

India Revives the Plan To Link Up Its Rivers

by Ramtanu Maitra

Early in December, Indian Prime Minister Atal Behari Vajpayee proposed a ten-year plan to inter-link the major Indian rivers, Ganges and Brahmaputra, to bring water to drought-prone and rain-shadow regions of the country. Mrs. Sonia Gandhi, the leader of the parliamentary opposition and President of the Congress Party, quickly endorsed the Prime Minister's proposal, indicating its urgency.

The proposal to inter-link India's greatest rivers is a 30-year-old "great project" which would cost 600 billion rupees (about \$120 billion), reports said. The proposal got the green light after a serious drought this year affected a good part of the country, enlivening the existing disputes between the states over water allocation from rivers. It is evident that the New Delhi government has few answers to settle the dispute through negotiations between the states of Karnataka and Tamil Nadu in the south, over the transfer of water from the Krishna River basin to the perpetually water-short Cauvery River basin.

A Cautionary Note

Although linking the river basins has attracted support from a wide range of experts and analysts, Delhi should know that it would face obstacles at various levels, including from abroad. To begin with, the augmentation of the Ganga (Ganges River) by bringing in surplus water from the Brahmaputra River basin—digging canals running through Bangladesh—was never accepted by Bangladesh's government in Dhaka. It is unlikely that India can take it for granted that what was rejected by Bangladesh in the early 1980s, would be acceptable now. Similarly, Nepal's rivers, at least some of them, have to be managed, and storage facilities will have to be built in the Nepal Himalayas to facilitate the supply of water to the Ganga. This was earlier vehemently opposed by Nepal's government in Kathmandu; the Nepali Communists led the opposition to these projects. Now that Kathmandu is seriously threatened by chauvinist anti-India Maoists, it is unlikely that Nepal will be in a position to nod its head in support.

Delhi must do its homework before launching the project and be prepared for a give-and-take style of negotiations to satisfy both Bangladesh and Nepal. India has many arid zones. For instance, these areas exist in the states of Rajasthan, Gujarat, Maharashtra, Karnataka, Andhra Pradesh, and Tamil Nadu. Droughts are a recurring feature in these areas, often resulting in the migration of human beings and livestock to

nearby districts and states. Unfortunately, some of the drought conditions were the result of bad water management in the past, and a part of the answer lies in the better resource management. Failure to harvest rainwater, excessive extraction of groundwater, and failure to ensure the recharge of the aquifers, led to the water table falling sharply over the years, so that when a drought situation developed this year, there was no groundwater reserve to draw upon. That is a broad description of what went wrong, though conditions may have differed from place to place. It is proven by the fact that in the same areas (parts of Rajasthan and Gujarat) lush, green villages were to be found side by side with dry, brown ones. While the former had practiced water harvesting and groundwater recharge for some years, the latter had not.

A memorandum from the Bharatiya Janata Party (BJP), the dominant party in the ruling 24-party coalition, pointed out that to make the plan a success, it is necessary for Delhi to build consensus amongst states. Delhi must identify state-level concerns about river water. The BJP memorandum urged Delhi to identify surplus water in specific basins and agreements for their sharing with deficit states; to work out an agreement between the states of Orissa and Andhra Pradesh for construction of water storage, and to take up implementation of a few river-linking schemes which are wholly intra-state and do not involve major inter-state water transfer.

What Triggered the Decision

The Cauvery-Krishna water transfer dispute is perhaps the single most important reason why New Delhi chose to revive the project originally worked out in 1972 by the late Dr. K.L. Rao, an engineer of great repute and Minister of Irrigation in the Union Cabinet of that time. His proposal was to transfer surplus water from the Ganga during the monsoons, by a series of canals taking off from somewhere west of Patna in the state of Bihar, and down to the Cauvery River basin in the south. According to Rao, the 1,650 mile Ganga-Cauvery link envisaged the withdrawal of 60,000 cusec (cubic feet per second) of the flood flows of the Ganga, for transfer to the peninsular region, and utilizing the remaining 10,000 cusec in the Ganga basin. This came to be known as the "Ganga-Cauvery link."

The Cauvery-Krishna dispute is now before the Supreme Court. Just before taking up the issue on Sept. 30, the court heard a public interest petition on the Ganga-Cauvery link. Chief Justice B.N. Kirpal, who was heading a three-member bench, in a preliminary hearing on that day, made a caustic remark that the project was the need of the hour and if the cost was 70 billion rupees, the government could well raise that amount, since it had waived bank debts of a similar amount over the years. The Supreme Court has now directed the national and state governments to respond to a public interest suit urging country-wide networking of rivers to solve problems of drought and flood.

Except for some of the northern rivers, most of India's

ivers and underground aquifers are dependent on the run-offs and precipitation rates during the monsoon season. While the Brahmaputra and Mahanadi basins regularly face floods due to heavy run-offs, most other regions (with the exception of the mountainous Western Ghat regions) face recurrent drought situations. Drought occurs in over 80% of the country's land area if there is a shortfall in rains of so much as 25% from the national annual average of about 22 inches (during the monsoon period in the months of June and July).

Recently, a national perspective for water resources development was prepared by the government, to optimally utilize the available water resources by storage and inter-basin transfer of water from surplus to deficient areas. It has two components: the Himalayan Rivers Development and the Peninsular Rivers Development. The proposal is extremely detailed and elaborate.

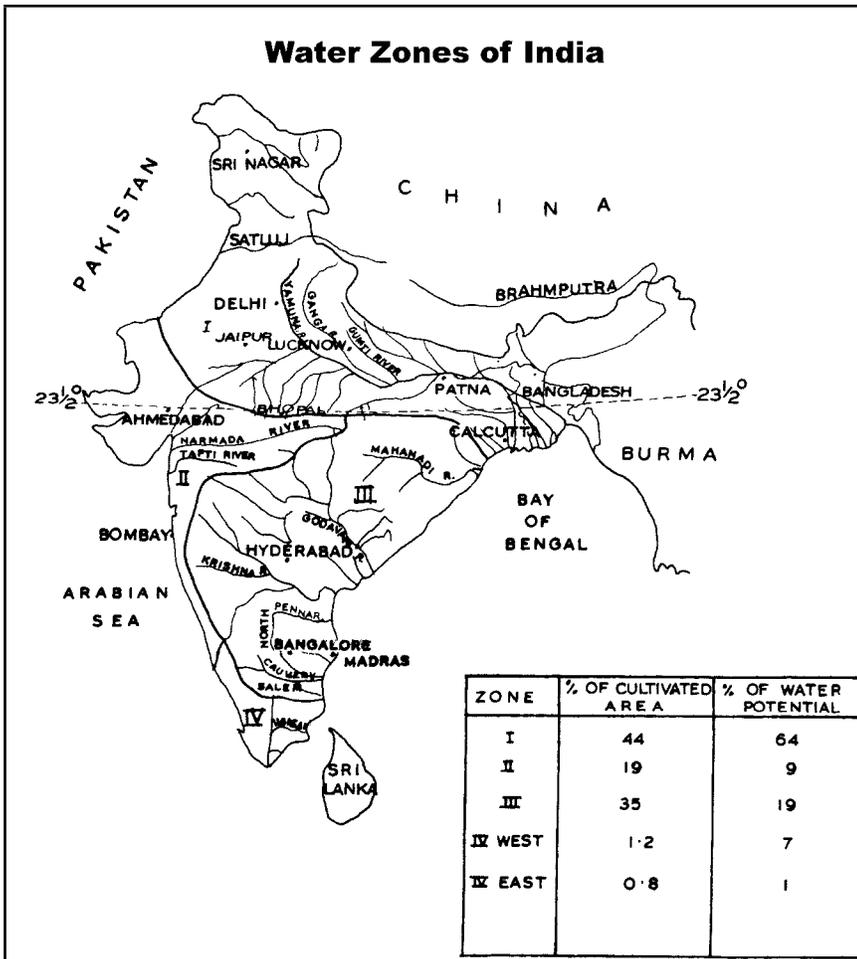
The K.L. Rao Plan

Briefly speaking, the Himalayan Rivers Development component envisages construction of storage reservoirs on the principal tributaries of the Ganga and the Brahmaputra in India, Nepal and Bhutan, along with inter-linking canal systems to transfer surplus flows of the eastern tributaries of the Ganga to the west. It also envisages linking the Brahmaputra and its tributaries with the Ganga through Bangladesh; and the Ganga with the Mahanadi River in the state of Orissa. The Himalayan component would provide additional irrigation of about 22 million hectares and generation of about 30 gigawatts of hydropower, besides providing substantial flood control in the Ganga and Brahmaputra basins. It would also provide the necessary discharge to flush the Kolkata (Calcutta) Port and the inland navigation facilities across the country.

Apart from linking the Brahmaputra with the Ganga, the Himalayan Rivers Development component envisages construction of storage reservoirs on both great rivers and their tributaries in India and Nepal, along with inter-linking canal systems to transfer surplus flows of eastern tributaries of the Ganga to the West.

In the case of Peninsular rivers, the proposal is to transfer surplus water of the Mahanadi and the Godavari to the states within these basins. The Peninsular Component is expected to provide additional irrigation of about 13 million hectares, and to generate about 4 gigawatts (4,000 megawatts) of electrical power.

This component is divided into four major parts: a) Linking up of Mahanadi, Godavari, Krishna, and Cauvery Rivers, and building reservoirs at potential sites in these basins. Surpluses from the Mahanadi and Godavari are intended to be transferred to the water-short areas in the South; b) Linking up of west-flowing rivers, north of Mumbai (formerly Bombay) and south of Tapi: This scheme envisages construction of as many optimal reservoirs as possible on these streams and inter-linking them to make available an appreciable quantum of water for transfer to areas where additional water is



Map shows India's generally North-to-South progression from well-watered agricultural zones, to drought-prone areas where agriculture is far less successful. The recent serious drought has triggered a decision to revive the 30-year-old "Rao Plan" to link the great rivers in a national "water grid," and move water from North to South, and from West to East.

needed, including water supply canals to the metropolitan areas of Mumbai; c) Linking up the Ken and Chambal rivers: This scheme provides for a water grid for the states of Madhya Pradesh and Uttar Pradesh and an inter-linking canal backed by as much storage as possible; and d) Diversion of other west-flowing rivers: Heavy rainfall on the western side of the Western Ghat mountains runs down numerous streams which empty into the Arabian Sea. Construction of an inter-linking canal system backed up by adequate reservoirs could be planned to meet all requirements of the southwestern coastal state of Kerala.

A National Economic Renaissance

Inter-linking waterways of India will not only provide a National Waterway of 25,000 miles (together with the country's long coastline) to complement the infrastructure of the Indian Railways; it will also provide a boost to India's weak-

ened infrastructure. Projects of this size and dimension will also generate millions of jobs, particularly to the segment of the population who lack marketable education. This is one dream project, which can involve every village in a national economic renaissance, with the objective of achieving for India a developed-nation status by the year 2020.

While Delhi should pursue this massive project, it must also review cropping and rotational patterns in the agricultural fields. Farmers in the states of Punjab and Haryana, for instance, follow a paddy-wheat-paddy cycle, year after year, which has led to soil exhaustion and plateauing of yield. Although alternatives do exist, and have been suggested from time to time, the diversification has not been widely accepted because the water-profligate (rice) paddy-wheat-paddy cycle remains profitable, mostly by using political muscle to obtain subsidized water, fertilizer, and other inputs.

While the Punjabi and Haryanvi farmers use the paddy-wheat-paddy cycle in a low-rain area where water is available from an extensive canal system from the Himalayan rivers, in Tamil Nadu in the water-short Cauvery River basin, farmers follow a paddy-paddy-paddy cycle, using wasteful flood irrigation. In Mandya, in the state of Karnataka, paddy and sugar cane, both mighty water guzzlers, are the favored crops.

Some analysts point out that experience teaches, that basic aspects of each river basin must be studied. These include the catchment-area treatment, command area development, benchmark survey of the affected population, health impacts of the reservoir and canal system, and impact on fisheries. Since an extensive canal system is part of the whole national project, it would be absolutely necessary to assess whether soil is irrigable through surface water flows.

In addition, another analyst pointed out that it would be nothing short of a crime if water were not treated properly, and the water crisis worsened. Already, the Shivnath River in the state of Chhattisgarh has been privatized, and the contractor has snatched away the people's right even to drinking water.

Delhi must assure the population of the country that the centralized inter-linking of river basins will not be "linked" to its privatization plan.