 1978.

Government by the above action had unsettled the settled issue relating to distribution of the Ravi-Beas Waters.[16] The Indian Express remarked: "The irony is that issue on which the controversy has been revived have already been adjudicated by the Union Government and had become almost dead."[17]

To get the 3.5 MAF water to the south-east Haryana a 210 km. long link-canal was to be constructed half (100 km.) of which was to pass through Punjab. But Punjab did not carry out work for the construction of this canal. Haryana filed a suit in the Supreme Court praying that Punjab be directed to expeditiously undertake the construction of the link-canal.

Under a new accord signed on 31 December 1981, Punjab's share was increased from 3.50 MAF to 4.22 MAF. The increase in the shape of additional 0.72 MAF came to be labelled as a new year's gift to Punjab.[18]

The share of Haryana, Jammu & Kashmir remained unchanged at 3.5 MAF and 0.65 MAF respectively. Rajasthan got an addition of 0.60 MAF. Delhi's share also remained 0.2 MAF as before.

The agreement was signed in the presence of the Prime Minister, by Chief Ministers of Punjab, Haryana and Rajasthan.

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16 Ibid.

17 Indian Express, 10 July 1982.

18 Times of India (New Delhi), 1 January 1982.

The increase in the shares of Punjab and Rajasthan was made possible because of the discovery that the total availability of surplus water stood at 17.17 MAF as against 15.85 MAF which was originally estimated.[19]

The agreement stipulated that the link-canal project would be implemented in a time-bound manner, so far as canal works in Punjab territory are concerned, within two years from the date of signing of this accord, so that Haryana could draw its allocated share of water.[20]

It was also provided that both Punjab and Haryana would withdraw their suits from the Supreme Court without any reservation and subject to the terms of this agreement.[21]

However the dispute has not been settled at that and it persists. The opposition in Punjab mounted an attack on this agreement and later on an extremist movement took up this dispute as one of the issues. Subsequently, Prime Minister Indira Gandhi has made statements that the Ravi-Beas water dispute could be looked into and that would require consultation with all the concerned states. Thus, while for the Government of India's official position there are two major pending inter-state water disputes - i.e.

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19 Ibid.

20 Indian Express, 1 January 1982.

21 Ibid.

on Cauvery and Yamuna basins - to it could be added the Ravi-Beas also.[22]

Cauvery Waters Dispute

It is yet another long-pending River Water Dispute, which relates to the use of the waters of the Cauvery. It involves the states of Karnatak, Kerala, Tamil Nadu and Union Territory of Pondicherry.

The Cauvery rises in Karnataka and after flowing for 800 kms. falls into the Bay of Bengal draining an area of 87,900 sq. kms of which 41.2 per cent lies in Karnatak, 3.3 per cent in Kerala and 55.5 per cent in Tamil Nadu.[23]

The origin of the present dispute could be traced back to 1892 Agreement between the Madras Presidency and the erstwhile Mysore State. At that time, Madras Government had raised objection to the new irrigation projects which the Mysore Government had decided to build on the river Cauvery. The 1892 Agreement between Madras Presidency and Mysore was entitled: 'Rules defining the limits within which new irrigation works are to be constructed by Mysore State

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22 The Minister of State in the Ministry of External Affairs stated in the Lok Sabha on 21 November 1983 that at present there are two major pending river water disputes which relate to the further use and development of waters of Cauvery and Yamuna basins. See Bhagirath, vol. XXXI, no. 1, January 1984, p. 53.

23 M. Basheer Hussain, The Cauvery Water Dispute (Mysore, 1972), p. 44.

without Previous Reference to Madras Government.' By the terms of that agreement, Mysore, an upper riparian state, undertook not to build fresh irrigation works on the river Cauvery or any of its tributaries without the prior permission of Madras.[24]

The first major attempt for irrigational projects by Mysore on the river Cauvery was the proposal to construct Krishnarajsagar reservoir in 1911. This gave rise immediately to a dispute between Tamil Nadu and Karnatak. After protracted negotiations lasting 13 years, an agreement was signed in 1924. The agreement is conspicuous for the detailed regulations incorporated to ensure adequate day-to-day supplies of water to the lower riparian.[25]

The 1924 Agreement was a follow-up action of 1892 agreement.[26] In brief, Madras gave its assent, under clause III of 1892 agreement, to Mysore for constructing the Krishnarajsagar Project. Apart from getting its prescriptive rights in respect of irrigation in the delta, evaluated and conserved, Madras secured the right to construct Mettur Project on the same river.

Cauvery dispute, it may be noted, as Berber writes, was not settled by the application of law, but through the

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24 F.J. Berber, Rivers in International Law (London, 1959), pp. 180-181.

25 Rao, n. 3, p. 206.

26 Gulhati, Development of Inter-State Rivers (Bombay, 1972), p. 127.

authoritative decision of the sovereign power of the British Crown.[27]

The detailed rules for regulation of the Krishnarajsagar Reservoir provides that, during the four dry months of the year, the whole flow of the river at Krishnarajsagar may be impounded. "But issues from the reservoir shall be made when necessary to maintain such a flow as will pass to Madras not less than 900 cusecs below Sivasamundram anicut."[28]

Both the Krishnarajsagar Project in Mysore and the Mettur Project in Madras were completed in due time. The Madras Government had also undertaken some additional development works on the Cauvery.

As a result of reorganisation of states, the upper portion of some of the tributaries of the Cauvery came to be in the State of Kerala, there were some changes in the boundary between Madras (now Tamil Nadu) and Mysore (now Karnataka).

(Disputes arose again when Karnatak undertook some new projects, which, according to it, were within rights secured by it under the 1924 agreement, but Tamil Nadu Government objected to it.)

The 1924 agreement provided for a review after 50 years, which fell due in 1974. Tamil Nadu insisted

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27 Berber, n. 24, pp. 180-181.

28 Gulhati, n. 26, p. 90. Also see Annex 1 to the 1924 Madras-Mysore Agreement, Rule 12(i).

that water should be shared by two states on the frame-work provided by that agreement. Karnatak refused to do so on the ground that it was grossly unjust. Instead, it asked Tamil Nadu to renegotiate the settlement afresh. Tamil Nadu's view was that the 1924 Agreement could not be terminated, only renewed, keeping in mind the interests of the lower riparian.

After the expiry of the 1924 Agreement, Karnatak and Tamil Nadu could not reach any agreement. Karnatak had drawn up its master-plan for utilization of Cauvery waters, and Tamil Nadu had its scheme for improving the irrigation system, but there was no coordination between them.

It needs to be emphasized that while Tamil Nadu had completed almost all projects on the Cauvery and its tributaries, Karnatak proceeded rather slowly. After reorganisation of States in 1956, Kerala appeared on the scene as a riparian state and laid its claim for allocation of water from the Cauvery.

In 1974, Tamil Nadu faced a severe drought and crops in its Thanjavur district badly needed water. But Karnatak had refused to release the waters impounded in the newly built Kabini reservoir (Kabini, a tributary of Cauvery in the Karnatak). While, Tamil Nadu insisted on water, which it had been getting under the 1924 Agreement, Karnatak's argument was that the agreement between Madras Presidency and Mysore Durbar did not have any relevance in the changed context. Thus, while Tamil Nadu's argument was

that the lower riparians existing uses ought to be protected by the upper riparian, Karnatak's reply was that it could not do so at the cost of its own development.

Under the 1924 agreement, Mysore could create 45 TMC ft. (44.827 tmc ft.) and should Madras build capacity across certain scheduled tributaries, Mysore would be entitled, within certain restrictions to create 'offsetting capacity'.

In terms of acreage, Karnatak had developed only 2.02 lakh acres as against the permissible 4.41 lakh acres. In contrast, Tamil Nadu had impounded 127.5 TMC ft. purely in terms of the 1924 accord against permissible 124.5 TMC ft. through Mettur, Bhavani and Amaravati reservoirs.

In 1976, when Tamil Nadu was under President's rule, an agreement was outlined which took into cognizance Karnatak's plea that a great deal of water was going waste in the Cauvery basin within Tamil Nadu due to lack of renovation in the age-old canals and resultant seapage of water in it. A central team found that 100 TMC of water could be saved in Tamil Nadu by better management and this savingcould be shared in an agreed ratio by Karnatak, Tamil Nadu and Kerala. Since one of the parties (i.e. Tamil Nadu) was under the President's rule, the 1976 agreement was not signed by any state but remained an understanding.

Later, Tamil Nadu (under M.G. Ramachandran as Chief Minister) rejected the 1976 Agreement, as it was based on assumptions that Tamil Nadu was wasting water. It claimed

that the old delta was working at 56 per cent efficiency which was the highest in South Asia. It argued that while efforts should be made to raise this percentage, there was no reason to believe that Tamil Nadu was using water wastefully.

Expecting Tamil Nadu to save 100 TMC by better management, Karnatak built dams on the Kabibi and Hemavati, tributaries of the Cauvery, impending the flow of water into the Mettur reservoir for release to the Thanjavur, Tiruchi, and South Arcot regions which are said to be the grannary of Tamil Nadu.

At one stage Karnatak suggested that water should be apportioned on basin factor, that Tamil Nadu and Karnatak should get 47 per cent of the estimated flow of 792 TMC ft. of water, and Kerala and Pondicherry, 5 per cent and 1 per cent respectively and the same percentage should also apply to the surplus or deficit flows. But this has not found favour with Tamil Nadu.

The Centre has tried to solve this dispute over further use and development of Cauvery waters, by holding a number of meetings at official and Chief Ministers' level. In March 1983 meeting, the Chief Ministers of Karnatak wanted to have bilateral discussions with the Chief Minister of Tamil Nadu to sort out the outstanding differences on sharing of Cauvery waters. The Chief Ministers of both the states were requested to conclude bilateral talks, to enable

the Chief Ministers of all the Basin States to arrive at an agreed consensus.[29]

The South Asian countries around India do not have federal forms of government and in many cases their political systems are not democratic. The river water disputes in these countries are, therefore, not very vocal and not fought in public politically in the form of claims and counter-claims. The details concerning these disputes are not easily available.[30]

The above discussion need not give the impression to its readers that there are no agreements among the states in India on the questions of further use and development of waters of the inter-state rivers. In fact, the agreements on the development of inter-state rivers outnumber the disagreements. Many purposeful and ambitious joint schemes have been launched in India and 'agreement' has been the cornerstone of such ventures. Some of the major multipurpose projects are: (i) Damodar Valley Project, between West Bengal and Bihar. It is administered by the Damodar Valley Corporation (DVC) established in 1948. (ii) Tungabhadra Project (between Andhra Pradesh and Karnatak), (iii) Gandak Project (between Bihar and Uttar

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29 Bhagirath, vol. XXXI, no. 1, January 1994, p. 53.

30 The author regrets his inability to visit these countries to get these details concerning such disputes from local population or government records.

Pradesh), (iv) Mahanadi Project (between Madhya Pradesh and Orissa, which includes Mahanadi Reservoir Project in Madhya Pradesh and Hirakud Project in Orissa), (v) Rajasthan Canal Project (based on an agreement between Punjab, Haryana and Rajasthan), and (vi) Chambal Project (jointly executed by Madhya Pradesh and Rajasthan). Other important projects are Nagarjunasagar (in Andhra Pradesh), Sone High Level Canal Project (in Bihar), Kakrapura (in Gujarat), Mahi (in Gujarat) and Menyurakshi (in West Bengal). Nearly one thousand and one hundred twenty seven major and medium projects have been taken up between 1951 and 1982 of which 506 have been completed and 17 more are nearing completion and many others have started yielding partial benefits.[31]

PAKISTAN

Pakistan is a country of hills and plains. Its western region consists of hills of Baluchistan Plateau and the mountain ranges of North Western Frontier Province. There is not much need of water in this mountain region, although mountain agriculture is an important enterprise in Pakistan as in the mountaneous areas of India, Nepal and Sri Lanka. What Pakistan however faces at present is the serious hazard of water eroison (soil erosion) in its mountaineous regions, which is caused by deforestation and poor soil management.[32]

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31 See, India: A Reference Annual (New Delhi: Ministry of Information and Broadcasting, Government of India, 1983), p. 256.

32 See, Dr. Amir Muhammed, "Agricultural Development in

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The eastern region consists of the plains of the Indus and its tributaries. As the average rainfall in the Indus Valley is no more than 25 per cent a year, the country is generally very dry. But the good network of irrigation canals over a large part of the country offsets the hazards of very little rainfall which Pakistan experiences.

But since water is a fixed resource, particularly in arid and semi-arid areas, inevitable pressure on this resource has come to be felt in Pakistan, so far as development and harnessing of river waters are concerned. Opinions have been expressed to harness the river waters through suitable irrigation systems including dams, big and small, check dams and mini-dams or farm ponds. Simiarly, the need has been felt for harnessing water from melting glaciers in northern areas of Pakistan.[33]

There were some inter-state problems regarding the use within Pakistan of the waters of the Indus, the Jhelum and Chenab, allotted to Pakistan by the Indus Water Treaty, 1961,[34] but the full particulars are not available.

Except for a brief interlude during Bhutto's premiership, Pakistan has been run by successive military

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/and South Asian Region: Constraints and Strategies for Improvement", in Pakistand Gulf Economist, 26-27 April 1984, pp. 10-11.

33 Ibid., p. 11.

34 Gulhati, n. 26, p. 164.

dictatorships. Since military government is an authoritarian government, differences among the provinces over water, if any, have not assumed the status of inter-state disputes within a federal set-up and details relating to such disputes can only be collected from the local population which feel deprived by the pattern of water distribution imposed by the authoritarian central governments. Though 1973 Constitution provided for a federal set-up with four provinces as units, the experiment could not be carried out for long.

BANGLADESH

A researcher in river water disputes is likely to get disappointed not to find an intra-state river dispute, the kind of which is so common in the federal countries like the United States of America, Australia and India. Bangladesh is a unitary country and its administrative units are known as 'districts'. There are 68 districts at present though, the figure was only 22 in 1933. These districts are grouped under 4 Divisions. Neither the districts nor the divisions hold comparison with the units of a federation (i.e. the states in India) which enjoy some sort of autonomy and political leverage against the central and national government. Besides, Bangladesh is a small country with a vast network of rivers. Here the hydrological factor accounts for there not being a row over water in the country. Of course, Bangladesh provides

a peculiar water chart, i.e. too much of water and too little of it. Winter is the time when there is too little of water, that too only in the western part of Bangladesh. The country's irrigation system is not yet well developed. There are canals but not many. In winter Bangladesh suffers from shortage of water, both surface and underground.

The Master Plan with regard to water resources which was done during Mujibur Rahman's time has been given up in favour of piecemeal (small projects) planning, which, of course, makes easier for the government to obtain necessary finance. This makes understandable the row Bangladesh has with India over Ganga waters at Farakka for so many years. While it is possible to bring water from Brahmaputra to the western part of Bangladesh, and there was earlier such a proposal for all Bangladesh Link Canal, it has not been done, perhaps for the all important reason of finance.

NEPAL

In Nepal, the Central Government plays a decisive role in all issues relating to the distribution and utilization of water. The administrative zones in Nepal have not any autonomy as the case is with Indian States, nor do the former have clear cut boundaries as the latter have. Hence the question of within-country disputes over water has not arisen. It may arise if the zones are given regional autonomies. The regional offices are order takers.

If regions would be doing planning for river projects, the problems would occur. Also this question does not arise in Nepal as the country has enough water resources. Some tension, of course, arises among villagers at local level, micro-level, when as for example a dam is constructed to divert water, which may affect that region in monsoon months.

SRI LANKA

Because of the monsoons and some factors of the islands relief, there are three climatic regions in Sri Lanka, humid, dry and arid. The distribution of rain is not uniform throughout the island as its central and south-western parts get more of it than the rest. The harnessing of river water resources is of vital importance to Sri Lanka's economy, but schemes such as on the Gal Oya are limited to controlling water in a single catchment, and they are not many in number. What is required is to make major artificial readjustments by transferring surplus flow from wet zone to dry. Of late, the Mahaweli Ganga Project is a step in that direction. When this project is completed, it would make Sri Lanka self-sufficient in rice. This project is a diversion project and Sri Lankan Government is giving incentives to people to go from densely populated areas for settlement in the eastern area — a dry zone — which will be irrigated by the project. In this would-be irrigated area it has been planned to settle the people of the Sinhalese community. The Tamils, however, are objecting

to this resettlement scheme.

Since Sri Lanka is again a country with a unitary form of government, water disputes if any have not been that vocal to attract attention.

In a country with federal set-up and democratic form of government disputes relating to the distribution of river waters are vocal as the parties to the dispute are politically organised as the units of the federal set-up and articulate their demands publicly. This is the case in India. In a different political set-up the disputes are not fought so publicly. This is borne out from the case in other South Asian nations.

CHAPTER V

CHAPTER V

WATER POLITICS AND DIPLOMACY IN SOUTH ASIA

An international river is almost always a source of international dispute relating to the distribution and use of its waters. The hydrology of a river does not change when an international frontier runs across or along it, only the politics changes. The need for developing the water resources vary among basin countries due to factors such as population size, level of economic development, cultural practices, foreign policy objectives and the availability of alternative water sources. These create vastly different priorities for the use of the resources. Such conflicting demands distort the perspective of the basin as a hydrological unity. Historical enemities among the countries involved in the conflicts further undermine this perspective. The inability of the basin countries to work in co-operation leads to wasteful projects for the use of water and also to environmental degradation.

It is now well recognised that integrated development of an international river can render better benefits for the basin countries than uncoordinated development of the river. The Indus Water Treaty 1960 was not an exercise in the integrated development of this river. What the treaty did achieve was the division of the rivers -- three for India and three for Pakistan -- and the termination of the

decade old dispute between the two riparian countries, India and Pakistan.[1]

The Indus dispute was much politicised because India and Pakistan had inherited a hostile past and had many unsettled problems between them. Pakistan pursued its interests rather ruthlessly, often in an unaccommodating way. Even after World Bank Mediation, it kept on blowing hot and cold. The response of Pakistan to 1954 Bank Proposal was that "it had neither accepted nor rejected it." Such ambivalence of Pakistan was well designed to serve its interests. The 1960 Treaty followed the pattern of 1954 proposals. By thus delaying the acceptance of the 1954 proposals Pakistan was able to get water, without any obligation to make payments to India. Pakistan looked for financial benefits also. It agreed to the 1960 Treaty only after it was assured of foreign assistance and a payment of more than 80 crores of rupees from India. Under the treaty Pakistan was also entitled to unlimited flow of water from Ravi-Beas-Sutlej during the next 10 years of transition period. This was also a gain for Pakistan.

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1 In real terms, it was 80% of water for Pakistan, and only 20% for India. The allocation of a little more water to India would have probably forestalled the intensity of the dispute between Haryana, Punjab and Rajasthan in India relating to distribution of the waters of Ravi and Beas rivers. While the treaty was under discussion, such views were aired by several members. Recently in the course of an interview with R. Rangachari, Member, JRC, he said that the treaty

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Pakistan from the very beginning maintained a vigorous publicity front to malign India and tarnish its image by spreading misleading ideas. As Arthur Geddes, very appropriately, writes:

> There has been considerable misconception. Take, for example, a highlight of reporting during the dispute. This was the resumption of building, by the Indian Government, of what was then the world's highest straight storage dam, the Bhakra Dam, to 270 M. across a gorge in the foothill catchment of the Sutlej. From this, quite naturally, readers were apt to assume that the Bhakra Dam must control one of the world's greatest rivers. In fact, it is the small irregular discharge of the Sutlej proper, together with the wide area and the needs of the land which it watered in prehistoric times, south to the edge of Rajasthan, which were seen by 1908 to necessitate this costly construction, approved by 1938 and actually begun in 1946, that is before partition. 2

It is again of interest to quote Geddes:

> It would therefore be misleading to say of the schemes of work now being undertaken in West Punjab, that it originates with separation of India and Pakistan, as said in a recent engineering journal, or again that ... the essential purpose of the vast schemes (in Pakistan) is to restore water to Pakistan lost (from Pakistan) to India. 3

Similar has been the situation with respect to the disputes relating to the waters of the Ganges. Bangladesh

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> though signed after careful consideration of both domestic and international situation could not sufficiently take into account the future needs of India. Otherwise as he put it: "Why should the Sardarjis be burning the buses today?".

2 Arthur Geddes, Man and Land in South Asia (New Delhi, 1982), p. 115.

3 Ibid.

has been raising the issue in different international forums, which has only delayed a settlement of the dispute. India therefore does not feel happy about it.

In 1976, invoking Article 14 of the UN Charter, Bangladesh brought the dispute before the General Assembly, stating that "failure to resolve this issue expeditiously and satisfactorily carries with it the potential threat of conflict affecting peace and security in the area and the region as a whole."[4] Bangladesh contended that India's construction of a barrier on the Ganges River at Farakka, a few miles from the Bangladesh-India border, for the purpose of diverting the river into Hooghly river in India and India's continued unilateral withdrawal of a large volume of water from Ganges had a devastating impact on Bangladesh, causing 'cummulative and permanent' damage.[5] India expressed serious misgivings about the desirability of involving the Assembly in an issue which was intrinsically bilateral. Asserting that India 'had always subscribed to the view that such riparian State was entitled to reasonable and equitable share of the waters of an international river, it showed willingness not only to consult with Bangladesh in finding a short-term solution' to avoid the common hardship that might be caused by a shortage of water during the

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4 United Nations, Monthly Chronicle, December 1976, pp. 35-36.

5 Ibid., p. 36.

lean months, but also to co-operate in the search for a long-term solution by augmenting the flow. The General Assembly referred the matter back to the two riparians. Accordingly, the two parties decided to meet urgently at Dacca at the ministerial level for negotiations with a view to arriving at a fair and expeditious settlement.

The consensus adopted by the General Assembly, while in one way highlighted the maturity of Indian diplomacy, also reflected the world body's belief that the bilateral disputes are best tackled bilaterally.

The problem of augmentation of Ganga waters on a long-term basis, is an issue pending till today since the conclusion of Farakka Agreement 1975. India's proposal for a link-canal between Brahmaputra and Ganga rivers to solve this problem, has not found favour with Bangladesh. While India wanted to find a solution within the bilateral frame-work, Bangladesh was not willing to deal with this issue on a bilateral basis and wanted to involve Nepal, and, if possible, even China, alongwith World Bank and Western sources.

India's insistence on bilateralism, it also appears, is on account of a physical necessity. The upper-middle Ganga basin has no alternative source of water supply where-as the lower basin can be replenished from the almost totally unused Brahmaputra. Haryana, Rajasthan, Madhya Pradesh, Uttar Pradesh and Bihar, i.e. upper-middle region of the Ganga basin, are still widely dependent on an

uncertain rainfall and must expand irrigation facilities to feed a growing population.[6] India, therefore, wanted to use the limited storage possibilities in the large and densely populated middle basin. It stated that it was already engaged in bilateral negotiations with Nepal regarding storages on the Karnali, Sarda, Rapti (and even Kosi)[7] and did not favour multilateralism here. B.G. Verghese says: "The issue is essentially political, not technical or engineering." He further says that "both sides have erred."[8] This is so even while Indian proposal for the channelization of Brahmaputra waters is well conceived and would confer great benefit on Bangladesh as much as on India.[9] But the whole thing, according to Verghese, "has been politically mishandled."[10] He finds fault with India that it has failed to recognise that the issue is essentially political and in the process failed to see its political interest by steadfastly declining to make 'concessions' to Bangladesh. It is quite wrong to treat the two augmentation proposals (of India and Bangladesh) as mutually exclusive. They are not. They are complementary not competitive.[11]

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6 B.G. Verghese, "River Waters: Doubts Hamper Agreement", World Focus, vol. 3, no. 3, March 1982, p. 19.

7. Ibid., p. 20.
8. Ibid.
9. Ibid.
10 Ibid.
11 Ibid.

India needs to harness the Ganga and its Himalayan tributaries for water, energy and flood control, but much of the potential lies in Nepal, which is not showing adequate interest in these matters.

Nepal, after its experience of Kosi[12] and Gandak,[13] was intending to launch its Karnali Project, one of the most ambitious in the whole of Asia, which could not be done without India's support and active participation. There was at the same time, a desire to internationalize the project as far as possible.[14] This was at the time when Bangladesh too was insisting on associating Nepal in the study for augmentation of water resources of the Ganges, but India was not keen about or to bring Nepal in the Joint Rivers Water Commission, and thus internationalize the issue.[15]

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12 An Agreement between the Government of India and the Government of Nepal was signed at Kathmandu on 25 April 1954 to undertake the Kosi Project on the river Kosi. This is a multipurpose project with emphasis on irrigation and flood control. The envisaged that the flood embankments would free an area of about 20,720 Kms in Bihar and Nepal from the ravages of the Kosi and afford direct protection to about 60,000 hectares of cultivable land in Nepal and 20,000 hectares of land in Bihar. Half of the energy (estimated at 21,000 KW) generated by the project was to be made available to Nepal under the terms of the treaty. See K.S. Rangappa, "Water Conservation in India", in B.C. Law, ed., Mountains and Rivers of India (Calcutta, 1968), pp.330-331

13 The Gandak Project is primarily an irrigation project though it generates a small quantum of power. It is an inter-state project in which Bihar and Uttar Pradesh have participated pursuant to an agreement signed with His Majesty's Government of Nepal on 4 December 1959. Nepal also derives irrigation and power benefits from the project. See Ibid., pp. 329-330.

14 D.P. Kumar, Nepal: Year of Decision (New Delhi, 1980), p. 212.

15 Ibid.

All these proposals and counter-proposals were assuming significance in the light of the offer made by President Carter of the USA and the British Prime Minister Callagham, both of whom visited India early in 1978, of the support of their countries to "any proposal for joint water development in the eastern part of the subcontinent."[16]

By December 1978, Nepal and Bangladesh together appeared to be putting up a joint front and presenting it as a fait accompli before India by reaching an agreement on co-operation in utilization of Nepal's river water resources for irrigation, power development, flood control and navigation. The agreement was made at the meeting held in Dacca 1978, of the joint Nepal-Bangladesh Economic Commission. Bhek Bahadur Thapa, Finance Minister, who had led the Nepal team to Dacca for the meeting, told Nepal's official news agency, the Rashtriya Samvad Samity, that the agreement was aimed at bringing "a deeper understanding among countries of the region for optimum development of their water resources."[17]

According to another Nepal Minister (for Water and Power), D.P. Adhikari, who participated in the talks at Dacca, Nepal regarded an outlet to the sea as its highest priority and this was the foremost point that Nepal would take into account for any proposal for joint water management

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16 Ibid.

17 Ibid., pp. 212-213.

schemes. The inclusion of navigation in the agreement at Dacca, he envisaged, "fulfilled a long-cherished desire of landlocked Nepal for an outlet to the sea." The proposal for navigation was understood to be related to Dacca's scheme for building storage tanks (reservoirs) in Nepal and India, linking eastern Nepal through water canal - across West Bengal upto Mahananda river.[18]

It was at the 1977 Colombo Plan Consultative Conference that the Nepalese King mooted the idea of regional co-operation in the fields of water resources. Nepal wanted the issue to be considered at three levels: local, bilateral and regional. She felt that on small rivers, she had the freedom to implement any project, even if diversion of water was detrimental to India. Concomitant with this, she had put forth her claim as an 'upper riparian'. Apart from bilateral talks with India, she insisted on discussions on water utilization in the regional context. Her claim that all waters flowing from Nepal belong to her until they reach the ocean, meant that she wanted navigational rights in the rivers that originate in Nepal and pass through India.[19]

However, in December 1981, India and Nepal reached a comprehensive agreement on flood-control under which 40 stations were to be set-up in different parts of the

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18 Ibid.

19 S. Sahay, "A Close Look: Indo-Nepalese Relations", The Statesman, 10 December 1981.

Kingdom to provide advance flood warning and collect data of rainfall in catchment areas. The estimated cost of setting up of these centres was Rs.1.5 crores and was to be borne by India. The agreement was reached during the four-day official visit of Indian External Affairs Minister, P.V. Narasimha Rao, to Nepal.[20]

India and Nepal also agreed on prior mutual consultations before either country embarked on any river project. The idea was that projects were designed in such a manner that one country did not suffer because of the action of the other.[21]

It may be noted that 60 per cent of Nepal's existing hydel capacity has been built up with Indian help. Sale of electricity to India ultimately could form the main export earning revenue for the mountain kingdom. That there is a close inter-dependence between Nepal and India, is evident from the fact that when the Royal Government approached the World Bank for the Karnali project, the Bank shrewdly sought an assurance that India would buy the expected 3,600 Megawatts of electricity that can be stepped up by an additional 1,000 Megawatts.[22]

But in spite of the mutuality of interests involved there was a wide gap in the perceptions of India and Nepal.

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20 Hindustan Times, 3 December 1981.

21 Ibid.

22 Sunanda K. Datta Ray, "Relations with Nepal: Making the best use of Water", Statesman, 7 April 1982.

Especially with regard to Karnali, Rancheswar and Rapti, the discussions proceeded haltingly, neither side realising that teditious procrastination in cross-talk only compounded the accumulating mutual loss, of which 'Karnali' was an eloquent example. Though the first feasibility report of Karnali was prepared as back as 1965, it took nearly 20 years to arrive at an agreement on this, which illustrates the complex nature of negotiations.[23]

Nepal at times has expressed its misgivings that India wants to keep Nepal in 'political and economic subjugation'. It has also alleged that so far as water resources go, India wants all the benefits at the cost of Nepal. For instance, river projects would submerge Nepalese land and yet India has shown no interest in fully financing the projects that may be located in Nepal nor in buying electricity from it. The Nepalese apparently felt that their country was looked upon only as a reserve for irrigation water or as a potential power generating station - in either case existing mainly to serve India's needs. Generous aid, estimated at more than Rs.200 crores, has done nothing to allay these Nepalese fears and misgivings.[24]

It is pointed out that if the Kosi river is silting up fast, India alone is to blame for it, because it is she who decided where the project should be located, and

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23 The Times of India, 5 August 1983.

24 The Statesman, 26 April 1982.

possibly because of the faulty technology of 20 years ago. It is said that Nepal suffered the maximum submergence on account of the Kosi dam while the irrigation benefit to Bihar was 100 per cent higher. Power generation was entirely in India, with only a small feedback to the Kingdom.[25]

The Gandak barrage is thought to be better sited and supplies about 5,000 KW. to the Kingdom. But it is also believed to divert substantial amount of water to India, thereby seriously lowering the river's level in Nepal. As a result of friction on these and other related matters, the Gandak's Indo-Nepalese Coordination Committee did not meet for 12 years.[26]

For New Delhi, Kathmandu's hesitation is not fully explained by a rational assessment of technical features. The suspicion persists in New Delhi, that Nepal looks for points to object to because, anxious to undertake the Kingdom's independent neutrality, especially between India and China, it would prefer to keep Indian participation down to a minimum. Some would even suggest that the attitude is adopted mainly to impress Beijing.[27]

China's reward by being given the contract to renovate the Chhatra Irrigation Canal originally built by

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25 Datta-Ray, n. 22,

26 Ibid.

27 Times of India, 5 August 1983.

India, was certainly not viewed kindly by India, at least for the reason that this was close to the Indian border, near Naxalbari to be precise. On behalf of China, it was claimed that it bagged contract by bidding low in the global market. But it was contended by India that it was not getting contracts even if its bids were low.[28]

Similarly, India has not responded favourably to Nepalese proposal for an outlet to the sea because of two reasons: (1) obviously India cannot take up the water-ways system because of its implications for its own security interests in the region; (2) it will perhaps open the floodgates to smuggling with which it is already affected because of the transit facilities given to Nepal through its territory via Calcutta Port and the open order.

In this context, it may be pertinent to note that the agreement in February 1983[29] on Karnali, Rapti and Pancheswar multipurpose projects, was significant as it marked the principle of bilateralism, in the sharing of river water resources, despite Nepal's earlier preference for regionalising the issue.

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28 Ibid.

29 See Bhagirath, vol. XXX, April 1983, p. 92.

WITHIN-NATION DISPUTES

Politicians have invariably played their cards in politicising the issues over the river water disputes. This is so, even while the project involves only one country, or just one province in a federal set-up. A number of good projects have therefore got stalled in petty regional squabbles. Eventually when the project gets implemented the costs go up by many times the original estimated cost.

Every dam across a river -- whether multipurpose or single purpose - must submerge a vast tract of land, which may also include a few villages and one or more towns in case of bigger projects. People whose homes and lands would be submerged would oppose the project, while those who would benefit by it (i.e. by irrigational facilities and flood control measures and the like) would welcome it. So the moment the idea of the project is made known, there comes into existence two conflicting groups of interests. In no time political parties appear on the scene to give vent to the views of these interest groups, and to spearhead it. So before one can say, Narmada Valley Project, it becomes a political issue, especially so if the two regions in which the two groups live happen to be in two different states.

The Navagam Dam under the Narmada Valley Project, as already discussed, was to inundate areas in Madhya Pradesh for which the latter was opposing the dam. In 1979

the Narmada Dispute Tribunal submitted its report rejecting the plea of Madhya Pradesh against the construction of the dam beyond certain height. The then Madhya Pradesh Chief Minister, V.K. Saklecha, welcomed the award, as after all the Project in general would usher in an era of plenty in the Narmada Valley, even though it meant flooding of some areas in Madhya Pradesh. But the next morning Saklecha had to contend with hunger strikes, torchlight rallies and demonstrations by landholders of Khargone and Dhar districts where most of the 59,000 acres of land were to be submerged by the construction of Navagam Dam. The opposition parties also lost no time in fanning the agitation. This led Saklecha to announce in the State Assembly that his government had not yet accepted the award. In Gujarat quite naturally, views were openly expressed against the lowering of the height of the dam. Similarly, on purely political considerations, Jagannath Pahadia, the Chief Minister of Rajasthan, had written directly to the World Bank requesting it not to consider the proposal of the Gujarat Government for assisting the multipurpose Narmada Project till the dispute between the two states over the sharing of waters had been settled. Pahadia was, however, subsequently pulled up by the Prime Minister for internationalising an inter-state dispute.

The dispute between Punjab and Haryana over the Ravi-Beas waters has also been too much politicised.

Political parties in these two states, whether they are in power or in opposition, have tried to outdo each other in putting forth unreasonable claims on water like the quantity to be shared is fixed. Such populist gimmicks have been adopted to appease the farmers who constitute the bulk of the voters in an election. Since one million hectare acres of water can step up farm production to the tune of Rs.50 crores[30] per annum, the farmers are easily exercised over the prospect of getting more water.

The river water dispute gets still further politicised, if certain other vital issues are linked with it. Thus the unresolved problems of the transfer of 'Chandigarh'[31] and 'Abohar and Fazlika'[32] have complicated the solution of Ravi-Beas water dispute. In claims, counter-claims by Punjab and Haryana, and in the statements by the central leaders, these above three problems have been talked together, which has virtually grouped the three different things into one. The construction of a part of the link canal in Punjab territory which would take

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30 By 1974 price index. See, "Dispute Over Sharing of Ravi-Beas Waters, Chandigarh Correspondent", Hindu, 29 August 1974.

31 The Union Territory of Chandigarh is the joint capital of Punjab and Haryana. In an earlier award it has been given to Punjab, but the transfer has not yet been effected.

32 The cotton rich areas in Punjab, awarded to Haryana, but the transfer has not taken place to-date. Punjab is inclined to part with it.

water to Haryana, has not been carried out on political grounds. The reactions in Haryana over Punjab's deliberate inaction were full of political overtones. Sunder Singh, a Congress MLA, had urged Haryana Chief Minister (on 9 May 1979) to serve an ultimatum on the Punjab Chief Minister, P.S. Badal, regarding supply of water to link canal. If the ultimatum did not produce desired effect, Haryana should not permit the laying of the Mathura-Jalandhar oil pipeline through its territory. He also pressed for other economic sanctions, including stopping of bus, truck, and rail traffic between Delhi and Punjab. "We are not an annexe of Punjab and U.P. We should have been consulted on the laying of the pipeline and our consent not taken for granted. We are determined that if Punjab starves us of water, we will starve Punjab of the petroleum products. We will uproot the pipeline wherever it is laid in Haryana."[33] At one stage Punjab had also arrested a Haryana survey party which was preparing the alignment drawing.

Thus the issues get so much politicised that a party in power at times finds it difficult to agree to a reasonable settlement, lest it may be branded as a sell out by the opposition. The reorganization of states on linguistic basis (as Punjab was reorganized into Punjab and Haryana) has lent an emotional content to the disputes.

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33 Tribune, 11 May 1979.

It is well known that by over-politicisation of the water dispute and certain other allied problems, things went out of the hands of the political leaders into those of the extremists who brought about what was known as the Punjab crisis. In June-July 1984, the extremists sabotaged some dams and canals to stop water flowing into Haryana and Rajasthan.

Such political conflicts obviously bedevil the adoption of a rational approach to the problem of utilization of water resources. The Karnatak Government had once engaged the services of an American lawyer to plead its case before the Krishna Water Tribunal. In some quarters this was characterized as an example of "distorted outlook" in such matters.[34]

Similarly, if the Cauvery Water Dispute has dragged on so far, it is because of the politics involved in it. Very often in discussions and statements politics has replaced economic and engineering considerations.[35] In 1974, the Karnatak Chief Minister openly criticised the Bachwat Tribunal as biased in favour of Andhra Pradesh. The Karnatak State Assembly also unanimously adopted a resolution moved by the opposition leader endorsing withdrawal from the tribunal proceedings.[36] In October 1982,

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34 See, Editorial, Indian Express (New Delhi, 7 January 1975.

35 See, Editorial, Indian Express, 27 September 1977.

36 See, Editorial, Hindustan Standard (Calcutta), 3 September 1974.

the ruling All-India Anna Dravida Munnetra Kazhagam of Tamil Nadu backed by six other parties had observed a statewide bandh to press for Centre's intervention in securing adequate Caurery waters from Karatak to meet its urgent needs in its drought affected areas. Such agitational approach of Tamil Nadu, even though its needs were genuine, was not viewed favourably by the national press.[37] In the worst times also (i.e. after 1974 when the 1924 Agreement on Cauvery had lapsed), both Tamil Nadu and Karnatak had been able to work out ad hoc agreements to save crops in Tamil Nadu. On some occasions Tamil Nadu had got water from Karnatak in exchange of power. Such barter agreements were highly appreciated in many quarters. The examples of politics in river-water disputes are legion, and they need not be multiplied further.

Suggestions have been made to declare the inter-state rivers as national assets and to put them beyond the reach of politicians.[38] This could be possible by placing the river water resources under the direction of a high level body of technocrats. It is a happy point that a National Water Department has been set up under the Chairmanship of the Union Irrigation Minister, to undertake surveys

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37 See, Indian Express, 16 October 1982. It characterised Ramachandran's (Chief Minister of Tamil Nadu) action in giving call for hartal as 'Nero fiddled while Rome burnt'.

38 See, Economic Times (New Delhi), 11 January 1975.

and investigations for the development of peninsular rivers. The Chief Ministers and Irrigation Ministers of Andhra Pradesh, Gujarat, Karnatak, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh, Kerala, Goa, Daman and Dieu, and Pondicherry are its members, besides concerned Central Ministers. The constitution of the agency marks the first step towards implementing the massive Rs.50,000 crore national perspectives for water resources development which envisages amog other things transfer of surplus water from one river to another to meet the needs of the deficit areas.[39] Though strictly speaking it has not taken the inter-state rivers out of the reach of politicians, it is hoped the constitution of the Agency would promote scientific development for optimum utilization of water resources in the country.

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39 Patriot, 26 July 1982.

CHAPTER VI

CHAPTER VI

CONCLUSION

Increased water uses for irrigation and industry has inevitably led to the pressure on river water resources. The problem of apportioning and selecting the most profitable uses of water between several communities is not an easy one. Even where the problem is purely domestic, serious and complex difficulties arise. And where the communities are sovereign independent states, these difficulties get multiplied. Diversion of waters from an international river, of however small an amount and for whatever reasonable use, can too easily create tensions between the co-riparian States.

As has already been pointed out at the outset river water disputes fall into an area which does not easily lend itself to solution. Since each river dispute is more or less a type by itself, it is difficult to treat them on an equal footing or by a uniform standard. Due to geographic, socio-economic and political factors each river water dispute presents a different set of problems and the helplessness of law is understandable as it cannot take all these varying factors into account.

Water, besides being basic to human existence, is the primary input into all economic activity. With the growth of population and expansion of agriculture and

industry, new and heavier demands have been made on water resources. Both developed and underdeveloped nations are confronted with the task of making the most efficient use of these resources. Hence any solution of a river dispute, in order to be permanent and longstanding should provide the best solution after careful evaoluation of all the variables under the given conditions.

It is generally agreed that the best solution is to be found in direct agreement among the disputing parties, provided that the agreement is genuinely free. It is less costly and also less time-consuming. Direct agreement between the parties takes away much of the bitterness and rancour associated with the dispute. Besides improving the general state of international relations between the parties, it also gives them a confidence to handle their own affairs by themselves.

But the negotiating problem gets compounded because International Law on the rights of riparians is yet to be codified and no universal criteria is available in determining equitable sharing.[1] Helsinki Rules have, of course, received broad acceptance by countries as a model of international law. However these Rules require some factors to be taken into consideration. Since each international river has its own peculiar features, the problem of equitable sharing, still remains a difficult one.

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1 See the statement of Morarji Desai in the Lok Sabha on 14 November 1977.

When allocating water between the two riparian states, the application of law valid for other resources may lead to highly misleading conclusions. Legal considerations are not of much help. Problems of this nature are to be judged more on political, social and economic considerations than on legal ones. It is conceded that 'technical and professional experts cannot be expected to arrive at a single best plan; evaluation of the many variables and alternatives requires political judgment in terms of national political goals and values'.[2]

There is a sort of unanimity among writers that water disputes present a classic example of disputes which cannot be solved by any objective manner by juridical decisions.[3] It is no wonder, therefore, states have been reluctant to submit their differences to permanent courts for adjudication. They have rather preferred the flexibility of the ad hoc arbitral tribunals to the permanent courts. This is especially true of disputes relating to international rivers. Except within federated states, there are *few*

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2 I.K. Fox and others, Administration of International Rivers, Madison, Wisconsin, University of Wisconsin, Water Resources Centre, 1969, quoted in U.N. Document, Natural Resources/Water Series No. 3, The Demand for Water: Procedures and Methodology For Projecting Water Demands in the Context of Regional and National Planning, Sales No. ST/ESA/33, p. 19.

3 See, John G. Laylin and Rinaldo L. Bianchi, "The Role of Adjudication in International Water Disputes", AJIL, vol. 53, 1950, p. 30.

examples where a state has so far brought before any international tribunal a case involving a dispute over the allocation and development of waters of common concern. Whatever examples exist, they deal solely with the interpretation of existing treaties.[4] Berber also agrees with this point when he says:

> Only treaty-making procedure can, in practice take into consideration all the complexities of each particular situation. This procedure alone is the most suitable way to apply to specific situations all those vague and general principles of law which by themselves are never self-sufficient, which are a beginning but never a solution.[5]

India's preference for direct negotiations leading to agreement is in keeping with the aforesaid learned opinions. The conclusion of Indus Waters Treaty and its strict adherence to this point have vindicated India's stand. India's approach on the Ganges Water Dispute has also been the same, which has led to the signing of at least three accords on Farakka. In 1977 the UN General Assembly's referring back the dispute to the two concerned states also speaks of the World Body's preference for negotiated settlement.

It is now recognised that both the doctrine of 'absolute territorial sovereignty' and the doctrine of 'absolute riparian rights' are outdated and are not in keeping

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4 See, Samir N. Saliba, The Jordan River Dispute (The Hague, 1968), p. 130.

5 F.J. Berber, Rivers in International Law (London, 1959), p. 273.

with the changing times. India subscribed to the 'doctrine of equitable apportionment' in its two international water disputes with its neighbours. On the contrary, both Pakistan and Bangladesh based their claims on the doctrine of absolute riparian rights. As already stated, pushed to its logical conclusion, the lower riparian can veto the developmental programmes in the upper riparian state, by insisting on the natural flow of the waters, even though much of it may be going waste to the seas, and there may be desert areas in the upper states badly needing water for irrigation.

It is not difficult to agree that an upper riparian state is in a better position to effect changes in the flow or the volume of waters to serve its needs. India is an upper riparian state on both Indis and the Ganges in relation to Pakistan and Bangladesh respectively. But India has not taken advantage of its favoured position, especially when the International Law on the subject is inchoate and yet to be codified. On Indus India had been letting the flows, even while Pakistan was showing little interest for an agreement. In the Indus Water Treaty, it also made vital concessions to Pakistan.[6] On the Ganges, India has accommodated

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6 For the contrary view, see Aloys Arthur Michel, The Indus Rivers (Yale University Press, 1967), wherein he says: "To ask that a finer adjustment be made is to find fault with eight years of painstaking work by some of the best-qualified engineers and negotiators of both nations, of the World Bank, and of the consultants associated with them," pp. 516-517.

Bangladesh throughout, even at the cost of its own vital interests.

It is true that the principle of equity is still a matter of debate. But one thing is certain that equity is not 'inheritance'. The 'existing uses' is one of the factors in consideration, not the only factor. It is not surprising therefore that while the response of States in favour of 'equity' has been overwhelming, suggestions have been made not to give 'existing uses' any extra weightage. The discussion on the Cauvery water dispute has shown that if the existing uses of Tamil Nadu (the lower riparian) are to be protected in its entirety, Karnatak, the upper riparian, where farmers have become irrigation-conscious, would be denied the opportunity to develop uses from this river. Obviously, protection of the 'existing uses' in this case does not go to serve the principle of equity. The Indus Water Dispute raised the question of 'existing uses' being continued from the existing sources. While India agreed that Pakistan's then 'existing uses' might be protected, it differed with the latter's contention that it must be from the existing sources. The Indus Water Treaty vindicated India's viewpoint that the existing uses need not be continued from the existing sources. Otherwise it would have gone against the principle of equity. The Indus Water Treaty also by implication recognised that the 1948 treaty was effective between the two states till 31 March

1960. This was however contrary to the position taken by Pakistan earlier when she had firmly denounced this agreement arguing that it was concluded under duress and therefore did not have validity. Thus, on the question of the interpretation of the 1948 treaty, India's interpretation stood the test.

The Ganges Water Dispute between Bangladesh and India has raised similar issues. Bangladesh argued that its irrigational uses are more urgent than the flushing of silt of the Calcutta port and therefore normal flow of the Ganges should be restored. To Bangladesh the flushing of the Hoogly river is a new and wasteful use by India. The need of India can be met by other means like dreading, not by taking water from the Ganges. And moreover, India can not draw water without agreement with Bangladesh, i.e. without prior comment. But as against this, it can be said that the national of saving Calcutta city and port impinges upon the economy of as many as 13 states in India and the neighbouring countries of Nepal and Bhutan as well. It is well recognised the world over that no particular use of water has inherent priority over the other and therefore it cannot be said that the saving of Calcutta Port is of less significance than the existing uses of Bangladesh. Hence for India, the 'use' is neither 'wasteful' nor new. It is rather an old use on which city was established centuries ago. The problem occurred because the Ganges

changed its main course some 200 years ago and thereby letting its principal aim - the Bhagirathi-Hoogly suffer from siltation.

Farakka was neither a recently conceived project nor a project conceived by a big country to harm a small neighbour. Its feasibility report had been established decades before partition. Similarly, it is wrong to say that India has not taken into consideration the other possible alternatives. Drudging is no answer to the problem, as India had already tried it, even though it was a very costly affair. But silt dredged in other months again come back in the rainy season, and moreover it is not possible to do it round the year and in the entire channel. The feasibility of opening another artificial channel was studied, but this was not found feasible. As R. Rangachari, Member of the Joint Rivers Commission (JRC), told this author, the only complaint against India could be that it has studied the problem too much and has spent a lot on it.

On the issue of prior consent, it can be said that no particular use of one riparian should be subject to the prior consent of the other riparian. Yet there is no law imposing such an obligation and if this is done it would imply vetoing a country's beneficial economic development. It may therefore be fairly concluded here that the insistence of Bangladesh on the natural/normal flow of the

Ganges, is inconsistent with the concept of equitable utilisation of the waters of an international river.

The crux of the problem facing the two countries on the Ganges water dispute, is to find a long-term solution of augmenting the dry season flows of the Ganges. One point on which there is no disagreement between the two countries is that in the lean season the Ganges does not have sufficient water to meet the reasonable requirements of both India and Bangladesh. But what both the countries have failed to agree upon is the scheme of the long-term arrangement to augment the dry season flow. It is a matter of regret that Bangladesh has not allowed the Indian proposal of the link canal to be examined so far. When the Janata Government signed the 1977 agreement with Bangladesh on the sharing of the waters in the lean season, many in India regarded it as an unsatisfactory arrangement. Indira Gandhe who had not made secret of her dissatisfaction after her return to power, agreed to sign the Memorandum of Understanding of 1982 with the hope that the two countries would agree on the long-term arrangement. These agreements cast a responsibility on India in giving water to Bangladesh as a result of which it could not draw the 40,000 cusecs so badly needed for the survival of the Calcutta Port. But Bangladesh, while getting all the promised waters, sidetracked an integral and crucial part of the accord which provided for finding out a long-term arrangement. It is for Bangladesh's attitude that the work of the JRC was held

up in procedural wrangles and it could not deliver the goods as desired by the mandate given to it.

In this context it may be pertinent to note that the World Bank in its study 'Law and Water Resources Sector Study, Bangladesh 1972' considered the proposal of Ganga-Brahmaputra link as eminently practical and desirable. It is unfortunate therefore that the Government of Bangladesh has been rejecting this proposal out of hand. The Brahmaputra has been the river of sorrow for Bangladesh and the Assam and the eastern areas of India. In 1956, the United Nations Technical Mission, called the Krugg Mission, had made an on-the-spot study of the problems of floods in the then East Pakistan (now Bangladesh). The Mission had noted that the flood problem was unique and complex and had recommended the need of joint action by India and Pakistan to produce the best results. But this suggestion was not carried out by Pakistan, nor has it been carried out by Bangladesh. The link canal proposal, besides augmenting the lean season flow of the Ganges, would also be a significant contribution towards prevention of floods and extension of irrigation throughout the eastern region. Considering the density of population and comparatively scarcity of land in Bangladesh, the Indian proposal envisages the storage from the Brahmaputra to be built wholly in Indian territory. As Verghese has pointed out, no more than 40,000 to 50,000 persons would be displaced by the Brahmaputra-Ganga Canal, whereas many more jobs and

mandays of employment would be created on construction and services through new opportunities.

Here it may be pointed out that the river-water disputes cannot be viewed in isolation of the general state of international relations. Both the domestic and international politics impinge on each other and the international river water dispute is not immune to the above linkage. It is easy to find a scapegoat in another country and blame it for all the ills, economic, social and political. After the assassination of Sheikh Mujibur Rahman in August 1975, Bangladesh gave up the cooperative approach and started maligning India. It gave enough publicity to the Farakka issue through its controlled press and media. The new rulers of Bangladesh adopted the same tactics earlier adopted by the Pakistani rulers to divert attention of their people. Its conscious approach was to internationalise the issue whereas India viewed that the problem could be easily solved bilaterally.[7]

Similarly, on Kosi and Gandak Projects India has been unnecessarily maligned. It is on account of its internal situation and certain extraneous factors Nepal started a rethinking on the projects for which Kosi project remained on paper for a long time.[8] On both these projects India has spent lavishly and Nepal is the beneficiary of

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7 See, S.S. Bindra, India and Her Neighbours (New Delhi, 1934), p. 188.

8 Ibid., p. 233.

free electricity and irrigational facilities. The siltation problem of Kosi is on account of its frequent changing of 'course' (for which it is so notorious!) rather than due to the faulty technology.[9] As ~~xxx~~ D.P. Koirala had once remarked, criticisms against India on such projects were borne out of ignorance, and were politically motivated.[10]

As regards the within country disputes, this study has shown it raises similar issues and the disputes are equally complex and intricate. But the analogy between the two types of disputes cannot be carried too far. It is because the international rivers serve independent economics, whereas the inter-state rivers serve the common economy. It is for this reason Haryana and Rajasthan have been allotted water from Ravi and Beas, though their contribution to its flow is nil. The 1976 order of the Central Government in dividing the surplus Ravi-Beas water of the earlier composite Punjab between Punjab and Haryana, indicated that in coming to this decision, the Central Government expressly took into account the extent of arid tracts and drought prone areas in Haryana and in contrast did not attach much importance to the contribution of Haryana and the divided Punjab to the flows of Ravi and Beas. It is important to note that the

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9 Discussion with a Government of India official.

10 Commerce, 3 May 1960.

catchment area of divided Punjab (in thousand acres) is 3,360 and that of Haryana is nil. The drought area (in thousand acres) in divided Punjab is nil and Haryana is 1911.5[42] Such determination would not apply in case of international water disputes.

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APPENDICES

APPENDIX I

JOINT INDO-BANGLADESH DECLARATION
NEW DELHI, 16 MAY 1974

XXX XXX XXX

17. The two Prime Ministers took note of the fact that the Farakka Barrage Project would be commissioned before the end of 1974. They recognised that during the periods of minimum flow in the Ganga, there might not be enough water to meet the needs of the Calcutta Port and the full requirements of Bangladesh and, therefore, the fair weather flow of the Ganga in the lean months would have to be augmented to meet the requirements of the two countries. It was agreed that the problems should be approached with understanding so that the interests of both the countries are reconciled and the difficulties removed in a spirit of friendship and cooperation. It was, accordingly, decided that the best means of such augmentation through optimum utilisation of the water resources of the region available to the two countries should be studied by the Joint Rivers Commission. The Commission should make suitable recommendations to meet the requirements of both the countries.

lsed that it would take some years
ıe recommendations of the Commission
ro Governments. In the meantime, the
their determination that before the
ommissioned they would arrive at mutually acceptable allocation of the water available during the periods of minimum flow in the Ganga.

xxx xxxx xxx

Signed in New Delhi on May 16, 1974.

Sd/-
Prime Minister of India

Sd/-
Prime Minister of Bangla Desh

APPENDIX II

JOINT INDIA-BANGLADESH PRESS RELEASE
18 APRIL 1975

The delegation from India led by His Excellency Shri Jagjivan Ram, Minister of Agriculture and Irrigation and the delegation from Bangladesh led by His Excellency Mr. Abdur Rah Serneabat, Minister for Flood Control, Water Resources and Power met in Dacca from the 16th to 18th April, 1975. The talks were held in a cordial atmosphere and were characterised by mutual understanding that exists between the two friendly countries.

The Indian side pointed out that while discussions regarding allocation of fair weather flows of the Ganga during lean months in terms of the Prime Ministers' declaration of May, 1974 are continuing, it is essential to run the feeder canal of the Farukka Barrage during the current lean period. It is agreed that this operation may be carried out with varying discharges in ten-day periods during the months of April and May, 1975 as shown below ensuring the continuance of the remaining flows for Bangladesh.

Month	Ten-day period	Withdrawal
April, 1975	21st to 30th	11,000 cusecs
May, 1975	1st to 10th	12,000 cusecs
	11th to 20th	15,000 cusecs
	21st to 31st	16,000 cusecs

Joint teams consisting of experts of two Governments shall observe at the appropriate places in both the countries the effects of the agreed withdrawals at Farakka, in Bangladesh and on the Hooghly river for the benefit of Calcutta Port. A joint team will also be stationed at Farakka to record the discharges into the feeder canal and the remaining flows for Bangladesh. The teamswill submit their reports to both the Governments for consideration.

Sd/- C.C. Patel,
Addl. Secretary
Department of Irrigation
Ministry of Agriculture
& Irrigation
Government of India

Sd/- S.Z. Khan
Secretary
Ministry of Flood Control,
Water Resources & Power
(F.C. & W.R. Divn)
Govt. of the People's
Republic of Bangladesh

Dated, Dacca, the 18th of April, 1975

APPENDIX III

AGREEMENT BETWEEN THE GOVERNMENT OF THE REPUBLIC OF INDIA AND THE GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH ON SHARING OF THE GANGA WATERS AT FARAKKA AND ON AUGMENTING ITS FLOWS

5 NOVEMBER 1977

THE GOVERNMENT OF THE REPUBLIC OF INDIA AND THE GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH,

DETERMINED to promote and strengthen their relations of friendship and good neighbourliness,

INSPIRED by the common desire of promoting the well-being of their peoples,

BEING desirous of sharing by mutual agreement the waters of the international rivers flowing through the territories of the two countries and of making the optimum utilisation of the water resources of their region by joint efforts,

RECOGNISING that the need of making an interim arrangement for sharing of the Ganga waters at Farakka in a spirit of mutual accommodation and the need for a solution of the long-term problem of augmenting the flows of the Ganga are in the mutual interests of the peoples of the two countries,

BEING desirous of finding a fair solution of the question before them, without affecting the rights and entitlements of either country other than those covered by this Agreement, or establishing any general principles of law or precedent,

HAVE AGREED AS FOLLOWS:

A. Arrangements for sharing of the waters of the Ganga at Farakka

ARTICLE-I

The quantum of waters agreed to be released by India to Bangladesh will be at Farakka.

ARTICLE-II

(i) The sharing between India and Bangladesh of the Ganga waters at Farakka from the 1st January to the 31st May every year will be with reference to the quantum shown in column 2 of the Schedule annexed hereto which is based on 75 per cent availability calculated from the recorded flows of the Ganga at Farakka from 1948 to 1973.

(ii) India shall release to Bangladesh waters by 10-day periods in quantum shown in column 4 of the Schedule:

Provided that if the actual availability at Farakka of the Ganga waters during a 10-day period is higher or lower than the quantum shown in column 2 of the Schedule it shall be shared in the proportion applicable to that period;

Provided further that if during a particular 10-day period, the Ganga flows at Farakka come down to such a level that the share of Bangladesh is lower than 80 per cent of the value shown in column 4, the release of waters to Bangladesh during that 10-day period shall not fall below 80 per cent of the value shown in column 4.

ARTICLE-III

The waters released to Bangladesh at Farakka under Article 1 shall not be reduced below Farakka except for reasonable uses of waters, not exceeding 200 cusecs, by India between Farakka and the point on the Ganga where both its banks are in Bangladesh.

ARTICLE - IV

A Committee consisting of the representatives nominated by the two Governments (hereinafter called the Joint Committee) shall be constituted. The Joint Committee shall set up suitable teams at Farakka and Hardinge Bridge to observe and record at Farakka the daily flows below Farakka Barrage and in the Feeder Canal, as well as at Hardinge Bridge.

ARTICLE - V

The Joint Committee shall decide its own procedure and method of functioning.

ARTICLE - VI

The Joint Committee shall submit to the two Governments all data collected by it and shall also submit a yearly report to both the Governments.

ARTICLE - VII

The Joint Committee shall be responsible for implementing the arrangements contained in this part of the Agreement and examining any difficulty arising out of the implementation of

the above arrangements and of the operation of Farakka Barrage. Any difference or dispute arising in this regard, if not resolved by the Joint Committee, shall be referred to a panel of an equal number of Indian and Bangladeshi experts nominated by the two Governments. If the difference or dispute still remains unresolved, it shall be referred to the two Governments which shall meet urgently at the appropriate level to resolve it by mutual discussion and failing that by such other arrangements as they may mutually agree upon.

B. Long-Term Arrangements

ARTICLE - VIII

The two Governments recognise the need to cooperate with each other in finding a solution to the long-term problem of augmenting the flows of the Ganga during the dry season.

ARTICLE - IX

The Indo-Bangladesh Joint Rivers Commission established by the two Governments in 1972 shall carry out investigation and study of schemes relating to the augmentation of the dry season flows of the Ganga, proposed or to be proposed by either Government with a view to finding a solution which is economical and feasible. It shall submit its recommendations to the two Governments within a period of three years.

ARTICLE - X

The two Governments shall consider and agree upon a scheme or schemes, taking into account the recommendations of the Joint Rivers Commission, and take necessary measures to implement it or them as speedily as possible.

ARTICLE - XI

Any difficulty, difference or dispute arising from or with regard to this part of the Agreement, if not resolved by the Joint Rivers Commission, shall be referred to the two Governments which shall meet urgently at the appropriate level to resolve it by mutual discussion.

C. Review and Duration

ARTICLE - XII

The provisions of this Agreement will be implemented by both parties in good faith. During the period for which the Agreement continues to be in force in accordance with Article XV of the Agreement, the quantum of waters agreed to be released to Bangladesh at Farakka in accordance with this Agreement shall not be reduced.

ARTICLE - XIII

The Agreement will be reviewed by the two Governments at the expiry of three years from the date of coming into force of this Agreement. Further reviews shall take place

six months before the expiry of this Agreement or as may be agreed upon between the two Governments.

ARTICLE - XIV

The review or reviews referred to in Article XIII shall entail consideration of the working, impact, implementation and progress of the arrangements contained in parts A and B of this Agreement.

ARTICLE - XV

This Agreement shall enter into force upon signature and shall remain in force for a period of five years from the date of its coming into force. It may be extended further for a specified period by mutual agreement in the light of the review or reviews referred to in Article XIII.

IN WITNESS WHEREOF the undersigned, being duly authorised thereto by the respective Governments, have signed this Agreement.

DONE in duplicate at Dacca on 6 November 1977 in Hindi, Bengali and English languages. In the event of any conflict between the texts, the English text shall prevail.

Sd/-
(SURJIT SINGH BARNALA)
FOR THE GOVERNMENT OF
THE REPUBLIC OF INDIA

Sd/-
(REAR ADMIRAL MUSHARRAF
HUSSAIN KHAN)
FOR THE GOVERNMENT OF
THE PEOPLE'S REPUBLIC
OF BANGLADESH

SCHEDULE

(Vide Article II(1))

Sharing of waters at Farakka between the 1st January and the 31st May every year

Period		Flows reaching Farakka (based on 75% availability from observed data (1948-73)	Withdrawal by India at Farakka	Release to Bangladesh	% I
		Cusecs	Cusecs	Cusecs	
January	1 - 10	98,500	40,000	58,500	40.6
	11 - 20	89,750	38,500	51,250	42.9
	21 - 31	82,500	35,000	47,500	42.4
February	1 - 10	79,250	33,000	46,250	41.7
	11 - 20	74,000	31,500	42,500	42.6
	21 - 28/29	70,000	30,750	39,250	44.0
March	1 - 10	65,250	26,750	38,500	41.0
	11 - 20	63,500	25,500	38,000	40.2
	21 - 31	61,000	25,000	36,000	41.0
April	1 - 10	59,000	24,000	35,000	40.7
	11 - 20	55,500	20,750	34,750	37.5
	21 - 30	55,000	20,500	34,500	37.3
May	1 - 10	56,500	21,500	35,000	38.1
	11 - 20	59,250	24,000	35,250	42.7
	21 - 31	65,500	26,750	38,750	40.8

Max 44%

APPENDIX IV

INDO-BANGLADESH MEMORANDUM OF UNDERSTANDING

During the visit of His Excellency Lieutenant General H.M. Ershad, ndc, psc, President of the Council of Ministers, Government of the People's Republic of Bangladesh and his meetings with Her Excellency Mrs. Indira Gandhi, Prime Minister of the Republic of India, the two leaders discussed the actual experience by the two sides of the working of the 1977 Farakka Agreement, which would be coming to its end on the 4th of November, 1982. They agreed that it had not proved suitable for finding a satisfactory and durable solution and that with its termination fresh efforts were necessary to arrive at such a solution.

The two leaders recognised that the basic problem of inadequate flow of waters in the Ganga/Ganges available at Farakka imposed sacrifices on both countries and that it was necessary to arrive at an equitable sharing of the waters available at Farakka. They further agreed that the long term solution lay in augmenting the flow available at Farakka and to this end directed their experts concerned to expedite studies of the economic and technical feasibility of the schemes which had been proposed by either side in order to settle upon the optimum solution for urgent

implementation. It was decided that the Joint Rivers Commission would complete the pre-feasibility study and decide upon the optimum solution within 18 months of the signing of this Memorandum, at the end of which the two Governments would immediately implement the augmentation proposal agreed upon by the Joint Rivers Commission. Meanwhile, the two leaders agreed that the releases for sharing the flow available at Farakka for the next two dry seasons, and the joint inspection and monitoring arrangements for this purpose, would be as in Annexure 'A'. It was further agreed that in the case of exceptionally low flows during either of the next two dry seasons, the two governments would hold immediate consultations and decide how to minimise the burden to either country.

It was also agreed that a further and final sharing agreement would be reached immediately after the completion of the pre-feasibility study of augmentation, in the light of the decision on the optimum solution for augmentation that would be implemented following the pre-feasibility study.

Signed at New Delhi on the Seventh day of October, Nineteen hundred and eighty two, in two originals, in English, each of which is equally authentic.

For and on behalf of the Government of the Republic of India

P.V. Narasimha Rao
Minister of External Affairs

For and on behalf of the Government of the People's Republic of Bangladesh

A.R. Shams-ud Doha
Minister for Foreign Affairs

ANNEXURE A

Sharing of waters at Farakka between the 1st January and the 31st May

Period	Flows reaching Farakka (based on 75% availability from observed data (1948-73)	Withdrawal by India At Farakka	Release Bangladesh
	Cusecs	Cusecs	Cusecs
January 1 - 10	98,500	40,000	58,500
11 - 20	89,750	38,000	51,750
21 - 31	82,500	35,500	47,000
February 1 - 10	79,250	33,000	46,250
11 - 20	74,000	31,250	42,750
21 - 28/29	70,000	31,000	39,000
March 1 - 10	65,250	26,500	38,750
11 - 20	63,500	25,500	38,000
21 - 31	61,000	25,250	35,750
April 1 - 10	59,000	24,000	35,000
11 - 20	55,500	20,750	34,750
21 - 30	55,000	20,500	34,500
May 1 - 10	56,500	21,500	35,000
11 - 20	59,250	24,250	35,000
21 - 31	65,500	26,500	39,000

1. If the actual availability of waters af Farakka during a 10-day period is higher or lower than the quantum shown in column 2 of the Schedule it shall be shared in the proportion applicable to that period.

2. The Joint Inspection and Monitoring of the above sharing arrangement shall be the responsibility of a Joint Committee consisting of an equal number of representatives of each side. The Joint Committee shall be constituted ~~at~~ immediately and shall establish teams to be stationed at Farakka and Hardinge Bridge. Those teams shall record at Farakka the daily flows below Farakka Barrage and in the feeder canal and the flows passing daily at Hardinge Bridge. The Joint Committee which shall decide its own procedures and method of functioning shall submit the data collected by it and its teams and a yearly report to both Governments.

3. The Joint Committee shall be responsible for implementing the sharing arrangement. Any difficulty arising out of the implementation of the above sharing arrangements and of the operation of the Farakka Barrage shall be examined urgently by this Joint Committee and any differences or disputes, if not resolved by the Committee, shall be considered by a Panel of an equal number of representatives of the two Governments to whom the Joint Committee shall refer the difference or dispute. If the difference or dispute remains unresolved by the Panel, it shall be referred to the two Governments for urgent discussion.

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APPENDIX V

Government of India
(Bharat Sarkar)
Ministry of Agriculture and Irrigation
(Krishi Aur Sinchai Mantralaya)
(Department of Irrigation)
(Sinchai Vibhag)

New Delhi, the 24th March, 1976

NOTIFICATION

S.O..... WHEREAS under the Indus Water Treaty of 1960 the waters of three rivers, namely, Sutlej, Beas and Ravi became available for unrestricted use by India after 31st March, 1970;

AND WHEREAS while at the time of signing of the said Treaty, the waters of Sutlej had already been planned to be utilised for the Bhakra Nangal Project, the surplus flow of rivers Ravi and Beas, over and above the pre-Partition use, was allocated, by agreement, in 1955 (hereinafter called the 1955-Agreement), between the concerned States as follows, namely:

Punjab	7.20 m.a.f. (including 1.30 m.a.f. for Pepsu)
Rajasthan	8.00 m.a.f.
Jammu & Kashmir	0.65 m.a.f.
	15.85 m.a.f.

and, for the purpose of the said allocation, the availability of water was based on the flow series of the said rivers for the years 1921-1945:

AND WHEREAS after the allocation aforesaid, there was a reorganisation of the State of Punjab as a result of which successor States were created, and it became necessary to determine the respective shares of successor states out of the quantum of water which would have become available in accordance with the allocation aforesaid for use in the erstwhile State of Punjab;

AND WHEREAS under Section 78 of the Punjab Reorganisation Act, 1966 (31 of 1966), the successor States were required to reach an agreement (after consultation with the Central Government) within two years from the 1st day of November, 1966, in relation to the Bhakra-Nangal and Beas Projects, and, in the event of their failure to reach such an agreement, the Central Government was required to determine the rights and liabilities of the successor States having regard to the purposes of the said Projects;

AND WHEREAS by reason of the inability of the successor States to reach an agreement with regard to their rights and liabilities in relation to the Beas Project within the period aforesaid, the State of Haryana made an application to the Central Government for making the determination referred to in sub-section (1) of Section 78 of the Punjab Reorganisation Act, 1966 (31 of 1966).

AND WHEREAS for the purposes of making the said determination the Governments of the State of Punjab and Haryana were given opportunity to state their views at several meetings convened for this purpose by the Central Government;

AND WHEREAS the Governments of the States of Punjab and Haryana have been unable to come to an agreement in spite of all the reasonable facilities which have been afforded to them to come to such an agreement;

AND WHEREAS the purposes of the Beas Project inter alia, include integrated use of the waters of the Ravi, Beas and Sutlej rivers and extension of irrigation to arid lands and also water supply to Delhi;

AND WHEREAS as a result of Beas Project, the entire quantum of Beas Waters, and a part of Ravi waters, will become available and that the balance waters of the Ravi will be available after further conservation works on this river, such as the Thein Dam, are completed;

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1) of section 78 of the Punjab Reorganisation Act, 1966 (31 of 1966), the Central Government hereby makes the following determination, namely:-

Taking note of the fact that Haryana has a large arid tract and also several drought prone areas and the present development of irrigation in the State of Haryana is substantially less as compared to that in the State of Punjab, and further taking into consideration that comparatively larger quantity of water is needed for irrigation in the State of Haryana and there is limited availability of water from other sources in the State, the Central Govt. hereby directs

that out of the water which would have become available to the erstwhile State of Punjab on completion of the Beas Project (0.12 m.a.f. whereof is earmarked for Delhi water supply) the State of Haryana will get 3.5 m.a.f. and the State of Punjab will get the remaining quantity not exceeding 3.5 m.a.f. When further conservation works on the Ravi are completed, Punjab will get 3.5 m.a.f. out of 7.2 m.a.f. which is the share of the erstwhile State of Punjab. The remaining 0.08 ma.f., out of 7.2 maa.f. is recommended as additional quantum of water for Delhi water supply for acceptance by both the Governments of Punjab and Haryana.

AND WHEREAS the above allocation on completion of the Beas Project is based on the 1921-45 flow series corresponding to availability of 11.24 m.a.f. in the Beas at Mandi plain (after allowing for 1.61 m.a.f. as pre-Partition uses) and the availability of 4.61 m.a.f. in the Ravi at Madhopur (after allowing for pre-Partition uses and losses in the Madhopur-Beas Link);

AND WHEREAS the fluctuations in the Ravi flow have a very small effect on the availability of water on completion of the Beas Project;

It is hereby declared that if the availability of water in the Beas at Mandi plain is more or less in a particular year, the share of the State of Haryana would be

increased or decreased, as the case may be, pro-rata taking into consideration the provisions of the 1955 Agreement and the requirements of Delhi water supply.

Sd/-
(C.C. Patel)
Addl. Secretary to the Govt. of India

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APPENDIX VI

Agreement Regarding Allocation of Surplus Flows of the Rivers Ravi and Beas Over and Above the Pre-Partition Uses and Implementation of the Sutlej-Yamuna Link Canal Project

.....

Whereas under the Indus Waters Treaty of 1960, the waters of the three rivers, namely, Sutlej, Beas and Ravi become available for unrestricted use by India after 31st March, 1970, and

Whereas while at the time of signing of the said Treaty, the waters of the Sutlej had already been planned to be utilised for the Bhakra-Nangal Project, the surplus flow of rivers Ravi and Beas, over and above the pre-Partition use, was allocated by agreement, in 1955 (hereinafter called the 1955 Agreement), between the concerned States as follows, namely:

Punjab ...	7.20 m.a.f.	(including 1.30 m.a.f. for Pepsu)
Rajasthan ...	8.00 m.a.f.	
Jammu & Kashmir	0.65 m.a.f.	
	15.85 m.a.f.	

and, for the purpose of the said allocation, the availability of water was based on the flow series of the said rivers for the years 1921-1945; and

Whereas the Central Government issued a notification on 24th March, 1976, allocating 3.5 m.a.f. of the waters becoming available as a result of Beas Project to Haryana

and the balance not exceeding 3.5 m.a.f. to Punjab out of the total surplus Ravi-Beas waters of 7.2 m.a.f. falling to the share of erstwhile State of Punjab after setting aside 0.2 m.a.f. for Delhi drinking water supply; and

Whereas the Government of Haryana filed a suit in the Supreme Court praying inter alia that a directive be issued to Punjab for expeditiously undertaking construction of the Sutlej-Yamuna Link Canal in Punjab territory and for declaring that the notification of the Government of India allocating the waters becoming available as a result of the Beas Project issued on 24th March, 1976, is final and binding; and

Whereas the Punjab Government also filed a suit in the Supreme Court challenging the competence of the Central Government to enact Section 78 of the Punjab Reorganisation Act 1966 and notwithstanding this, questioning the notification issued under Section 78 of the said Act; and

Whereas adjournment has been sought from time to time in hearing of the suits field in the Supreme Court by Haryana and Punjab to enable the parties to arrive at a mutually acceptable settlement of the differences that have arisen; and

Whereas discussions have been held by the Prime Minister of India and Union Minister of Law, Justice and Company Affairs with the Chief Ministers of Haryana, Punjab and Rajasthan.

Now therefore we, the Chief Ministers of Haryana, Rajasthan and Punjab keeping in view the overall national interest and desirous of speedy and optimum utilisation of the waters of the Ravi and Beas Rivers and also having regard to the imperative need to resolve speedily the differences relating to the use of these waters in a spirit of give and take, do hereby agree as under:

(i) According to the flow series 1921-60, the total mean supply of Ravi-Beas Waters is 20.56 m.a.f. Deducting the pre-Partition uses of 3.13 m.a.f. and transit losses in the Madhopur-Beas Link of 0.26 m.a.f., the net surplus Ravi-Beas waters according to the flow series 1921-60 is 17.17 m.a.f. as against the corresponding figure of 15.85 m.a.f. for the flow series 1941-45, which forms the basis of water allocation under the 1955 Agreement. It is now hereby agreed that the mean supply of 17.17 m.a.f. (Flow and Storage) may be reallocated as under:

Share of Punjab	4.22 m.a.f.
Share of Haryana	3.50 m.a.f.
Share of Rajasthan	8.60 m.a.f.
Quantity earmarked for Delhi Water Supply	0.20 m.a.f.
Share of Jammu & Kashmir	0.65 m.a.f.
	17.17 m.a.f.

In case of any variation in the figure of 17.17 m.a.f. in any year, the share shall be changed pro-rata of the above revised allocations subject to the condition that no change shall be made in the allocation of Jammu & Kashmir which shall remain fixed as 0.65 m.a.f. as stipulated in the 1955 Agreement. The quantity of 0.20 m.a.f. for Delhi Water Supply stands as already allocated.

(ii) Until such time as Rajasthan is in a position to utilise its full share, Punjab, shall be free to utilise the waters surplus to Rajasthan's requirements. As Rajasthan will soon be able to utilise its share Punjab shall make adequate alternative arrangements expeditiously for irrigation of its own lands by the time Rajasthan is in a position to utilise its full share. As a result, it is expected that during this transitional period when Rajasthan's requirements would not exceed 8.0 m.a.f. of water should be available to Punjab in a lean year when the availability is 17.17 m.a.f.

(iii) The Bhakra and Beas Management Board (BBMB) shall be permitted to take all necessary measures for carrying out measurements and for ensuring delivery of supplies to all the concerned States in accordance with their entitlements such as rating the gauge discharge curves, installation

of self-recording gauges, taking observations without any hindrance of the discharge measurements. The selection of the control points at which the Bhakra and Beas Management Board would take appropriate measures as mentioned above shall include but be not limited to all points at which Bhakra and/or Beas/Beas discharges are being shared by more than one State and all regulation points on the concerned Rivers and Canals for determining the shareable supplies. The decision of the Bhakra and Beas Management Board would be binding in so far as the selection of the control points is concerned for the purposes of taking discharge measurements to facilitate equitable distribution of the waters but if any State Government contests the decision, the Central Government shall decide the matter within 3 months and this decision shall be final and binding. All the concerned State Governments shall co-operate fully and shall promptly carry out day-to-day directions of the Bhakra and Beas Management Board in regard to regulation and control of supplies, operation of gates and any other matters, in their territories, for ensuring delivery of supplies as determined by Bhakra Beas Management Board in accordance with their entitlements as provided under the Agreement.

(iv) The Sutlej-Yamuna Link Canal Project shall be implemented in a time bound manner so far as the canal and appurtenant works in the Punjab territory are concerned within a maximum period of two years from the date of signing of this Agreement so that Haryana is enabled to draw its allocated share of waters. The canal capacity for the purpose of design of the canal shall be mutually agreed upon between Punjab and Haryana within 15 days, failing which it shall be 6500 cusecs, as recommended by the former Chairman, Central Water Commission.

Regarding the claim of Rajasthan to convey 0.57 m.a.f. of waters through Sutlej-Yamuna Link/ Bhakra System, Secretary, Ministry of Irrigation, Government of India will hold discussions with Punjab, Haryana and Rajasthan with a view to reaching an acceptable solution. These discussions shall be concluded in a period of 15 days from the date of affixing signatures herein and before the work starts. If no mutually acceptable agreement is reached the decision of Secretary, Ministry of Irrigation to be given within this period shall be binding on all the parties. In case it is found necessary to increase the capacity of Sutlej-Yamuna Link Canal beyond that decided under above sub-para in any or entire reach thereof, the State concerned shall implement the Link Canal in a time bound manner with such increased capacity at the cost of Rajasthan Government.

The differences with regard to the alignment of the Link Canal and appurtenant works in the Punjab territory would be discussed by the Haryana and Punjab Governments who should agree to a mutually acceptable canal alignment in Punjab territory including appurtenant works within a period of three months from the date of signing of this Agreement. If, however, the State Governments are unable to reach complete agreement within this period, the matter shall be decided by the Central Government within a period of two weeks. Both the State Governments shall co-operate fully to enable Central Government to take timely decision in this regard. The decision of the Central Government in this matter shall be final and binding on both the Governments and the canal and appurtenant works in Punjab territory shall be implemented in full by Punjab Government. However, work on the already agreed reaches of the alignment would start within fifteen days of the signing of the agreement and work within the other reaches immediately after the alignment has been decided. Haryana shall provide necessary funds to the Punjab Government for surveys, investigations and construction of the link Canal and appurtenant works in Punjab territory. Where, as a result of acquisition of land, extreme hardship is caused to families, the Punjab Government shall forward to the Haryana Government suitable proposals for relieving

hardship in line with such schemes in Punjab undertaken in respect of similar canal works in Punjab territory. The Haryana Government shall arrange to bear the cost of such proposals. In the event, however, of any difference of opinion arising on the question of sharing such costs, the parties shall abide by the decision of the Secretary, Ministry of Irrigation, Government of India. The progress of the work shall not, however, be delayed on this account. The Central Government will be requested to monitor the progress of the works being carried out in Punjab territory.

(v) The Agreement reached in paras (i) to (iv) above shall be implemented in full by the Governments of Haryana, Rajasthan and Punjab. If any signatory State feels that any of the provisions of the Agreement are not being complied with, the matter shall be referred to the Central Government whose decisions shall be binding on all the States. In this respect the Central Government shall be competent to issue such directions or take such measures as may be appropriate to the circumstances of the case to facilitate and ensure such compliance.

(vi) The suits filed by the Governments of Haryana and Punjab in the Supreme Court would be withdrawn by the respective Governments without any reservations whatsoever but subject to the terms of the Agreement.

(vii) The notification of the Government of India allocating the waters becoming available as a result of the Beas Project issued on 24th March, 1976 and published in the Gazette of India Part III, Section 3, sub-section (ii) as well as the 1955 Agreement stand modified to the extent varied by this Agreement and shall be deemed to be in force as modified herein.

In case of any difference on interpretation of this Agreement, the matter will be referred to the Central Government whose decisions shall be final.

We place on record and gratefully acknowledge the assistance and advice given by our respected Prime Minister Smt. Indira Gandhi in arriving at this expeditious and amicable settlement.

New Delhi, the 31st December 1981.

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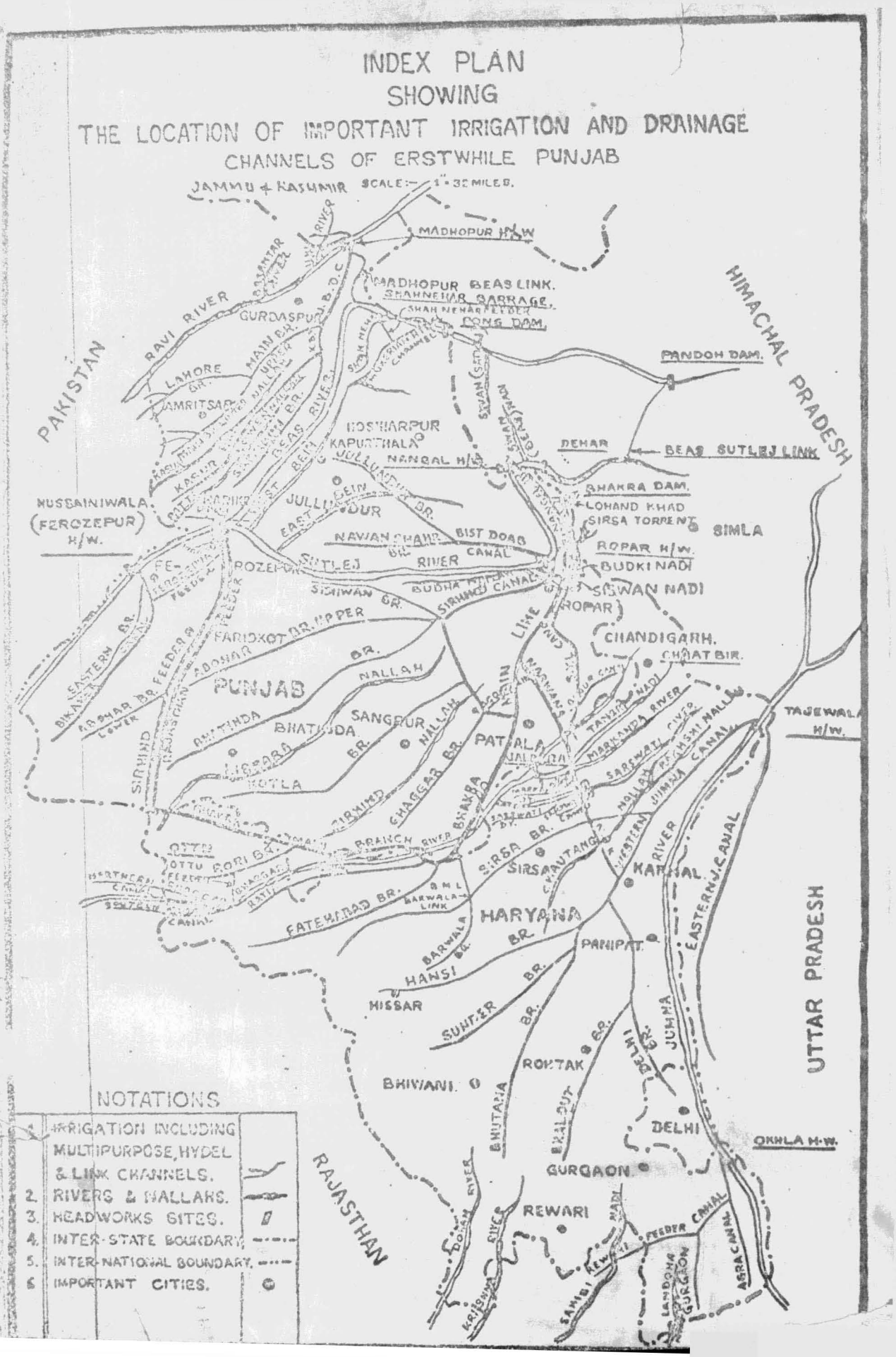
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SHOWING
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CHANNELS OF ERSTWHILE PUNJAB
JAMMU & KASHMIR
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HIMACHAL PRADESH
UTTAR PRADESH
RAJASTHAN
HARYANA
PUNJAB
CHANDIGARH.
SIMLA
DELHI
RAVI RIVER
MADHOPUR H/W
MADHOPUR BEAS LINK.
SHANNEHAR BARRAGE.
SHAH NEHAR FEEDER
LONG DOM.
PANDOH DAM.
GURDASPUR
LAHORE GR.
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NANGAL H/W
DEHAR
BEAS SUTLEJ LINK
BHAKRA DAM.
LOHAND KHAD
SIRSA TORRENT
NUSSAINIWALA (FEROZEPUR) H/W.
JULLUNDUR
JULLUNDUR BR.
EAST DOAB CANAL
NAWANSHAHR
BIST DOAB CANAL
ROPAR H/W.
BUDKI NADI
SUTLEJ RIVER
FEROZEPUR
SIRHIND FEEDER
SIRHIND CANAL
SWAN NADI (ROPAR)
SIDHWAN BR.
BUDHA NADA
FARIDKOT BR. UPPER
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ABOHAR BR. FEEDER
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SAMBHI
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MAIN FEEDER CANAL
ASRA CANAL
LANDOHA
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NOTATIONS
1. IRRIGATION INCLUDING MULTIPURPOSE, HYDEL & LINK CHANNELS.
2. RIVERS & NALLAHS.
3. HEADWORKS SITES.
4. INTER-STATE BOUNDARY.
5. INTER-NATIONAL BOUNDARY.
6. IMPORTANT CITIES.


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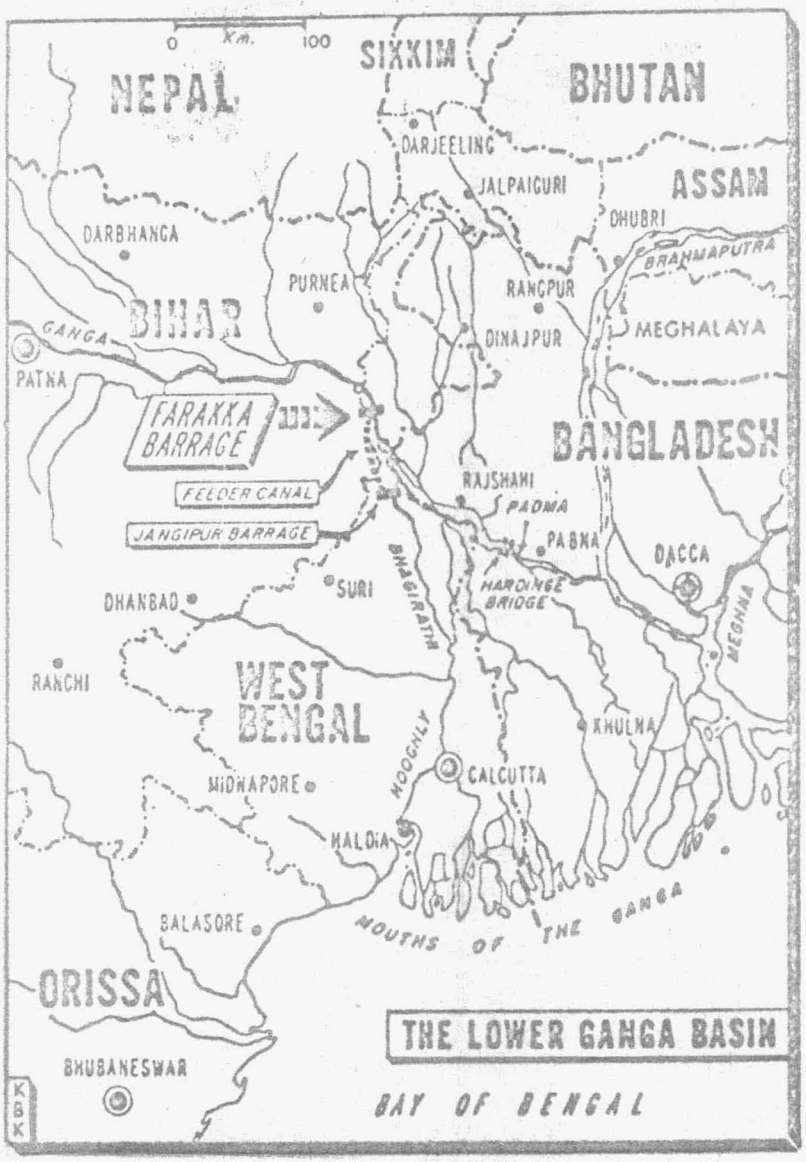
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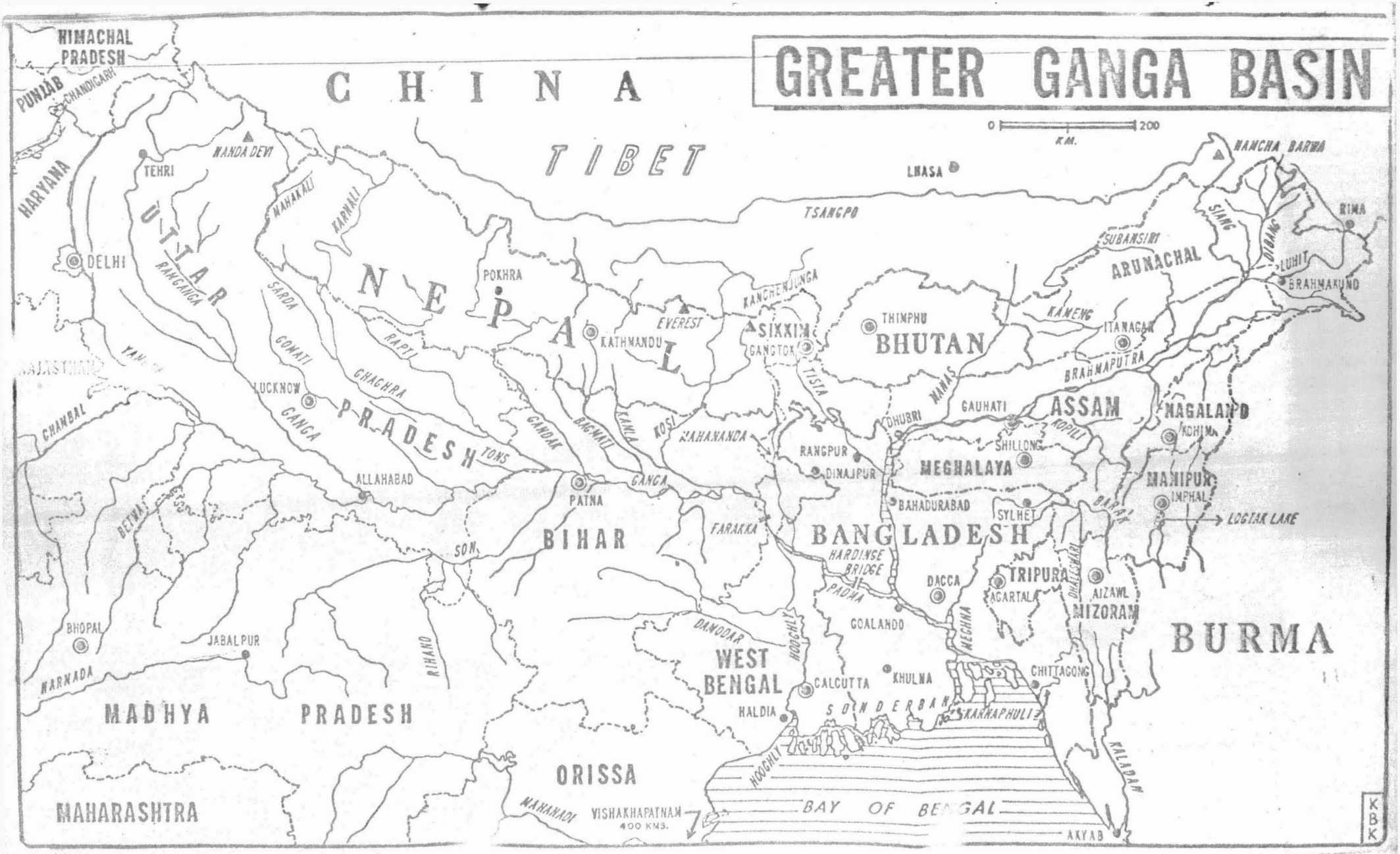
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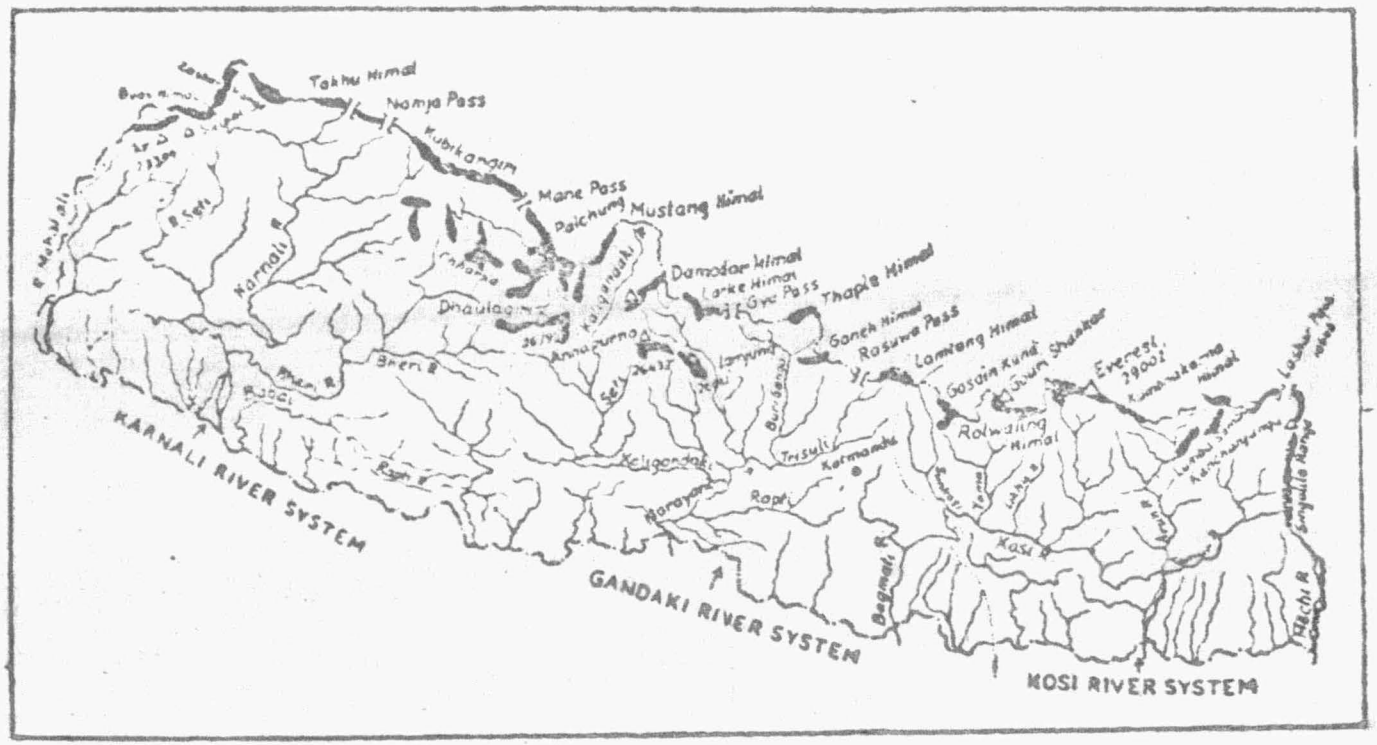
NAMCHA BARWA
BRAHMAPUTRA
TISTA
MANAS
DHUBRI
GAUHATI
ASSAM
KOPILI
NAGALAND
KOHIMA
SHILLONG
MEGHALAYA
RANGPUR
DINAJPUR
KOSI
KAHANANDA
BAGMATI
KAMLA
GANDAK
TONS
LUCKNOW
GANGA
ALLAHABAD
PATNA
BAHADURABAD
SYLHET
BARAK
MANIPUR
IMPHAL
LOGTAK LAKE
BANGLADESH
FARAKKA
BIHAR
HARDINGE BRIDGE
PADMA
DACCA
TRIPURA
AGARTALA
AIZAWL
MIZORAM
DHALESWARI
MEGHNA
GOALANDO
BETWA
SON
BHOPAL
JABALPUR
NARMADA
DAMODAR
HOOGHLY
WEST BENGAL
CALCUTTA
KHULNA
CHITTAGONG
BURMA
HALDIA
SONDERBAN
KARNAPHULI
KALADAN
MADHYA PRADESH
RIHAND
ORISSA
MAHANADI
VISHAKHAPATNAM
400 KMS.
BAY OF BENGAL
AKYAB
MAHARASHTRA
KBK

RIVER SYSTEMS OF NEPAL



IONAL VARIETY

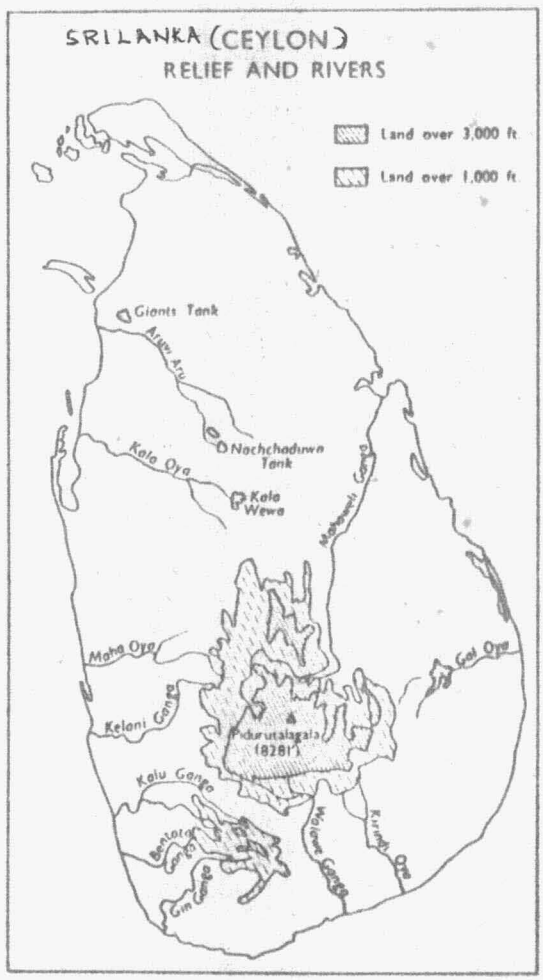


FIG. 5.2.1 Ceylon: relief and rivers

Fig. 32 Pakistan: Irrigation Network