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Socio-Economic Impact of Gazaldoba Teesta Multiple River Valley Project

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Abstract

The Teesta Barrage Project that had been conceived way back in 1975-76 had a grand plan for revival of the agricultural economy of six North Bengal districts - Cooch Behar, Jalpaiguri, Darjeeling, North Dinajpur, South Dinajpur and Malda - which did not have any industrial base. More than 35 years down the line, it remains far from complete, even though the needs may have changed and there is little chance that that the entire project, as originally conceived, would ever be executed. Though the original plan was to construct the project in three different phases and divide the first phase into three different stages.Of these three stages, the first one was divided into two sub-stages. But, after more than three decades, construction is still going on for the first sub-stage of stage I. At the completion of the entire project, the original plan was to bring under irrigation 922,000 hectares and at the completion of the first sub-stage of Stage-I, 342,000 hectares was supposed to get irrigation water. This paper is attempted to study the socio-economic impact of Teesta Barrage Project.

Key words: 1. Teesta project, 2.Development, 3.Economy, 4.Social change.

Objectves

Work on the irrigation project, started 35 years ago with the primary aim of watering the fields of North Bengal, has been progressing at a snail's pace because of litigation .The project, which was launched in 1976 to irrigate 9.22 lake hectares, has been able to provide water to only 66,000 hectares. The three barrages needed for the project have been built but construction of the canal network to take the Teesta waters into the interiors of the North Bengal districts is yet to be completed.The objective of the study is to find out the impact of the project.

Database

The information and data about the project have been collected from various sources , that are given below -1.Teesta River Water Sharing: A case study in Teesta Barrage Project –Research paper .2 Environmental Impact Assessment and Management plan for Teesta stage iv Hydroelectric project, Sikkim –Centre for Inter Disciplinary Studies of Mountain and Hill Environment ,University of Delhi 3.Climatic Impact Assessment : A case study of Teesta Barrage Irrigation Project in Bangladesh –

Research paper 4.Environmental Impact Assessment of Ting Ting Hydroelectric Project, Sikkim 5.Stage of Environment 2007 ,Sikkim –Government of Sikkim 6.Inducing vulnerabilities in a fragile Landscape – Economic and Political weekly .

Study area

Jalpaiguri district is the largest district of North Bengal, covering an area 6,245 km². It is situated between 26° 16' and 27° 0' North latitudes and 88° 4' and 89° 53' East longitudes. The district was established in 1869. Presently Jalpaiguri is the part of West Bengal which is situated in North Bengal.

The district situated in the northern part of West Bengal has international borders with Bhutan and Bangladesh in the north and south respectively and district borders with Assam and the Darjeeling hills in the east, west and northwest. The project is situated on Eastern part of the district of Rajganj and Malbazar blocks.

Introduction

Water is an important input for successful agriculture. Water may be available to crops in the natural course by rainfall or it may be supplied to the agriculture fields artificially by human efforts .The process of supplying water to crops by artificial means such as canals ,wells, tube-wells, tanks ,etc .from the sources of water such as rivers, tanks, ponds or underground water is called irrigation (Khuller,2007).The geographical condition s ,especially the nature of monsoon rainfall ,in India make irrigation indispensable for sustainable agriculture development. Unfortunately, rainfall in India is uncertain, unreliable, irregular, variable, seasonal and unevenly distributed .The main rain bringing south-west monsoon often fails to keep its date. It may come either before or after the scheduled date of arrival. Normally speaking, the rainfall keeps its date of arrival and withdrawal only in one out of five years. The amount of rainfall may also vary greatly from the normal. Excess rainfall may cause floods but less rainfall forces the farmers to resort to irrigation. Ironically, the variability of rainfall is very high in areas of low rainfall. The study area experience five dominant seasons but their duration and extent are not similar .Rainfall in the area follow the typical monsoon pattern. It occurs mostly during the four months from May to mid September and is followed by a prolong dry seasons. The project is the source of irrigation water mainly in dry season of the district as well as other part of North Bengal.

Table- I

Cultivable area and irrigation potential in North Bengal

District	Area (Sq.Km.)	Net. Cultivated Area (Hectares)	Net irrigated area (Hectares)	% Of irrigated area
1.Malda	3773	280850	69000	24.56
2.Dinajpur	5358	393984	81637	20.62
3.Coochbehar	3387	230391	39508	17.14
4.Jalpaiguri	6227	225676	35441	15.70
5.Darjeeling	3147	66871	20086	30.38

Source: Irrigation Department of West Bengal

The Teesta river

The Teesta is the largest and far more turbulent river of North Bengal and it originates from the glacier of North Sikkim at an altitude of 6400m.It has large catchment area in Sikkim as well as in Darjeeling district. It enters in plain near Sivok and then enters in Jalpaiguri district at its northwest corner. The Teesta after being fed by several tributaries in the Himalayan and sub –Himalayan region, is narrow and deep, before entering in the plain near Sevok. After entering in the plain it has a considerable width ranging from 3.2 km. to 10.8 km. In the sub Himalayan plain it has several tributaries like Lish, Ghis, Chel and Neora from the northeastern and karala from northwestern sides. The river changed its course frequently.

Teesta barrage project

The idea of using the Teesta River for irrigation for the betterment of the people is as old as the British period. During the 1950s, the then East Pakistani authorities intimated the Indian authorities regarding the Teesta Project in her territory. After the independence of Bangladesh in 1971, talks on the Teesta water sharing continued in the Indo-Bangladesh Joint River Commission. Bangladesh objected to India's plan to divert the water of the Teesta to the Mahanada basin area. The talks continued without any result until 1983, when the two parties reached an ad hoc allocation agreement, according to which India was to get 39 percent, Bangladesh 36 percent and the remaining 25 percent was to be reserved for reallocation later, after further study. However, even this agreement has not been executed and the amount of dry season water on the Bangladesh side has gradually decreased.

The Dalia Barrage is the largest irrigation project in Bangladesh. It stands across the Teesta River at Doani-Dalia point in the Lalmonirhat district of Bangladesh. The barrage was completed successfully in August 1990 and its operation commenced in 1993.

The Gazoldoba Barrage stands across the same Teesta River in the Jalpaiguri district of India. India had started to construct a barrage at Gazoldoba, which began to be used for irrigation in 1993.

Socio- economic impact of Gajoldoba project

A multipurpose project is that which simultaneously serves purposes. A dam built across a river often serves more than one purpose at atime and is termed as a multipurpose project. Flood control, Irrigation, Hydroelectric generation, Navigation, Fishing and Tourism are some of the chief aim of a multipurpose project. The development of multipurpose project in India since the beginning of planning era in 1951 has been the salient feature of the economic growth of the country.

1. **Irrigation:**

For successful cultivation of crops timely and adequate supply of water is essential. Water for irrigating coops is available from a number of sources. They are rain, rivers, spring and underground water .Rain water is an ideal source of irrigation provided that it is timely and adequate in amount. Work on the irrigation project started 35 years ago for irrigating the fields of North Bengal. The 210-km canal network, a crucial part of Teesta Barrage Project, would have helped to irrigate 9.22 lake hectares, now it is managed to water 66,000 hectares. Work on the three barrages of the project that were to have been built along with the canals to take the river water to the interiors of North Bengal. From the table number 01 it is clear to us that the six district of North Bengal (Jalpaiguri ,Coochbehar ,Uttar Dinajpur ,Dakshin Dinajpur ,Darjeeling ,Maldha) irrigation status is till now underdeveloped ,the project will extend the

irrigation cover. Lined right and left bank main canal system in five reaches of the project are -1.Teesta Mahananda link canal (25.64 Km) 2. Mahananda Main canal (80.62 Km) 3. Dauk Nagar main canal (80.62 Km) 4.Nagar Tangon main canal (30.82 Km) 5. Teesta Jaldhaka main canal.

Table II
Development of irrigation potential

District	Stage I		Stage II	Stage III	Total
	I sub stage	II sub stage			
1.Coochbehar	20	61	142	-	223
2.Darjeeling	17		-	-	17
3.Jalpaiguri	62		81	-	143
4.U. Dinajpur	194		-	-	194
5.D. Dinajpur	10	121	-	65	196
6.Malda	39	22	-	88	149
Total	342	204	223	153	922

2. **Hydro power generation:**

The importance of power and water in the economic development of a country is undeniable. As a nation, India is currently going through a period of fierce debate on the issue of the mode of power generation and water storage (Rudra 2009).The spatial and temporal inequality of rainfall has compelled human society, since the dawn of civilization, to explore means of water storage and transfer to areas that suffer from a paucity of the life-giving liquid. In this project there are nine hydro power generation station have been proposed, out of nine six in Sikkim and three in West Bengal. The 1st Sub-stage will also generate 67.5 M.W. of hydropower from three canal falls in the Mahananda main canal.

3**. Flood mitigation:**

Floods in any river basin are caused by excess runoff in the channel spilling over the banks and filling in the surrounding lowland spread over the flood plain (P. Saha, 2000).Teesta is the principle carrier of flood runoff in North Bengal.Ther has been record of the shifting courses of the Tista in recent history. The Tista a few centuries back used to meet the Ganga as a tributary. The Atreyi and the Karatoya appear to be the old channels of the Tista ,which were then active and navigable by large board.Now these are cutoff from the flow of Tista and appear to be derelict channels where the beds are risen with deposition of sand-silt .As a result of these have become perennial source of waterlogging and flood over the North Bengal plains . The Jaldhaka, the Torsa ,the Raidak ,the Sankosh are other problematic rivers in the Duars causing occasional floods. All these rivers meet the Brahmaputra in Bangladesh and carry huge monsoon runoff.

Construction of 12 Nos. of Major Cross Drainage structures on main canals including major aqueducts on crossings of rivers like (1) the Karala, (2) the Neem, (3) the Karotowa, (4) the Sahu, (5) the Jorapani, (6)

the Barang, (7) the Mahananda, (8) the Nagar, (9) the Luna, (10) the Kanchan, (11) the Kulik and (12) the Dharala and

Construction of 27 Nos. of regulator will decrease the intensity of floods in this region.

4. **Environment and plantation:**

Watershed of the reservoir and canals, green crops and the trees along five main canal (210 km.) embankments would bring in positive impact on the climate. A vast land in the North Bengal region of the country will be transformed into crop land and thus bring in green revolution. The flora and fauna will advent. On the whole, the socio-economic condition would change immensely and would usher in a better living condition of the people.

5. **Communication and construction:**

The area is economically backward .Transportation and communication is still now underdeveloped. Industrialization growth is slow but increasing population creates unemployment of people. The project will develop transportation as well as communication in this region .It is stated that

166 Nos. of bridges on main canals including crossings of Railway Lines, National Highway, State Highway and Major District Roads will be constructing .Not only that

Construction of distributaries, minors, sub-minors and water courses up to 8 ha. Blocks covering a length of 4200 km.(approx.) in an area of 3.42 lake ha. C.C.A. in the six districts North Bengal. Apart from this

Construction of residential and non-residential buildings, stack-yards, stores and Go downs throughout the Project Area will change the social environment.

6. **Recreation and tourism development:**

North Bengal is place of natural beauty. The region is based on three T, such as Tea-Timber-Tourism. The region is from the decent past is place of tourist attraction. This place has high eco tourism potential .In this region, the whole of the country found a space for recreation. Jaldapara, Gorumara ,Buxa Tiger reserved ,Darjeeling, Kanchanjhanga attract people from the whole world. The project will be other things of attraction. Around the gigantic, magnificent beautiful Barrage and its head works there are green parks, flower gardens, course of the Teesta and the Silt Trap. The migratory birds from the nearby Himalayas make a natural sanctuary in the reservoir in front of the Barrage. From here the snowcapped Kanchanjhanga is visible in autumn. Many visitors and tourists pour to this beautiful spot every day, particularly in winter to enjoy the beauty of nature. The implementation of project will change the socio economic condition of people.

Conclusion

North Bengal is endowed with 60% of the state's water resources but this remained unexploited until the construction of a barrage across the Teesta at Gajoldoba of Jalpaiguri district. The Teesta barrage project is designed to bring many of North Bengal's rivers into a single network.

The ongoing Teesta Barrage Project (TBP) is an overtly ambitious multipurpose project. It is plan to irrigate 9.22 lake hectare of land in six districts of North Bengal .Three pick-up barrages are to divert river

water towards agricultural land. The system maybe successful for kharif cultivation when the soil is naturally wet and rivers are full. The cumulative irrigation potential achieved by the project till June 2001 was 12, 6110 hectare.

The time taken for the project to get off the ground and delays due to problems such as non-availability of land, land acquisition disputes and clearances from the environment and forest departments have caused cost escalations and the spillover cost during the ninth plan was estimated to be Rs. 502 cores. Construction of three(3) barrage, five(5) left and right canal system, twelve (12) major cross drainage, twenty seven(27)regulators and fall structure including three (3) of power fall will change the socio-economical environment of North Bengal.

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