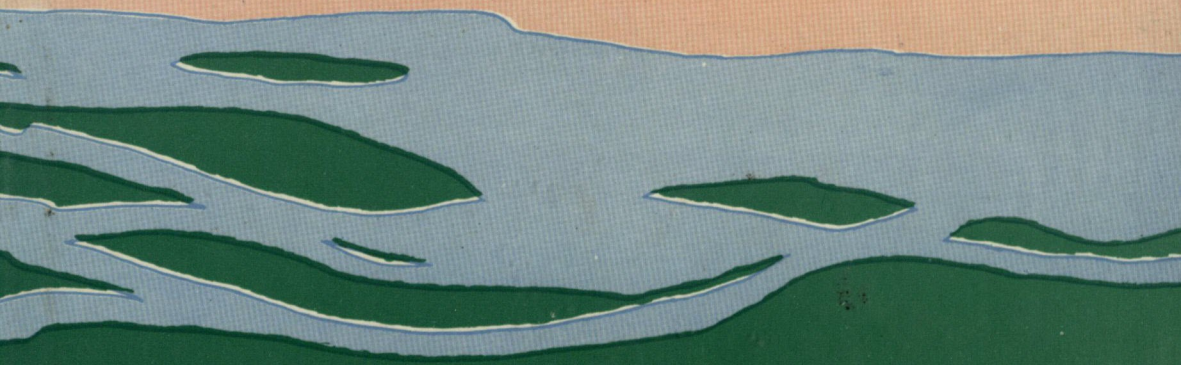
IRRIGATION IN INDIA

HISTORY & POTENTIALS OF SOCIAL MANAGEMENT



Kathakali S Bagchi

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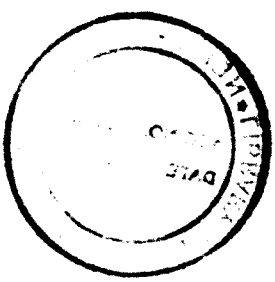

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Introduction

Agriculture is the backbone of our national economy. It is among the key factors which has moulded the evolution of various civilizations. Pre historic evidences of agriculture in the river valleys of Tigris, Euphrates and parts of Baluchistan have established beyond any doubt that this essential technique for ensuring a secure supply of food was invented around 7,000 B. C.

Invention of irrigation as a dependable and efficient means for increasing food production from limited land resources, was achieved by our forefathers sometime around 6,500 B. C. This process was remodelled, modified, upgraded and indigenised in course of time. More than 8,000 years have passed and much water has flown down the *sapt nadi* (or the seven rivers) of the north and north-western India since then. The other perennials like Ganga, Narmada, Cauvery in eastern, central and southern India too have witnessed the evolution of irrigation systems much the same way. Different races, different societies settled down upon their banks, with each evolving their own techniques of farming and irrigation.

The ruins of Indus valley civilisation, in Harappa, Mohenjodaro (of the Sindh province of Pakistan), Lothal (Gujarat), Inamgaon (Maharashtra) and such other places scattered along the northern and western India, have shown ample evidence regarding irrigation practices in the form of *bundhs* (small dams) and canals. Aryans from the central Asia started invading this highly evolved Harappan civilization sometime around 2,000 B. C. and first of all struck at the well organised irrigation system of Harappa in order to cripple its vital food security. In the first chapter ***Ancient Period***, there are supportive references for the greatly debated topic of the existence of dams during this period. The author differs from historians like Mr. A. L. Basham who

commented that irrigation was most possibly absent in the Harappan civilisation.

By the begining of 300 B. C., a firm administrative set up had taken shape. The king with the help and advice of his tiers of officials, ministers, consultants started acting as the 'chief trustee' for optimising, rationalising and over all management of water resources. Kautilya's *Arthashastra* gives us an idea of the principles and methods of management of irrigation systems, which are elaborated in the first chapter.

Greater emphasis was laid on surface water irrigation, either by erecting embankments and channelising it later or by simply storing rainwater and was the usual practice of irrigation till the rule of Satvahana kings. They were the ones who introduced brick and ring wells for the first time in this continent; brick wells being solely for irrigation. Thus we find that simultaneous utilisation of both the ground and surface water for irrigation first started only about 2,000 years ago. This study observes that northern India did not have much faith on groundwater irrigation but on river or canal water irrigation in the early days.

Southern India, on the other hand, had the tradition of relying on tanks and wells as its principal source of irrigation. Interestingly enough, these southern states were the first torch bearers of the idea of local governance of the local water resources. We get here a variety of decentralised management institutions in the form of *nattamaikar* or *manyams* where the villagers were empowered by the king to repair and look after the tanks and other related water bodies since many centuries. Local villagers worked out themselves their respective water distribution schedule ie. how much water to be given to whom and when. A portion of the produce, of course, had to be given to the royal treasury as tax. We do not get any reference of such a practice in northern, central and western India till the begining of the medieval period. One plausible cause for this may be the periodic invasions which the north Indian principalities had to suffer from various invaders down the ages. Such instability might have instilled a deep rooted feeling of

insecurity in the common people. Thus, people of this region could not settle down peacefully to evolve any sustained popular management bodies run the common people themselves.

This scenario shows a total turn around during the early medieval period as we discover in the *Babarnama*, that 'people of this continent were not at all using the river water, though bountiful, for irrigating their crops. Instead, wells and lift irrigation was much in practice. Most probably, people of northern and western India started relying on groundwater irrigation due to cultural interactions with their counterparts from the southern India or the periodic invasions, oppressive merciless rules of the muslim rulers of the Delhi Sultanate, which had forced the local people to start depending on lift and other types of groundwater irrigations only. Digging of canals, on the other hand, require a lot of labour and cost input what was obviously beyond the reach of the common people those days.

One remarkable distinction between the rulers of the southern India and northern India is that they promoted and propagated not only irrigation structures, embankments but showed greater tolerance and actively supported the idea of decentralised management; whereas, north Indian rulers had more faith in state or king-owned management of the irrigation structures and canals. Social management institutions were not allowed to grow or function in the north and north-western parts of India.

During the begining of the eighteenth century, we find another new upheavel in the irrigation history of India. Imperial colonists from the British empire started grabbing total administrative control of the Indian sub continent by this period. Socio-cultural and administrative interactions resulted in both positive and negative outcomes. Among others, extensive canal irrigation was promoted since the early part of the 19 th century; in this process the northern and north-western provinces were provided with at least partial insulation from famines and droughts. As principal aim of the British administrators was not to reach out irrigation benefits for the sake of the poor peasantry but to extract

maximum possible crown revenue, the local management institutions, which used to care for the irrigation structures were purposefully allowed to get ruined or defunct. Strong emotional bondage with the nature and its resources, the tenderly nurtured feelings which got inherited by the village communities since generations together - were able to withstand such drastic change in the attitudes and administrative policies and tried their best to save those resources.

Situation was more precarious in the directly-British-governed-provinces while in the princely states, rate of deterioration of the centuries old values and traditions were much more subtle in nature. It was the colonial rulers who instilled the idea of a strong centralised management among its successive viceroys and administrators. Unfortunately the same was taught to the 'enlightened and educated' youth during the 19 th century.

They were tutored to think, believe and work solely for the benefit of the colonial rulers. Thus they gradually learnt to distrust and neglect the ageold traditions which were the foundations of our scientific and social systems. They were made to believe that whatever we got from the west was 'modern, supreme' and the improvement of our lot lies in aping western ideologies in every possible manner. That generation which was brought up on the glamour and glitter of western 'sahibs' and their success stories forgot that the western formula for sucess and wealth could not be followed without sufficiently adapting it in the context of managing our society, our economy and its related problems.

Then came the world wars and economic depression which gave another blow to different types of developmental budgets in our country particularly in the decades of late 30's and early 40's. When common people could scarcely get one square meal a day, what would be the fate of those structures where 'commmon's participation was the keyword. Thus, not only administrative or political, but economic environs too, got more and more hostile day by day. All these resulted in

a severe setback to our country's resource management scenario in a cumulative manner.

Partition and related socio-political trauma was the 'gift' what the late 20 th century could give India! Our country was getting hard pressed under the increasing need of securing food for a larger group of population with a much shorter agricultural lands and least irrigation share from the pre-partition India. Thus, there was a strong need to grow more and more food from a limited land area; to meet that demand, our planners and administrators perhaps undermined or even ignored the potential dangers which can accrue from these storage-cum-irrigation projects.

Thrust has been given specially on building the large projects - the larger being the better! Thousands of crores of invaluable national income was spent on the construction of new irrigation projects and maintenance of the old ones during the consecutive five year plans. By one conservative estimate, our national government had already spent Rs. 30,000 crores for creating irrigation potential till 1986 - '87. At the same time, total amount of uncovered cost of irrigation ie. gap between the expected and the achieved ones) irrigation potential till 1986 - '87 was no less than Rs. 1,525 crores. Government and it's bureaucracy could not put forward any sound logic to justify such a huge loss, both in terms of money, effort and time for a developing country like ours. To be more precise, benefits to be accrued or which have already been accrued from all these irrigation structures, by no standards, is sufficient enough even to tally with its establishment cost. Thus the "temples of modern India" are day by day turning out to be 'white elephants'.

Let us come to the problems of siltation and drainage related management aspects ie. waterlogging, salinity and alkalinity. Not only thousands, but millions of hectares of previously productive agricultural tracts have already transformed into saline / alkaline / waterlogged wastelands in the command area of most of the large reservoir projects. Ever increasing siltation rate is no less frightening. Studies have revealed that Pong dam reservoir (of the Bhakra system) had 0.3975 MAF of silt deposit during the first 16 years of

operation. And this figure tantamounts to 5.72 percent of the total storage capacity of the reservoir.

There is no reason to believe that the case of other large reservoir projects are anyway better. Not only politicians, but even the concerned bureaucracy repeatedly assures that "such a rate of siltation is not unusual or scary; as soon as afforestation in the catchment area is complete, siltation will be effectively checked". Whereas, the reality was, such 'afforestation measures' were not initiated at all. So where does the question of completion come? When situation went beyond all control, only then did some efforts to 'scientific treatment of the catchment area', 'command area development', afforestation to check soil erosion, come about - but that too, on a limited scale. The results are so evident that it needs no further emphasis. What should have done at the very moment when the reservoirs were getting constructed by the concerned government executing agencies, was totally omitted.

Everywhere governmental agencies had shown the same trend of alienating local people while executing functional aspects of all these irrigation projects; only participation which was ushered from the common people was to employ the locals either through some rural developmental programmes or some sort of food for work schemes. Common people were the ones to be blamed, punished or banished for their 'projected negative role' by the government and a portion of the media in different development works.

Only the wearer knows where the shoe pinches. But the governmental agencies seem to forget this dictum when handling development works which affect the common man directly. Logically, local people should be extremely pleased with all such "temples of the modern India". But different NGO's, long time working, organised local movements (eg. Mukti Sangharsh group of the drought prone districts of Maharashtra, Tarun Bharat Sangh of the Alwar district of Rajasthan, Dasholi Gram Swaraj Mandal of Uttar Pradesh - just to name a few) have a totally different story to narrate.

And independent observers have enough ground not to phooh-phooh their logic either.

Then why is there such a great difference and impatience in the outlook of governmental agencies on such a basic issue? And this is the major stumbling block of all developmental efforts which are meant for the 'benefit' of the common man. It is high time our policy makers sit up and sincerely think what went wrong with our natural resource management policies in general, and irrrigation policy in particular? Why are management problems like misutilisation (over or under) getting intensified day by day with no apparent solution? Why are millions of hectares of otherwise productive tracts developing signs of deterioration ie. salinity and/or alkalinity? Why all the high budget irrigation reservoirs which came up after independence, not match even half of their functional life expectancy when many large and medium sized tanks, and considerable lengths of irrigation channels which were constructed 600 to 1000 years ago, are still fully functional? Where lies the drawback? Is it because of our presentday's centralised system of management? And if so, how is this to be rectified without wasting any more time? The author has tried to analyse all these aspects in the book, particularly in the last chapter, 'Social Management of the Irrigation Projects'.

Our country has had a tradition of participatory management since time immemorial; as we mentioned earlier, local peoples used to worship, plan water distribution scheduling, rationally utilise, optimise and religiously harness their local water bodies. Not only that, we find ample references about a number of communities which used to solely work for the protection, harnessing and preservation of our water resources for generations together. Remnants of different rudimentary 'social institutions' which are carrying out the job of local resource management till todate in different states is indeed thought provoking.

If we study these traditions we would surely find some way to break the vicious circle of our irrigation management problems. After all here we find the most finely tuned management system which helped the various communities

to 'manage and rationalise' the water use 'by the people' themselves (and which are for the people no doubt!) in the truest possible sense.

Such a decentralised management system which allowed the local users a sort of 'usufruct right' on their corresponding water bodies would be an effective answer to the various management problems of our present day's centralised approach towards our natural resources.