

THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

The Rivers of Bengal: The Role of the Fluvial Network in the Development of the Regional Economy, c.1600-1700

Baijayanti Chatterjee

Doctoral, Centre for Historical Studies (CHS), Jawaharlal Nehru University, New Delhi, India

Abstract:

This is a summary version of my M.Phil dissertation titled, Mughal Bengal: Ecology, Polity, Economy, 1605-1717 done under the supervision of Prof. Rajat Datta at the Centre for Historical Studies, JNU. In my dissertation as well as in this paper I have tried to underscore the importance of ecology in shaping the course of history. Bengal is a region with a very distinctive fluvial ecology. The Ganga-Brahmaputra river system together with its numerous tributaries and distributaries were the lifeline of the region. The rivers made the lands fertile and aided the production of agricultural surplus. This surplus could be traded very easily as the rivers provided a very efficient means of transport. Quick transport encouraged trade and commerce, which in turn fostered the growth of urban centres. These urban centres burgeoned along the banks of the rivers. The cheap availability of every necessity of life encouraged traders, particularly the European trading Companies like that of the Portuguese, the Dutch and the English East India Company to start their trading operations in Bengal. The commercial centres of these European Companies were important cities as well. I have argued here that the overall development of the economy of Bengal in the seventeenth century was largely because the region was endowed with a fluvial network that made it fertile and economically viable, by fostering trade and commerce.

Keywords: Environment, Bengal, Seventeenth century

1. Introduction

Just as Egypt was the 'gift of the Nile', the flourishing regional economy of Bengal in the seventeenth century was a gift of its fluvial network. The river Ganga and the Brahmaputra, along with their numerous tributaries and distributaries gave Bengal a very fluvial character unlike any other part of the Indian subcontinent. In course of my paper I will show that the overall development of Bengal's economy in the seventeenth century was a result of the riverine character of the Province that not only ensured surplus agricultural production by depositing fertile alluvium, but also aided the movement of the surplus so generated, for purposes of trade and commerce. As the rivers were the primary channels of transport, urban growth occurred along the banks of the rivers. By focusing on the role of rivers in moulding the economy of Bengal in the seventeenth century I have tried to highlight, in this paper, a hitherto neglected aspect of the history of seventeenth century Bengal- the role of the environment in shaping the history of the Province.

2. A Review of the Historiography of Eighteenth Century Bengal

The history of seventeenth century Bengal has received its fair share of attention from scholars. The political history of the province in the eighteenth century has been studied by Charles Stewart (Stewart, 1813) and Jadunath Sarkar (Sarkar, 1973). On the social history of eighteenth century Bengal we have Tapan Raychaudhuri's (Raychaudhuri, 1953) and Anirudha Ray's (Ray, 1998) work. The economic history of eighteenth century Bengal has been worked on by Moreland (Moreland, 1929), Om Prakash (Prakash, 1984, 1985, 2000) and Sushil Chaudhury (Chaudhury, 1975). Those working on the political history of seventeenth century have focused on the consequences of the inclusion of Bengal under Mughal suzerainty and how the independent landlords of Bengal were reduced by the Mughals. The works on economic history have tended to concentrate on issues such the methods of revenue extraction and on the activities of the European trading Companies in Bengal. Thus Om Prakash focuses on the Dutch East India Company and Sushil Chaudhury on the activities of English East India Company. However, most of these scholars in writing the political, social or economic history of the Province, in the seventeenth century, did not focus on the role played by the ecology of Bengal in shaping its history. As we will see in the course of this paper that environmental changes could and did affect the economy of the region. In this context, a notable exception to the existing seventeenth century historiography is Richard Eaton's work (Eaton, 1993) who underscores the importance of long term environmental changes in shaping the history of the Province in the seventeenth century. Eaton argues that by eastward movement of the active portion of the Bengal delta eastern Bengal became more fertile than the west. The agricultural frontier thus expanded in the east, where forests were cleared and the cultivation of wet-rice introduced under the aegis of Muslim *pirs* who received forest lands in East Bengal as revenue-free charity grants. The indigenous inhabitants were peasantised and Islamised by the *pirs* and as a result of large scale reclamation work agricultural productivity increased in seventeenth

century Bengal. My attempt in this paper will be to highlight such changes in the Bengal's economy that occurred because of ecological changes. I will argue in this paper, that it was the ecology of Bengal, particularly its fluvial network that made the province in the seventeenth century economically viable and attracted the European trading Companies to establish their businesses there.

2.1. A Geographical Outline of the Riverine Network and an Account of Legends Associated with them

The Ganga-Brahmaputra river-system was the lifeline of the Bengal region. The Riyaz-us-Salatin, a contemporary Persian source, traces the course of the Ganga-Brahmaputra river system in the seventeenth century thus:

The best of the rivers is the Ganges (Gang), which rises from the northern mountains of Hindustan at the point called Goumukhah, flows through the provinces of Hindustan, Farrakhabad, Allahabad, and Behar into Bengal, and in Bengal at a place called Qazihata, within the Sarkar of Barbakabad, it is named Padda. From this place, a branch of the Ganges separates, flows down Murshidabad, and at Nadiah joins the Jalangi river, and then flows into the sea. This branch is called the Bhagirathi, and it goes towards Chittagong, flowing through the sea. The Ganges at Allahabad joins the rivers Jon (or Jamna) and Sarasati, and near, Hajipur it unites also with the Gandak, the Saru and the Son, and becomes very broad. And the place where the three rivers unite is called Trebeni by Hindus, and its Sanctity in the eye of the Hindus is immeasurable. And the Ganges, Sarasati, and Jun or (Jamna), in flowing towards Chittagong and the sea, branch off in a thousand rivulets. There is no river bigger than it in Bengal...and another of the big rivers of Bengal is the Brahmaputra, which flows from the regions of Khata towards Koch, and thence by the way of Bazuha flows down into the sea. In the environs of Chittagong, it is called the Meghna. The smaller rivers are countless. On both banks of most of the rivers, paddy is cultivated (Ghulam Husain Salim, Riyaz-us-Salatin, 1902:23-24).

The Bhagirathi-Hooghly river a branch of the Ganges enriched western Bengal, while eastern Bengal was enriched by the Bramhaputra-Meghna river network.

There were a number of ways in which the inhabitants of Bengal perceived the rivers which were the life-line of the region. Many legends were associated with these. Abul Fazl says that the Hindus believed the river Ganges to have originated from the hair of Mahadeva's head. The Dutch traveler, Linschoten mentions one legend where a king was intrigued with the idea of the origin of the Ganga and sent men in a boat without food to investigate if the said river originated from paradise (Linschoten, 1885: I,92-97). Thomas Bowrey another seventeenth century traveler, mentions this legend to actually having been a common practice in Bengal of people sending their children up the river Ganges subsisting on raw fish and flesh to find the source of the river of the Paradise (Bowry, 1997).

Since the Ganga river was the bestower of plenty, awe and reverence was associated with it. Linschoten mentions 'this [river] is holden and accounted of all the Indians to be a holy and a blessed water and they do certainly believe, that such as they wash and bathe themselves therein...all their sinnes are [cleane] forgiven them, and that from thenceforth they are so cleane and pure[from sin] as if they were born again.' This association of purity with the River Ganges is also mentioned by Grandpre, the French traveler, who points out that a man drowning in the Ganges was hardly ever saved that act, in fact, was supposed to land him in paradise after death (Grandpre, 1995: II, 56-7). Grandpre also mentions that the Goddess Durga was supposed to reside in the Ganges for which it was considered holy to take a dip in the river. Grandpre however is of the opinion that this story had been circulated to emphasize on the importance of taking a bath in the tropical country...' (Grandpre, 1995: II, 56) Bowry mentions the water of the Ganges together with the seal of the Brahmans in it to have been carried as far as Gombroon where the people received it with great respect (Bowry, 1997: 216). Tavernier mentions that the water of the Ganges was necessary in weddings and the ritual often became difficult for those situated far away from the river (Tavernier cited in Bowry 1997: 216 fn.) Like the Ganga the river Bramhaputra was also associated with purity. It was said to have originated from a place called Brahmakundo where the legendary Parasuram was said to have taken a bath and was purged of his sins. Parasuram had then cut the hills with his battle-axe so that the rest of mankind could bathe in these waters and be absolved of their sins (Martin 1838: III, 388).

2.2. The Role of the Rivers in the Development of Agriculture

The rivers of Bengal made the region highly productive by depositing fertile alluvium. Almost all seventeenth century texts mention the fertility of Bengal. The nature of the Bengal terrain- a level land intersected with a large number of rivers depositing fertile alluvium made Bengal one of the most agriculturally fertile regions of the Mughal Empire in the seventeenth century. The Ain remarks that in the subah of Bengal, 'harvests are always abundant' (Abul Fazl, Ain-i-Akbari, 1989: II, 134). The Riyaz-us-Salatin, points out that 'owing to excessive humidity, the soil of Bengal has much power of sprouting ... most of the lands grow three crops in a year...' (Ghulam Husain Salim, Riyaz-us-Salatin, 1902:20.). Almost all foreign travelers coming to Bengal in the seventeenth century unanimously declared Bengal as a land of plenty. Bowrey refers to the kingdom of Bengal as the 'largest and the most potent kingdoms of Hindostan' (Bowry, 1997: 131). Bernier, mentions, that Bengal is much more fertile than the kingdom of Egypt, which has been regarded as the most prosperous kingdom of the world by contemporaries (Bernier, 1989: 437). Grandpre writing later in the eighteenth century confirms the observations made above. He mentions that 'the ground is un-commonly fruitful; there is no such thing as a bad crop' (Grandpre, 1995: 50). Because of its economic prosperity Ghulam Husain styled Bengal as "Jannat-ul-bilad," or 'Paradise of Provinces' (Ghulam Husain Salim, Riyaz-us-Salatin, 1902: 3).

The principal commodity produced in Bengal was rice. The plains of Bengal intersected by a large number of rivers depositing fertile alluvium were ideal for the cultivation of rice which required well watered plains and abundant rainfall in order to thrive. Abul Fazl mentions that there were various kinds of rice grown in Bengal such that if a single grain of each kind collected, they would fill a large vase (Abul Fazl, Ain-i-Akbari, 1989: II, 134). Rice was carried up the Ganges to Patna and exported to Masalipatam and many other ports on the coast of Coromondal and to Ceylon and the Maldives. Grandpre thus thought, Bengal was 'the granary of rice to all India'

(Grandpre 1995: II, 51). The Dutch records mention Bengal rice to be cheaper than that of Arakan, another major rice producing area. In the sixteenth century Bengal was one of the principal rice –surplus area and regions like Maldives totally depended for their rice export on Bengal. Small wonder then, if Pyrard De Laval regarded Bengal the nursing mother of neighboring regions. He writes ‘The country ... is so wonderous fertile that one lives there for almost nothing, and there is such a quantity of rice, that besides supplying the whole country, it is exported to all parts of India, as well as to Goa and Malabar, as to Sumatra, to all of which lands Bengal is a very nursing mother, who supplies them with their entire subsistence and food’ (Francois Pyrard De Laval, 1887: I, 327).

Another important agricultural production of Bengal was cotton. The foreign travelogues point to the excellent cotton manufactures of Bengal. Manrique mentions the muslins to have been exported to Khurasan, Persia, Turkey and many other countries. These muslins were so fine that they were contained within hollow bamboos ‘about two spans long’ (Manrique, 1926: I, 56-7) and thus secured were traded to distant places. Linschoten mentions a number and variety of linens called Sarampuras, Casas, Comsas, Beatillias, Satopassas. In 1530s Joao De Barros reported to the King of Portugal that in Bengal, ‘they pick so much cotton, have so many artisans and they weave so much of cotton cloth that they ‘might dress the whole of Europe’. And that ‘ whoever wishes to dress with fine clothes is obliged to have those of Bengal,’ (De Barros cited in Chadha, 2005: 34), the weavers also did some very fine needle work which was so exquisite Linschoten was of the opinion that these could not be mended anywhere throughout Europe. Grandpre writing in the late eighteenth century mentions among the productions of the soil of Bengal- salt-petre and cotton (Grandpre, 1995: II, 50). From the cotton of Bengal fine Muslins were made that were exported to Europe.

However, the manufacture of cotton goods was particularly important in Dacca and Dacca cotton goods played an important role in Bengal’s trade with the outside world. The weaving of cotton was carried on in the district and her neighbouring areas to a greater or lesser extent in every village but weavers in certain places acquired greater skills in the craft and these places became the manufacturing points of the finest muslins of Dacca (Karim, 1964: 83). The coarser variety of fabrics produced in the district was meant for the common people while the finer ones called muslins were reserved for the use of the upper classes and for exports. Of these finer varieties the finest were reserved for the use of the Mughal Emperor at Delhi and the Nawab of Bengal. Those reserved for the use of the Emperor were called malbus khas and those reserved for the Nawab was called sarkar-i-ali. A daroga was appointed by the government to supervise the production of muslins for procuring the finest muslins for the Emperor and Nawab. Often the daroga however stopped the weavers for weaving muslins for the English East India Company. But, after the grant of Diwani to the latter, the post of the darogha was abolished and manufacture of these finest varieties of muslins of which the nawab and the nobles were the principal buyers also came to an end.

A very important production and manufacture of Bengal was silk. Mulberry was cultivated in different parts of Bengal which were used as food for the silk worms. The silk of Bengal was an important article of commerce. Pyrard de Laval also mentions of Bengal silk. The silk of Bengal was in great demand with the Dutch as well as the English. Bengal silk formed an important item of the intra-Asian trade of the Dutch.

The seventeenth century also witnessed the expansion of the agricultural frontier particularly in the Bhati region in East Bengal which had been hitherto covered with forests. Richard Eaton, had argued that the lands in eastern Bengal had become more fertile due to deltaic movements, and these lands were newly reclaimed and put to cultivation under the initiative of Muslim ‘pirs’ or other ‘charismatic leaders’. In these fertile well-inundated areas the cultivation of wet rice was introduced which was labour intensive.

So a large number of semi-tribal populations in these areas were peasantized and consequently also Islamized by the Muslim pirs in course of the seventeenth century.

Even in the fertile tracts of the Rarh or western Bengal, like in the areas of the Bhati, there was large scale peasantization of tribals as well as a low caste Hindus engaged in occupations like fishing or hunting who took up the plough after abandoning their traditional vocation. Jawhar Sircar has argued that when Islam entered Bengal it posed a challenge to Brahmanical Hinduism because of the former’s more egalitarian ethos compared to that of the latter. As a consequence it was imperative for Hinduism to be more accommodative especially towards the lower castes who would otherwise embrace Islam. Hinduism thus granted social mobility to those who took to the plough. For instance those among the fishing caste of Kaibarttas who took up agriculture abandoning their traditional occupation were called Chasi or halia Kaibarttas in contrast to the jalia or fishermen kaibarttas. The former were higher in ritual status than the latter. Thus a large number of peasants in order to improve their ritual status took to agriculture resulting in large scale peasantization of the Rarh region. These peasants remained Hindus for which reason the Rarh region in the later British period censuses appeared to have had a Hindu majority in contrast to the East which had a clear Muslim majority (Sircar, 2005).

A large scale peasantization in both the eastern and western parts of Bengal must have resulted in an agricultural boom. ‘The availability of ready food grains(and textiles) from the chief port of the Rarh- Satgaon (later, Hughli) and the haats, (weekly markets) all over the Rarh countryside soon became magnets that drew the pan-Indian traders from all over and a littler later, the Portuguese as well as other colonial powers.’(Sircar, 2005:31) Thus along the banks of the Bhagirathi Hooghly river we find the trading houses of these European traders who competed among themselves for the control of the trade of this region. To the East of Bhagirathi, Chittagong functioned as the principal port through which trade of this region was carried on.

2.3. Trade and Transport in Riverine Bengal

From the above discussion it is apparent that Bengal had a flourishing agriculture producing a variety of crops and a surplus of food grains and other commodities. This surplus production could be carried from one end of the province to another by means of transport that was essentially water-borne. A peculiarity of the Province of Bengal was the dominance of the fluvial network over land carriage. Transport costs on land were estimated to be 28 times more than that through the river (Crawford cited in Mukherjee, 2010: 31) prompting merchants to store grain to be transported during the navigable season. Although this implied additional cost for storage

overall it was cheaper to transport goods through the water route than through the land route. Different kinds of boats like bajras, pinnaces, dingis, were used for purposes of traveling (Solvyns 2001: 18-21, 30-35, 50-53).

During the rainy season travel by land was nearly suspended and the rivers provided an alternative means of communication. The traders did not export or import commodities during the dry season. During this time the export goods were stored in warehouses located on the banks of the river from where they were carried to their destinations during the rainy season when the rivers could be used as means of communication. The imports too were made during the rainy season and during the dry season they were distributed to the various market places of the Province. The rivers also connected the intermediary markets the hats and the ganjs and were therefore crucial to the economy of the region. The ganjs and the hats were usually established at points where the transport of goods and the assemblage of buyers and sellers were facilitated by the existence of roads and waterways (Mukherjee, 2010: 33-34). 'The sinews of the transport organization bolstered and sustained the integrated yet decentralized commercial economy' (Mukherjee, 2010: 22). Direct river routes existed to the four cities of Calcutta, Dacca, Murshidabad and Patna.

2.4. Problems of Navigation of the Rivers

In spite of providing extensive means of internal communication, navigating these rivers was problematic. Almost all foreign travelers refer to the problems of navigation in Bengal. Bernier in his voyage from Pipli to Hughli, in the 'seven-oared' scallop mentions that not a day here passed without some 'extra-ordinary accident or adventure.' The fish was delicious and Bernier was also fortunate to have witnessed 'a lunar rainbow' but on the third day he was lost among the channels and perhaps would not have recovered had they not met some Portuguese, 'who were employed in making salts on one of the islands.' On the fourth day of his journey the weather was suffocating and hot and on the fifth day a dreadful and 'perilous' storm broke out. The fears of the Indian boatmen overcame them and Bernier and his 'two Portuguese' survived the tempest by clinging on to a tree for a span of two hours while the storm raged. They arrived on Hughli on the ninth day, the pace of their voyage here must have been quickened by the storm for a voyage from Hughli to Patna generally took about a month. By the time the journey was concluded, Bernier laments, 'my trunk, however, and all my wearing apparel were wet, the poultry dead, the fish spoilt, and the whole of my biscuits soaked in rain' (Bernier, 1989:446). The storms which Bernier encountered were common on the eastern coast and in Bengal they were known as '*Kalbaishakhis*', which particularly occurred in the month of April (Solvyns, 2001: 14-16) Pyrard de Laval was of the opinion that Bengal would 'be the fairest, most pleasant fertile and profitable in the whole world,' had it not been for the problems of navigation in its waters (Pyrard Laval, 1887: I, 332).

Manrique also mentions that navigation in Hughli river was particularly difficult. He points out that this river was used by all steamers going to Calcutta. But the pilot service of that city was composed of men who have specialized in its navigation, which is notoriously dangerous with shifting banks and quick-sands that 'have swallowed many a ship.' In the seventeenth century it was known as the 'Braces of Bengala' (Manrique cited in Collis, 1995: 69). These Braces are mentioned in the Factory Records as well, the word implying the fatal embrace of the quick-sands.

In his journey down the Hughly River on board the ship Santa Cruz, in 1676, Thomas Bowry, mentions that the vessel was driving down the river at a swift and violent rate and past Jno. Perdo, where she encountered 'freshes' and was caught in an eddy and driven towards the shoals of the River Tombole, (Tumlook, or the Rupnarain). This was the dreaded shoal of "James and the Mary" at the junction of the Hugli and Rupnarain rivers. The shoal had acquired this name from two large ships the 'James' and the 'Mary' having sunk there. The island of Jno. Perdo was, in fact, infamous for the 'freshes' which hindered navigation. The Diary of Streynsham Master, 11th Sept. 1676 records that there was no hope of getting the sloops higher than the island of Janperdo, by reason of the 'strength of the Freshes.' Bowry however points out that difficulties encountered by him would have been avoided if the 'Ganges Pilot' had been 'ingenuous'. The river had many areas which were easily navigable and the eddies and streams could be avoided if one were careful. Bowry says that he has discovered this fact 'by experience'. The navigation on the Ganges required the expertise and experience of the navigator without which the ships and boats were bound to get into danger. The lack of experienced pilots was a subject of constant complaint in this period. In the Diary of Streynsham Master, Walter Clavell in his "Account of the Trade of Hughli" remarks: "Our ships if we had more Pilotts whom we could oblige to stay after they had obtained some experience either by engaging them in families, or by giving them good wages might with much more ease goe over the braces and come up Hughli river..."

The Factory Records of the English East India Company for the seventeenth century also point to similar difficulties of navigation in the Ganges, upstream. In 1670, the Company had five factories for trade in the Bay of Bengal region. These were located in Balasore, Hughli, Kasimbazar, Patna and Dacca, the factory at Balasore being the seat of the 'Chief and his Council'. But the records point out that the intention of the factors was to transfer this to Hughli (Fawcett, 1952:II, 325) which was a 'more convenient trade center'. But Hughli was located further upstream on the river and the masters of the Company's ships were reluctant to bring their ships to Hughli in view of the 'perils of navigation' in the estuary of the Ganges. Thus although Bridges and his council moved to Hughli the ships refused to follow suit and the Bay Council had to divide its time between Balasore and Hughli.

The Company however was not deterred in its attempts to navigate upstream. Two *pinnaces* of the Company- The *Diligence* and *Madras* were employed on the 'discovery' of the channels (Fawcett, 1952: II, 329), but the problems of navigation still persisted as the commanders employed for the purpose, 'no sooner had they got experience of the river than they wanted to return home' (Fawcett, 1952:II, 329). Six great can-buoys with chains and mill-stones to ride them by were prepared for buoying the channels but nevertheless the commanders refused to navigate unless their vessels were indemnified against dangers of mis-carriage. In 1673 the records lament the death of John Floyd who was among the 'small number of men who were thoroughly acquainted with the River Ganges' (Fawcett, 1952: II,355). The Records which close in 1677, still mention the problems the Company encountered in navigating

in the Ganges up-stream to Hughli. In October, 1677 Captain Erwin commander of the New London came to Hughli and carried out a survey of the river, its channels and the 'braces' or shoals that lay at its entrance. This he did on the sloop 'Lilly' for some days, in company with the chief pilot, George Hacon, observing the tides, sands, soundings etc. of the river. After the investigation he was satisfied that any ship then in the road might be safely brought up the Ganges. But the fact that such an investigation had to be carried out as late as 1677 meant that inspite of the vessels having started to ply upstream to Hughli, the Company was still struggling with the problems of navigation in the Ganges (Fawcett, 1952: II, 75).

2.4.1. Duration of Voyages

The speed of the journey by water in the seventeenth century was variable as it depended on the availability or the lack of favourable winds, the strength of the currents etc. But generally traveling by water was faster than by land. P.J. Marshall observes that speed was an important factor in country trade because the capacity of most of Bengal's markets was limited and they were easily glutted. So the ship which arrived first made the most profitable voyage (Marshall 1976: 60). This could apply very well in context of internal trade within the Province as well. The money to finance a voyage was borrowed at a very heavy rate of interest, and hence a delayed voyage meant heavy loss. The following table gives the duration of river voyages (Deloche, 1994: II, 176).

- On the Ganga: No. of Kilometers covered in one day on a bajara (according to memoirs of Rennell , p-230-61)

With the stream		Against the stream	
Low water	High water	Low Water	High Water
65	80-110	27 or32	60

Transit by land was also common but water route was more favoured. The country being intersected by a large number of rivers construction of roads posed difficulty. Also the journey by the river route was not as time taking as the journey by land. The following table from Deloche (Deloche,1994: I, 282) demonstrates time taken in land transit by foot couriers in Mughal period.

- B. Transmission of Despatches by Foot Couriers during the Mughal Period: Several Examples

Stages		Distance covered in Kms.	Number of Days	Daily Average in Km.	References
From	To				
Hugali	Balesvara	264	4-6	66-44	1679, Streysham Master Diaries, vol.ii, p-262,278,347
Hugali	Dhaka	283	7-9	40.4 to 31.4	1679, <i>Ibid.</i> p-252, 268, 281,355
Hugali	Patna	601	11-15	54.6 to 40	1679, <i>Ibid.</i> p-272, 279, 322.

Table 1

If we compare table A with column 4 (daily average in Kilometers) of table B. we find that that the daily distance traveled by land transit did not exceed more than 66 km. whereas by water route in case of high water flowing with the stream one could cover as much as 80-110 kms. Even in going against the stream which took a longer time than in going with the stream one could cover as much as 60 kms. in times of high water. In unfavourable circumstances (going against the stream in low water) distance covered was 27 to 32 km. In case of land transit the lowest distance covered as given in the above table was 31.4 meters.

It is to be also mentioned here that Indian roads were never metalled. That according to Deloche was because in India particularly in the alluvial plains no hard materials could be found with which to metal the roads. There were no stones for metalling the surfaces rather there was clay which when hardened into bricks were used to make roads. These *kacha* roads were particularly susceptible to floods and other weather conditions. In regions favourably endowed with waterways the roads necessarily submitted to the network of navigable waterways (Deloche 1994: I, 115). The imperial highway from Delhi to Bengal did not depart from the banks of Jamuna and the Ganga except for short stretches.(Deloche, 1994: I, 115) Deloche points out 'that this submission to hydrographic network, an indication of inferiority, had as a consequence the multiplication of deviations and considerable lengthening of distances'(Deloche, 1994: I, 116). But this was a consequence also of the nature of the terrain. It was also to the credit of the merchants that they could advantageously use the waterways for quick transportation. Comparatively freight traffic in eighteenth century France seldom went beyond 3-4 km per hour and passenger traffic in England was 3.3 kilometers per hour in c.1700,(much slower than in Bengal) (Blanning, 2007: 8,11).

2.5. Commercial Growth and Emergence of Urban Centers

Seventeenth century Bengal witnessed commercial growth. The cheap availability of textiles and food grains drew the foreign Companies to Bengal. The Portuguese, the Dutch and the English entered the Province and opened up successful trade with Asia as well as with Europe. The first to arrive on the scene were the Portuguese followed by the Dutch and the English. As a result of successful trade a large number of urban centres burgeoned during our period. It was no accident that these urban centres were located along the banks of the rivers because in Bengal the rivers provided the quickest and easiest means of transport.

The Portuguese had entered Bengal in the sixteenth century and here they had two important trading centers at Satgaon (later Hughli) and at Chittagong. Portuguese power however declined after the sack of Hughli in 1632 and the vacuum was filled by the rise of the commercial activities of the Dutch and the English East India Companies. The Dutch came to Bengal mainly for raw silk which was an important item for its intra-Asian trade. As for the English East India Company it exported from Bengal textiles, raw silk, and other bulk goods like salt-petre, sugar, borax, turmeric, cauris, redwood, and gumlac. Bengal started to surpass other centers of trade of the English East India Company so that while the stock sent to Madras in 1710 was £80,000 the stock sent to Bengal was £180,000 and in 1717 while £130, 000 was sent to Madras the stock sent to Bengal was £270,000 (Chaudhury, 1975:59).

As a consequence of Bengal's flourishing commerce particularly with Europe, a large number of wealthy cities thrived in sixteenth-seventeenth century Bengal which were centres of trade of native and European merchants. The towns were located mostly beside the side of the rivers as transport was mainly water-borne. Thus the trading stations of the European Companies were all located on either side of the Bhagirathi-Hooghly River.

In the sixteenth century Satgaon was the *porto pequeno* and Chittagong the *porto grande* of the Portuguese whose chief centres of trade in the sixteenth century was these two places. Among the two ports of Satgaon and Chittagong, the former declined due to the silting up of the River Saraswati. From Satgaon the mantle was taken over by the Portuguese town of Hooghly- the most important city in the seventeenth century.

From Capt. Hamilton's account in the early years of the eighteenth century we learn that Hughly was 'a town of a large extent, but ill built. It reaches about two miles along the river's side, from Chinsura...to Bandel...This town of Hooghly drives a great trade, because all foreign goods are brought thither for import and all goods of the product of Bengal are brought hither for exportation'(Capt. Hamilton's account cited in Wheeler, 1972) Walter Clavell, mentions that at Hughli were present weavers who wove cotton and silk and from the adjoining areas were brought silk, sugar, opium, rice, wheat, oil, butter, coarse hemp, gunneys. These goods could be procured by giving advances to the merchants who bought these commodities at places where they were cheapest.

Clavell mentions that the Dutch also had a flourishing trade at Hughli. They brought gold and copper from Japan, Tin from Malaya, Pepper, "Chank"(sankh or conch shell), betel nuts, Elephant and elephant teeth cloves mace, nutmeg, Gaunce (bell-metal) and also brimstone, vermilion, quicksilver and cloth. From Bengal, the Dutch procured, rice, oil, cloth, raw silk, silk wrought, saltpeter, opium, turmeric, gingham, sugar, long pepper, and bees wax (Strenysham Master, 1911: II, 83).

The Portuguese who made Hughli a great center of trade, suffered a reversal in fortune when in 1632, ShahJahan laid a siege on Hughli and ousted the Portuguese from there. Although the Portuguese returned next year, their trade was no longer as brisk as it used to be. Walter Clavell who was writing an account of Hughli in 1676, mentions that 'The Portuguese though numerous in Hughli are reduced to a very low and mean condition' (Strenysham Master, 1911: II, 84). Their trading activities were negligible and most of them derived their income as soldiers in the Mughal army.

Hughli was the center of the East India Company trade in Bengal. The Council chose Hughli over Balasore as the seat of its Chief and Council. It was argued that 'Hughli being the key ...of Bengala, where all goods pass in and out, to and from all parts, and being near to the Company's business, is more commodius for receiving of advices from and issuing of orders to all subordinate Factoryes' (Strenysham Master, 1911: I, 500).

The other important cities of Bengal were Rajmahal and Dacca and Bowrey mentions the latter being 'a fairer and stronger city' than Rajmahal (Bowry, 1997:143). Tavernier mentions that the city of Rajmahal was located on the right hand side of the Ganges which was formerly the 'residence' of the governors of Bengal it being a great place for hunting as well as a commercial entrepot (Tavenier cited in Bowry, 1997: 143). John Marshall in his diary gives an account of the town and the palace of Shah Shuja- which was inside it (Marshall, 1927: 70). Shah Shuja was the son of Mughal Emperor ShahJehan who was also appointed as the Governor of Bengal. The house of Shah Shuja was very long and it had a garden adjoining it and both together cost 25 lakhs of rupees.

Marshall felt that the town of Rajmahal was about 2 kos. long. He also mentioned of a mint there under Mughal authority (Marshall, 1927: 10). The English East India Company's treasure was coined here as well (Marshall, 1927:22). However the river Ganges it appears from Tavernier's account to have shifted its course about a good half a league from the city.

The editor's notes in Riyaz mention that 'in 1610 A.C, Islam Khan, the Mughal Viceroy of Bengal, shifted the Viceregal Capital from Rajmahal or Akbarnagar, to Dacca. This transfer of capital appears to have been decided upon, because the Musalman dominions in Bengal had considerably extended eastward, and Rajmahal ceased to occupy a central position, and also because Magh and Arracanese incursions from Arrakan had become frequent'(Ghulam Husain Salim Riyaz-us-Salatin, 1902:39). During the rule of Mughal Emperor Jahangir Dacca received the name Jahangirnagar.

Bowrey says, 'the city of Dacca is a very large spacious one, but standeth upon low marshy, swampy ground, and the water thereof very brackish, which is the only inconvenience it hath, but it hath some very fine conveniences that maketh amends, having a fine and large river that runneth close by the walls thereof, navigable for ships of 5 or 600 tunns in burthen...' (Bowry, 1997: 150).

Both the English and the Dutch had each a factory at Dacca, but their investments here Bowrey mentions were small. Dacca is also mentioned to have had a mint by Bowry (Bowry, 1997: 217). Abdul Karim in his study of the city of Dacca, points out that the very situation of Dacca, the central place being connected to the adjoining areas by means of water routes, made it a commercial entrepot of significance. (Karim, 1964: 69) A shahbandar, at Dacca, was also established by the Mughals, to control the trade and commerce of the region, for receiving taxes and issuing rawanahs(passes or permits) to the traders. Karim mentions that Dacca served a double purpose in relation to the country's commerce- the town as a manufacturing station and marketing place and the port as a place for receiving and dispatching both country and imported goods.

The imports of the foreign country included mostly metal like iron copper brass and tin. These European companies paid mostly in bullion for the vast amount of goods from Dacca exported by them. As for the manufactured goods a portion of them were manufactured in the city itself which is indicated by names of some of the localities within the city, for instance Tantibazar or Sankharibazar, which in the local language would respectively imply the weaver's mart and the shell-workers mart. But so far as the agricultural products were concerned they came from places outside Dacca as well. The main districts which produced a surplus of certain agricultural products and sent them to Dacca for trading purposes were Sylhet which supplied chunam or lime, opium from Patna through Murshidabad and Calcutta, coppas from Dacca, Faridpur, Tippera and Noakhali districts, tobacco from Rangpur, jaggery from Faridpur, Noakhali, Bakerganj and Jessore districts. Rice came primarily from Bakerganj. But Dacca was most noted for its cotton goods. It achieved a world-wide fame for its fine muslins and for its coarse and fine fabrics.

Kassimbazar was another 'famous and pleasant towne'. It was famous for its flourishing commerce and great market, from which it got its name. Kasim meant husband or chief and bazaar a market. Kassimbazar was thus the chief of all markets The English and the Dutch both had a factory here. Regarding Kasimbazar, Tavernier mentions that at Kassimbazar the Dutch, the merchants of Tartary and of the whole Mughal Empire carried out a brisk trade in silk. From Kasimbazar silk was exported to Ahmedabad and Surat where they were woven into fabrics (Tavernier 2007: II, 2). He further mentions, 'The Dutch carry their silks and the other goods they obtain in Bengal by the canal which connects Kasimbazar with Ganges; this canal is nearly 15 leagues long. There remains an equal distance to descend by the Ganges to Hugly, where their goods are shipped on board Dutch vessels' (Tavernier, 2007:II, 3).

Towards the end of our period the town of Murshidabad under Murshid Quli Khan became important being the vice-regal seat of the Nawab who was gradually becoming autonomous of the authorities at Delhi. The author of the Riyaz mentions that 'the city of Murshidabad is a large town situated on the banks of the river Bhagirati. Both banks of the river are populated' (Ghulam Husain Salim, Riyaz-us-Salatin, 1902: 27). In the beginning the city of Murshidabad was called Makhsusabad after the name of a merchant who established a settlement here. Later on when Murshid Quli Khan owing to the differences between him and the Prince Azim-us-Shan decided to separate himself from the latter and removed himself to Makhsusabad he renamed the city as Murshidabad, after his own name. He cleared the jungles at Dughariah and built a palace there and the Board of Revenue (Diwan khana) and Court of Exchequer were also established at this place (Ghulam Husain Salim, Riyaz-us-Salatin, 1902:28). When he was permanently conferred on the subadar of Bengal and Orissa in addition to his position as the Diwan he established a mint in Murshidabad and had 'struck at Murshidabad' inscribed on them. The author of the Riyaz mentions that it was a beautiful city and the inhabitants of it in society with the subadars or Mughal officials had become refined and sophisticated in their manners and conversation which was like those of the people of Hindustan and different from that of rest of Bengal.

But by far the most important English town was Calcutta. About the city, Riyaz mentions, 'Calcutta is a large city on the banks of the river Bhagirati. It is a large port, and the commercial emporium of the English Company, and is subject to them. Small ships, called sloops, always every year come to that port from China, England, and other parts, and many remain there. At present, this city is the place of residence of the English Chiefs and officers and employees' (Ghulam Husain Salim, Riyaz-us-Salatin, 1902:33).

About the other important towns and European settlements the Riyaz mentions, that Chandannagor alias Farashdangah, was twelve karoh distant from Calcutta. The factory of the French was situated there. It was a small town on the bank of the river Bhagirati. There was a French Chief here who was the administrator of the affairs and mercantile concerns of that town. The English Chiefs had no authority there. Similarly, at Chucharah (Chinsurah), the Dutch held authority. Chucharah, or Chinsurah, which adjoined the port of Hughli, was to the south of that port, and was one karoh to the north of Chandannagor. And similarly Chirampur (Sirampur) was on the banks of the same river, opposite to Chanak (Barackpur). The factory of the Danes was situated there, and it was also called Dinamarnagar. In these places, besides the, owners of the factories, no one else had authority. (Ghulam Husain Salim, Riyaz-us-Salatin, 1902: 36)

The towns performed certain economic functions. To a smaller extent they were manufacturing centres. We find evidence of production within the towns itself in case of Hughli and Dacca. But largely the towns were commercial centres from where specialized goods were exported and acted as sites for the receipt and redistribution of goods. They were thus located near the banks of the rivers which connected them to one another.

A large amount of commodities was also imported for the internal consumption of its inhabitants. According to the estimate of Abdul Karim the city of Dacca during the peak period of its growth had a population figure of about 4 to 5 lakhs, 'which decreased a little owing to the transfer of capital to Murshidabad at the beginning of the eighteenth century...' (Karim, 1964: 92) Thus the internal consumption capacity of Dacca in the seventeenth century was substantial. Such internal consumption pull would no doubt encourage production if the towns were to thrive. This meant that towns were responsible for accelerating an ongoing process of agricultural reclamation. Rajat Datta points out that because of extensive reclamation work in Bakerganj in the early years of the eighteenth century the district emerged as the principal supplier of rice to Calcutta and Qasimbazar. (Datta, 2000: 70)

2.6. *The Rivers: Source of Wealth and Woe*

The rivers of Bengal were instrumental for the economic growth of the region. But while they made agriculture and trade flourish yet at the same time they were the cause of such perils as floods. The southern part of Bengal lying in the delta of the Ganges intersected by a large number of rivers was particularly prone to floods. Rivers also changed their courses and when they did, the urban centres located beside these rivers that changed their courses also declined. The urban centres were connected to every other part of the province by rivers and if the rivers changed their courses the towns lost their connectivity and consequently their commerce. For instance the famous Portuguese of Satgaon declined as a result of the silting of the river Saraswati.

3. Conclusion

To sum up our discussion, seventeenth century Bengal had a flourishing economy that was the result of an expanding agrarian frontier and increasing trade and commercial activities within Asia as well as with European trading Companies that arrived in Bengal during this period. An efficient and quick transport system interlinked by rivers and roads knit together the different production and manufacturing centres and aided the movement of goods from one part of the province to another. This encouraged trade and commerce particularly with the coming of the European trading communities who set up their trading houses in different parts of Bengal. This period also saw the growth of important urban centers in different parts of Bengal as a result of growing commercial activities within the Province. This growth in the regional economy of the Province in the seventeenth century was very much due to the natural factor of the Province having a fluvial network that facilitated production, ensured connectivity and consequently encouraged trade and commerce. Had it not been for its rivers, the regional economy of Bengal would not have flourished the way it did in the seventeenth century.

4. References

- Allami, Abul Fazl, *Ain-i-Akbari*, vol. ii, translated from the original Persian by Colonel H. S. Jarrett 2nd edition further corrected and annotated by Sir Jadunath Sarkar, vol.ii, New Delhi, 1989.
- Salim Ghulam Husain , *Riyaz-us-salatin* , tr. Maulavi Abdus Salim, Calcutta, 1902
- Bernier, Francois, *Travels in the Mogul Empire* translated on basis of Irving Brock's version, annotated by Archibald Constable, 2nd edition, revised V.A. Smith, Delhi, (reprint).1989.
- Bowry, A *Geographical Account of Countries Round the Bay of Bengal 1669-1679*,ed. Sir Richard Carnac Temple, Delhi, 1997
- Burnell, John, *Bombay in the Days of Queen Anne*, description of Hughli, London, 1933.
- Fawcett , Sir Charles, *The English Factories in India vol.2 The Eastern Coast and Bengal 1670-7*, Oxford, 1952.
- Grandpre, L. De, *A Voyage in the Indian Ocean and To Bengal, 1789-1790 Containing An Account of the Sechelles Islands and Trincomale*, New Delhi, 1995.
- Linschoten, John Huyghen Van, *The Voyages of John Huyghen Van Linschoten to the East Indies*, vol. 1 ed. A.C. Burnell, London, 1885.
- Pyrard, Francois, *The Voyage of Francois Pyrard of Laval To the East Indies, the Maldives, the Moluccas and Brazil*, tr. by Albert Grey and assisted by H.C.P. Bell, vol. 1, London, 1887, p-327.
- Manrique, Friar Sebastian, *Travels of Fray Sebastian Manrique 1629-1643*, vol. 1, Oxford, 1926.
- Marshall, John John Marshall in *India: Notes and Observations in Bengal 1668-72*, ed. Shafaat Ahmed Khan, Oxford 1927.
- Martin, R.M., *The History, Antiquities, Topography and Statistics of Eastern India*, comprising the Districts of Behar, Alahabad, Bhagalpoor, Goruckpoor, Dinajpoor, Purniya and Assam, vol. iii, 'The Zila of Rangpoor', London, 1838.
- Master, Streyntsham, *Streyntsham Master Diaries 1675-1680*, vol ii, ed. R.C. Temple, London, 1911.
- Stewart, Charles, *The History of Bengal from the First Mohammedan Invasion until the virtual conquest of Bengal by the English in 1757*, London, 1813.
- Tavernier, Jean Baptiste, *Tavernier's Travels in India, Between Years 1640-1676* tr. by Valentine Ball second edition ed. by William Crooke, vol ii, New Delhi, 2007.
- Blanning, Tim *The Pursuit of Glory: The Five Revolutions that Made Modern Europe, 1648-1815*, London, 2007.
- Chadha, Radhika, *Merchants, Renegades and Padres: Portuguese presence in Bengal in the sixteenth and seventeenth Centuries*, Unpublished Phd Theses, CHS, JNU, 2005.
- Chaudhury, Sushil, *Trade and Commercial Organisation in Bengal, 1650-1720*, Calcutta, 1975.
- Collis, Maurice, *The Land of the Great Image: Being experiences of Fray Manrique in Arakan*, New Delhi, 1995.
- Datta, Rajat Society, *Economy and the Market: Commercialization in Rural Bengal c1760-1800*, New Delhi, 2000.
- Deloche, Jean *Transport and Communication in India, Prior to Steam Locomotion*, vol. 2 *Water Transport*, Delhi, 1994.
- Eaton, Richard, *The Rise of Islam in the Bengal Frontier, 1204-1760*, London 1993
- Karim, Abdul, *Dacca The Mughal Capital*, Dacca, 1964
- Marshall, P.J. *East India Fortunes: The British in Bengal in the Eighteenth Century*, Oxford, 1976.
- Moreland, W.H. *The Agrarian System of Moslem India*, Cambridge, 1929
- Mukherjee, Tilottama, 'Of Rivers and Roads: Transport Networks and Economy in Eighteenth Century Bengal', ed. Yogesh Sharma *Coastal Histories: Society and Ecology in Pre-Modern India*, Delhi, 2010.
- Mukherjee, Tilottama, *Political Culture and Economy in Eighteenth Century Bengal: Networks of Exchange, Consumption and Communication*, New Delhi, 2013.
- Om Prakash, *The Dutch East India Company and the Economy of Bengal, 1630-1720*, Princeton, 1985.
- Om Prakash, *The Dutch Factories in India, 1617-1623: A Collection of Dutch East India Company Documents Pertaining to India*, New Delhi, 1984.
- Om Prakash, *European Commercial Enterprise in Precolonial India*, Cambridge, 2000.
- Ray, Anirudha, *Adventurers Landowners and Rebels*, Delhi, 1998
- Raychaudhuri, Tapan, *Bengal Under Akbar and Jahangir* Calcutta, 1953
- Jadunath Sarkar,ed. *History of Bengal: Muslim Period*, Patna 1973.
- Sircar, Jawhar, *The Construction of the Hindu Identity in Medieval Western Bengal? The Role of Popular Cults*, Calcutta, 2005.
- Solvyns, Balthazar, *Boats of Bengal: Eighteenth Century Portraits*, New Delhi, 2001.
- Wheeler, J. Talboys , *Early Records of British India: A History of the English Settlements in India*, Delhi, 1972.