

HS4.301: Environment and Politics in India

Assignment 1

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Based on the following readings, discuss the impact of colonialism on India's water management systems and look at the debates within and outside official policy circles. Discuss the social, economic, and ecological impact of the British Raj's water management policies.

Word Limit: 1000-1500 words.

Suggested Readings:

1. Indu Agnihotri, 'Ecology, Land Use and Colonization: the Canal Colonies of Punjab', in Mahesh Rangarajan and K. Sivaramakrishnan (eds.), *India's Environmental History: Colonialism, Modernity and the Nation* (Ranikhet: Permanent Black, 2012), 37-63.
2. Radhakamal Mukherjee and Nirmal Sengupta, 'The Basis of Community' and 'Technology, Management and Control', *Social Ecology* (New Delhi: Oxford University Press, 1994), 120-131.
3. Elizabeth Whitcomb, 'Canal Irrigation and Ecological Change in Colonial North India', *Social Ecology* (New Delhi: Oxford University Press, 1994), 132-149.

The Impact Of Colonialism On India's Water Management Systems.

The British Raj is one of the most critical eras in modern Indian history. Numerous policies then evoked by the British continued to affect the nation even after 75 years of independence. Debates around the motives of the British Raj often have different perspectives and opinions. To analyze the impact of colonialism on India's water management system, we have to study the social, economic, and ecological impacts of the British Raj's water management policies.

In Pre-colonial India, we have additional evidence of different water management systems, which even date back to the water tank and sewer system findings in the Indus Valley Civilization or mention of penalties against someone who tries to malfunction the water system Arthashastra. In modern India, we have seen infrastructure such as Ahars and Pynes, which were revolutionary for their time. Despite being an agriculture-based economy for centuries, India had a well-functioning water management system to fulfil its daily use and farming needs. Developing and managing water sources such as channels, wells and reservoirs were seen as a community goal, where everyone came together and contributed economically or by providing manpower. And as then India was divided into several kingdoms, the water management system's central goal was the kingdom's survival and a good harvest rather than maximizing the production.

After the British colonized India, one of their main goals was to maximize revenue. But that was not possible quickly. The natural terrain varies from place to place. Different soil profiles and rainfall patterns across the country often cause numerous problems for the British, especially in Northern India. After the failure of the ryotwari system and the indigo revolt, the British planned to develop a canal irrigation system across various parts of the nation. One of the primary reasons was to tackle uneven rainfalls, ensure water supply throughout the year, and supply water in drought-prone regions. Moreover, the canals could also be seen as an employment opportunity for individuals affected by a famine or field workers idle after harvesting the yield.

However, the canal irrigation system was initialized with the East Jumna canal in the Doab region of northern India, fertile land. Moreover, the north Indian regions already have different water management systems failing because of the British revenue-centric policies. The canal irrigation system and the various local water management infrastructure ensured continuous revenue sources for the colonizer in India. The traditional methods were a backup to the upcoming infrastructure.

The canals were somehow fulfilling the motives of the British. Therefore, they started to spend on further expanding the system. The development of the Agra Canal began in 1868 to prevent famines, and the colonial government went up to spend 261235 pounds on developing the canal infrastructure by 1878, the year when the Ganges canal was completed after 13 years of work and started to function 372,000 acres of fertile land. Canals were one of the most important reasons why various north Indian landowners made an immense profit by grain trade in 1860-61 famines. Because of the canal, various regions got abundant water supply, allowing them to grow water-intensive crops, giving more economical results.

However, this led to a different set of adverse effects. Although the landowners started to make huge profits and the revenue also increased for the imperial government, the traditional farming patterns of these regions were affected drastically as various farmers started to practice double cropping. With water availability, the farmers started to grow cash crops such as cotton, indigo and sugarcane more than traditional harvests such as jawar and bajra, which require lesser water but are pretty cheap in the markets. Even opium cultivation began in regions after Agra Canal, especially where it was considered a foreign crop. The considerable cash inflow in affluent districts like Meerut and Saharanpur increased the gap between landowners and landless labourers. And with the rise of the urban population in North India, the economic opportunities for landowners and the pressure on landless workers and soil continued to rise.

Another new practice observed in the north Indian plains is how wheat took over different cereals in no time. Wheat, which was then considered a rich crop, was actively cultivated by the farmers whose staple diet included jawar and bajra. The fact that the producer is deprived of the harvest and the harvest is considered a luxury also showcases the economic differences that emerged with canal irrigation.

Moreover, the sudden change in farming patterns led to over-dependence on the canal irrigation system. Double cropping and overcropping also became a natural practice in various regions, which led to the depletion of nutrients in the soil. Depreciation of nutrients like nitrogen and lack of replenishment time led to the exclusion of 100s of acres of Aligarh and Meerut from cultivable lands and labelling of their soil as 'sun-dried bricks. Moreover, rain failure in such regions led to more catastrophic famines. Crosthwaite had reported the spread of reh or barren lands in Etawah district, irrigated by the Ganges Canal, as early as 1871. Also, the overdependence of Indian farmers on canals resulted in the gradual destruction of pre-existing channels and well, which ultimately succumbed to no maintenance.

Besides, excessive rainfall often leads to floods and overflow in the canals located in water-intensive fertile lands. As a result, the soil quality is further depleted. Moreover, the stagnant water in different regions resulted in the development of swamp lands in different districts, leading to a boon in the number of malaria cases in the north Indian region. Moreover, the number of deaths from malaria eventually increased in the region.

Apart from increasing the gap between the rich and the poor, the canal irrigation system had several other economic effects. The increase in the growth of cash crops was yielding huge profits to different stakeholders, but this led to inflation in the price of fodder for cattle. The lack of fresh fodder for cattle led to the death of numerous cattle animals and even led the Gujar community, traditionally a pastoral community, to shift to agriculture. And then, the lack of cattle and the supply of milk and milk products was compromised, which further added to inflation.

And one of the other impacts of the water management policies opted for by the British is how the wealthy farmers started to bribe the canal officers for their use and to draft policies and rules per their needs. As the quantity of water is fixed in any region for sustained agriculture, the first right over the water became a proxy war among the farmers of northern India, especially in Punjab. The rich started to bribe the individuals to get them on the same page, and the poor could only depend on the rain.

The abundance of water availability increased the gap between the British government and the small farmers, who did not want to grow opium and wanted to avoid double cropping or overcropping to maintain the soil quality, as the soil is often considered godly by Indian farmers. Evidence shows how the colonizers forced the farmers to grow cash crops such as indigo.

Overall, the British promoted the canals on a different level, which had its benefits in the initial years. But when we go down the line, the shortcomings such as an increased gap between rich and poor, its ecological impact, and the social differences it comes with, we can conclude that the canal irrigation system was a good option from a British perspective as they just wanted to maximize their profits. Still, as an environmentalist, overdependence on canals had a detrimental effect as we moved away from traditional water management systems such as wells and other rainwater harvesting techniques.

References:

1. Whitcombe, E., *Agrarian Conditions in Northern India: The United Provinces Under British Rule, 1860–1900*, vol. 1 (Berkeley: California University Press, 1972).
2. *REGIONAL SOCIOLOGY*. By Radhakamal Mukerjee New York: Century, 1926. *Social Forces*, Volume 6, Issue 1, September 1927, Pages 135–136
3. Goodall, Heather. (2012). *India's Environmental History Volume 1: From Ancient Times to the Colonial Period Volume 2: Colonialism, Modernity and the Nation* by Mahesh Rangarajan; K. Sivaramakrishnan. *Environment and History*. 18. 297-304. 10.2307/23250926.
4. Naz, Farhat & Subramanian, Saravanan. (2010). *Water Management across Space and Time in India*. ZEF Working Paper Series.
5. Rohan D'Souza (2006). *Water in British India: The Making of a 'Colonial Hydrology'*