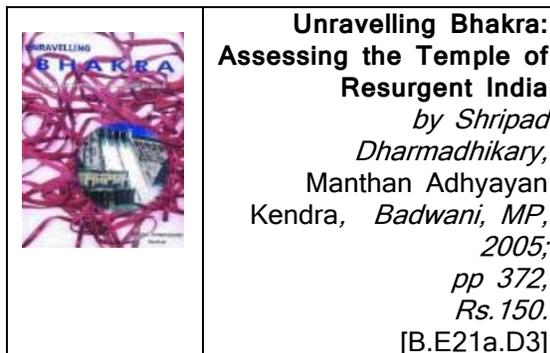


Bhakra dam - A different view

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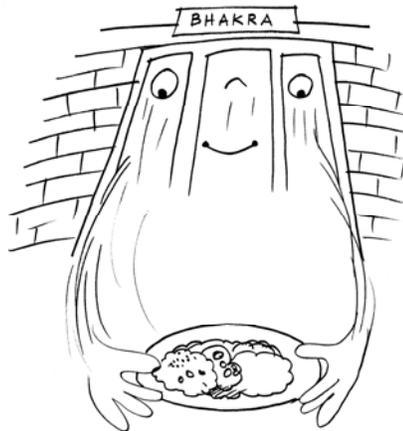
THE last two decades have seen an increasing number of questions being raised on the utility of big dams in India. In 2000, the World Commission on Dams (WCD) brought out its report "Dams and Development: A New Framework for Decision Making" after two years of work, which included interactions with non-governmental organisations (NGOs), people's movements, governments, and international organisations such as the World Bank. According to the India country study report submitted as part of this process, the planning process in India has not looked seriously at alternatives to big dams nor has it tried to find out whether big dams have been beneficial *vis-à-vis* their financial, social and environmental costs. One of the dams that is widely perceived to have played a crucial role in India becoming self-sufficient in food production is the Bhakra dam, the first of the large dams that Jawaharlal Nehru called "temples of modern India".

A recent report, "Unravelling Bhakra: Assessing the Temple of Resurgent India", has concluded that the spectacular growth in foodgrain production in Punjab and Haryana can be attributed to the Bhakra project only to a limited extent. The report, the first of its kind to evaluate comprehensively the costs and benefits of the Bhakra project, was put together after three years of research and field visits by the Manthan Adhyayan Kendra headed by Shripad Dharmadhikary.

Explaining why Manthan chose to study the effects of the Bhakra dam, Shripad Dharmadhikary said: "Whenever we question large dams, the issue of Bhakra's contribution to food production in Punjab and Haryana is always brought up. Bhakra has become a symbol of the development planning debate in India and so we thought it was important to study its benefits."

Bhakra - initiating intensive, centralized systems

According to the report, the Bhakra project was originally conceived to improve undivided, pre-Partition Punjab's bargaining power over Sind with respect to the sharing of the waters of the Sutlej and the Beas. *The report links the Bhakra project to the Second Five-Year Plan (1956-61), which marked a shift away from a decentralised approach to one that concentrated on large-scale projects.* The focus was to increase agricultural production and to do this the planners concentrated on intensive methods by which higher surpluses could be procured for the



market. The report argues that the other option available to planners at that point was decentralised rainwater harvesting and water-shed management, soil conservation and groundwater recharge programmes.

The report questions a number of popular beliefs on the contribution of the Bhakra dam to agricultural production in Punjab and Haryana and the increased production of foodgrains in India. It emphasises that by 1953-54, when irrigation from the Bhakra began, the irrigated area of Punjab and Haryana was already 7.47 million acres, three times the irrigated area added by the Bhakra project. By this time Punjab was already contributing 20 per cent of the total wheat produced in the country.

DEVELOPMENT

According to the report, the only substantial increase in cultivable area attributable to the Bhakra project was in Hissar in Haryana. The Bhakra command area covers around a third of the cultivable area in Haryana, a fifth in Punjab, and a negligible fraction in Rajasthan. The rest of the canal irrigation in these States is from projects that are over a century old and include the Western Yamuna Canal, the Upper Bari Doab system, and the Sirhind canals.

Bhakra - The myth of groundwater recharge

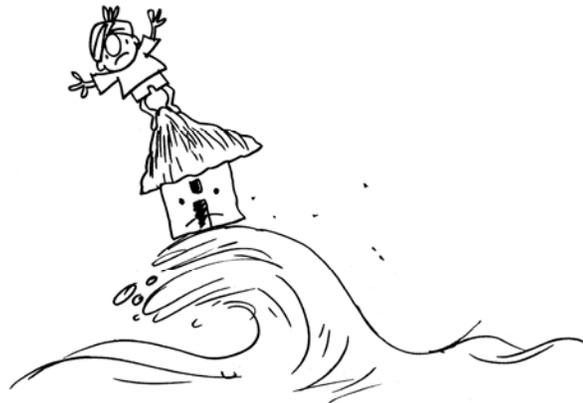
One of the justifications for large dams has been their contribution to the recharging of groundwater in the area. The report points out that agricultural production in Punjab and Haryana increased because of the exponential increase in the mining of groundwater, which had accumulated over centuries, mostly through tube wells. According to the report, 43-49 per cent of all agricultural production in Punjab and 35 per cent in Haryana are based on unsustainable mined groundwater. Based on figures available for 1989-90, the report concludes that of the total water used for crops in Punjab, 31 per cent is from unsustainable mining of groundwater and 13 per cent from

rainfall. Canals meet around 48 per cent of consumptive use. The contribution of the Bhakra dam is only around 15.62 per cent in Punjab and a similar calculation reveals it to be 12 per cent in Haryana.

The report points out that land in the dry districts of the Hissar belt of Haryana, the major beneficiary of the Bhakra project, is now burdened with the problems of waterlogging and salinity. In many parts of Hissar, large patches of land are encrusted with salt. In these areas, either the land is vacant or crops grow in patches. Waterlogging has caused extensive damage to roads, infrastructure and even houses.

Displacement

The Bhakra dam led to the displacement of around 36,000 people and submerged Mega dams Bilaspur, a town with a population of 4,000 people. The report points out that more than 50 years later, many of the oustees have not been settled fully.



K.L. Rao, the Irrigation Minister at the Centre when the dam was built, narrates in his memoirs an incident during one of his visits to the dam site. A resident of Bhakra village pointed out to him that though the dam site was heavily lit at night, his village did not receive any electricity. Rao ordered that the village be supplied electricity free, though the Bhakra Beas Management declared that this would be an unfair burden on the project. The village finally received electricity in 1970, but they had to pay for it.

According to the report, project oustees who were living at a height of up to 1,280 feet (390 metres) were not given the choice of opting for land-based resettlement. Those who were given land had to go to Hissar district, over 200 kilometres away. To date there remain 2,456 oustees who do not have proprietary rights over the land allotted to them. All this despite the oustees cooperating fully with the government when the dam was built.

The report says that the environmental impact of the dam will include the loss of forests, wildlife, and fish and an increase in the incidence of diseases among those living near the dam because of the excessive use of chemical fertilizer and pesticide in the command area. But evaluating the exact impact on the ecological health of Punjab and Haryana has been difficult because of the lack of enough data before the dam was built and the lack of proper monitoring of the area after it was constructed.

DEVELOPMENT

The report suggests that an alternative to large projects like Bhakra would involve measures to conserve soil water, harvest rainwater and limit the use of groundwater to the extent that it is recharged, besides switching to organic farming with minimum chemical inputs and encouraging a diversity of crops.

But the Bhakra dam has its share of supporters.

R. Rangachari, a former member of the Central Water Commission, who has done a study on the Bhakra dam for the Centre for Policy Research, which is as yet unpublished, said: "We cannot say that no good has come has made electricit out of any big dam. The Bhakra dam has contributed to irrigation in Rajasthan. It has generated 7,000 million units of electricity every day. It has made electricity available at affordable rates. It costs less than 10 paise to generate one unit of electricity in the Bhakra dam."



We have to look at whether the project has done what it claims and if it has been in the nation's interest. We must remember
Mega dams that irrigation generates groundwater."

Another unpublished study prepared for the World Bank by Ramesh Bhatia and R.P.S. Malik on the Bhakra dam says that the dam has contributed significantly to the increase in irrigated area and the output of agricultural commodities and electricity over the past 45 years. According to the draft World Bank report, the total foodgrain production in the Bhakra command area during 1996-97 was 27 million tonnes, an additional output of

24.6 million tonnes compared with the food output in the early 1960s. The draft report says the hydropower stations installed in the Bhakra system have the capacity to generate 2,880 megawatts of electricity and they currently generate about 14,000 million units of electricity in a year. According to the draft report, these increases have generated growth downstream in agro-processing and many other sectors of the regional economy.

Conclusion

Whatever disagreements one may have with the findings of the report, it remains an important contribution to the debate around the utility of big dams. Ramaswamy R. Iyer, former Secretary, Ministry of Water Resources, said: "It is a very important study. If the findings of the study are true then the consequences are major. *The study comes to a completely different conclusion from the popular perception of the Bhakra dam.* Even if the study is 50 per cent right, it would result in a major change in our perception of the Bhakra dam." ▶

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