

**Department of Economics**

**YEAR: 3<sup>rd</sup> SEMESTER: 06**

**Course: EC 306: Economic History of India**

**Lecture Notes: Shashi Bhusan Mishra**

**Book Reference:**

1. G. Khusal : “Economic History of India 1757-1966”
2. Debesh Mukherjee: “Indian Economic History”

**Development of Irrigation in India**

During colonialism (1757-1856) the remarkable phenomenon is the development of irrigation. This development also had contribution in commercialization in agriculture. What irrigation did was to extend the land frontier by bringing waste land under the plough. [However, it also carried some environmental cost-to be discussed later].

-The development of irrigation encouraged a change in the cropping pattern and raised the value of land. It encouraged and stimulated the private investment.

- The acreage of irrigated as percentage of cropped area increased (from 12% to 22%) between 1885 and 1938. This expansion occurred mainly by the way of Govt canals and private wells.

-Canal construction started from early 19<sup>th</sup> century and these canals and wells were concentrated in four regions: - Punjab, Madras, Western UP and Sind. In all four region the govt and private investment had begun before 1885.

-The development of irrigation system such as canal made waste land cultivable and increased cropping intensity (i.e. it reduced fallow) where rainfall is limited. This supply side factor added production of commercial crops, comprised the induced changes in agricultural practices and technology, chiefly canal and well water and seed.

-The series of devastating famine which visited the country at regular intervals soon forced the company to give attention to question of irrigation facility. A general superintendent of irrigation was appointed in 1823 and the repair and improvement of the old works was taken in hand. The Western Jamuna Canal was reopened in 1821 and Eastern Jamuna in 1830.

-In 1842 the construction of Ganges Canal begun but it was not opened till 1854. This works was being constructed in Northern India. In Madras there was development and remodeling of old irrigation work in delta of Cauvery river.

-This irrigation scheme was carried out of revenue surplus and their construction imposed a strain on the resources of the company do it was profitable. It was, therefore, suggested that the construction of large irrigation work like that of railways could be most advantageously entrusted to the private enterprises.

-The government obliged by providing a five percent guarantee on investment in irrigation undertaken by the private British company.

-The first company known as the East India irrigation and canal company was formed in 1858 but the company soon got into difficulties and the govt began by giving a subsidy and ended by taking over the concerned at an exorbitant rate

-The 2<sup>nd</sup> company is known as the Madras Irrigation company rarely succeeded in meeting its working expenses. Considering this experience, it was realized that the construction and control of such irrigation could not be encouraged and entrusted to private enterprises and finally, the irrigation was to be constructed by the state from the loan funds

-Between 1862 to 1882 big loan works namely Sirhind canal, the lower Ganges and Agra Canal were constructed by the Govt. The provinces which were better served by the irrigation owed the most important part of their large irrigation work to the period before the 1860s. So, the progress made in the construction of the irrigation between 1859 to 1880 as extremely inadequate and unsatisfactory as:

a. It was unfortunately believed that the key solution to the problem of famines was more in the extension of railways than in the development of irrigation

b. The financial difficulties of the govt which stood in the way of raising enough funds for investment in irrigation work.

-In the regime, East India Company construction of the canal was left to the engineering department of the Army. Lord Dalhousie established the Public Work Department in 1854 and entrusted the canal to this department. It was argued by the authorities in India and in London that irrigation was going to remain one of the priorities of the state policy to fulfill its long-term goals.

- A broad distinction was made between this works that were built purely administrative or famine relief purposes (latter known as protective works) and those built for agricultural production (later called productive work) the former was not expected to yield any income, though they might save the government money that had to be spent on famine reliefs. The latter could be of commercial profit for the government irrigation work could be remunerative in both cases, money saved, and money generated had already been demonstrated by a number of major works.

- For major works that were too costly to be financed by the current revenue of the government and which therefore needed loans to be raised in London, it was essential that the project at least earn the interest on loans

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## **The Consequence of the Development of Irrigation in India**

1. Irrigation can raise the productivity of land and therefore the income of the cultivators and reduce the impact of harvest fluctuations. The water that raised income was charged at a certain rate paid out of that income. This tax accrued to PWD and was calculated in the rate of return on capital invested in irrigation projects. However, for such projects that have come up much before the department itself, no proper calculation of increase income or rate of return was possible.
2. To increase income from the plot of land also increased the rate of the rental value of the land. In the ryotwari system irrigated land was charged a higher land revenue. However, no exact calculation was possible of how much parental value of land increased due to irrigation.
3. The question of what money return the irrigation scheme really generated for the government was shrouded in speculation. The calculated rate of return between the project and regions. They also vary widely depending on whether revenue generated or the interest payment was added to the calculation. Major work in Madras on the Godavari and Cauvery deltas fetched good return. The overall return on work in North India was positive but not large, but the projects in Orissa, Bengal and Deccan fetched negative returns because these projects were first constructed by private companies, but the government later purchased it at unjustifiably high prices.
4. Generally, in irrigation policy, there was a powerful opinion against private enterprises. It was felt that allowing private companies into water supply would complicate the question of property right in water (so the government was forced to purchase them at a high price, and it gave a negative return to them)
5. The non-monetary return of irrigation projects such as famine relief and increase propensity for cultivators was also mixed. The canal irrigated area as a percentage of area under crops was not very different under Madras and Punjab in 1900. Madras suffered far more from famine. The reason was that canal as such could not prevail in water scarcity in the dry month if the region suffered from a general shortage of rains. In other words, the natural supply of water and the capacity of canals to prevent famines were correlated.
6. In several parts of canals served agrarian countryside. There was a dramatic improvement in the wealth and income of the people. But the human and economic cost of this extensive canal project was also large. This occurred due to persistence engineering defects, namely poor drainage of excess water. There is not much dispute that canal irrigation planned near-desert wasteland (Sind and Punjab) turned into cultivable land. The benefits of Agriculture were indisputable.
7. On the net effect of canal irrigation, there is an interesting difference in opinion between two authorities Elizabeth White and Ian Stone, both have worked in Ganga and Jamuna Doab, the area that raises the most controversy, but these were initially water-scarce region. The Doab, on the other hand, was relatively slope less plain hemmed in by major rivers it has a high water table already exploited through 'well irrigation'. Here the effect of a new system of water supply was more mixed.

8. Some argued that the environment was impacted adversely. The canals tended to spread the water and block natural drainage root led to waterlogging and this excess saturation led to a problem of salinity which turned large tracts less fertile.

According to some economist, canal enable to raise the average living standard and encourage limited industrialization especially sugar refining, canal water, however, was distributed unevenly among the peasant contrary to official expectation

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Further readings:

Trithankar Roy: "Economic History of India 1857-1947", Oxford, 3<sup>rd</sup> edition

G. Khausal: "Economic History of India 1757-1966" Kalyani Publishers; 2nd edition

Debesh Mukherjee: "Indian Economic History" New Central Book Agency; 3rd Revised edition.

Dhires Bhattacharyya. "Concise Economic History of India".