Chapter IV

The Sample Study Areas: Geonomic Set-up

4.1 Introduction

This chapter deals with the studied districts in the state of West Bengal by providing detail of the physical and economic description. Before discussing the description of the study area, it is necessary to argue as to why this researcher has selected these two districts — Barddhaman and South 24 parganas — as well as two blocks — Memari I and Kakdwip — one from each district.

Barddhaman is the only district in the state of West Bengal that is fortunate both in industry and agriculture. On an average about 58 percent of the total population belongs to the agricultural population while the non agricultural sector accounts for the remaining 42 percent (District Handbook, 2001). The highest pesticide and chemical fertilizer have been used in Barddhaman district (District Handbook, 2001). It has also been claimed on the part of the Government that the land reform programme has been successfully implemented in the Barddhaman district (District Handbook, 2001). This district is politically also important. Several Leaders of the CPIM party do belong to this district. This district also serves as a big vote bank for CPIM Party.

The eastern, northern, southern and central areas of the district are extensively cultivated but the soil of the western portion being of extreme lateritic type is unfit for cultivation except in the narrow valleys and depressions having rich soil and good moisture. The cultivation in the district has improved since 1953 with the
implementation of the irrigation projects undertaken by the Damodar Valley Corporation. Up to 1953 the cultivation was entirely dependent on the monsoon, and irrigation facilities were rather inadequate and more or less primitive. The position has since been changed and an all-round agricultural development has become possible. Though agriculture is largely regulated by rainfall as in the other districts of the state, the developing irrigation system has been very helpful in minimizing the effects of the vagaries of nature.

Rice is the most important crop of the district and in the alluvial plains to the east little else is grown. The rice grown with its numerous varieties can broadly grouped under the three primary classes distinguished from one another by distinct characteristics and there are: The Aus or autumn, the Aman or winter and the Boro or the summer rice. Paddy covers maximum of the gross cropped area. Among commercial crops Jute, Mesta and Sugarcane, potato, oil seeds are cultivated in marginal area. Barddhaman is called the rice bowl of West Bengal.

South 24 Parganas is located adjacent to Kolkata. It is such type of district which does enjoy urban connectivity. The dominance of urban culture (read urban way of living) is predominantly present in this district. This district is also famous for peasant movement. The peasant movement had broken out in various areas of Sundarbans in 1946 and continued till 1950. This movement is generally known as Tebhaga Movement as the main demand of the bhagchasis was “adhi nai tebhaga chai” i.e. “not half but two-third of the standing crop should belong to the tiller”. The movement affected Kakdwip, Namkhana, Bhangar, Sonarpur and Canning thanas of the district South 24 Parganas most. The level of militancy the movement achieved at the villages of Layalganj, Budakhali, Lakshmipur, Bhubannagar, Kakdwip, Bisalakshipur, Phatikpur, Rajnagar-Srinathgram and Durganagar in Kakdwip thana and at Uttar
Chandanpiri, Dakshin Chandanpiri, Madanganj, Namkhana, Narayanganj, Dwarikanagar, Sibrampur, Rajnagar, Dakshin Chandannagar, Radhanagar, Dakshin Durgapur, Sibpur, Maharajganj, Haripur and Debinibas in Namkhana thana were unparallel.

It has also been claimed on the part of the Government that the land reform programme has been successfully implemented in the Barddhaman district (District Handbook, 2001). As per the record available from the District Statistical Hand Book, South 24 Parganas, 2001, a total of 27,324.31 hectares of vested agricultural land was distributed among the total beneficiaries of 153,605, of which 60,583 were Scheduled Castes and 12224 were Scheduled Tribes constituting 39.5 and 7.96 per cent respectively.

Rice is the most important food crop of the district. All the three well-known types of rice, Aus, Aman and Boro are cultivated in the district with Aman occupying the first place. As per District Hand Book, South 24 Parganas, 2001 Aman was cultivated in 335.5 thousand hectares of land whereas Aus and Boro were cultivated in 6.9 thousand and 83.5 thousand hectares of land respectively in the year 2000-01. So far production of crops is concerned, Aman was reported to be 628.2 thousand tonnes, whereas Aus and Boro were 12.5 thousand and 226.2 thousand tonnes respectively in the year 2000-01.

Memari I Blocks of Barddhaman and Kakdwip Block in South 24 Parganas are chosen as the two study areas for the proposed research.

- Memari I is one of the most advanced Blocks in West Bengal with a high – level of mechanization of agriculture (as shown in Map, Serial No: 2). As a matter of fact, this Block has the largest number of tractors used for
agriculture and the use of fertilizer and pesticide is the highest in West Bengal (Source: District Handbook, 2001, Government of West Bengal).

- The Kakdwip Block is famous for *Tebhaga* Peasant movement (as shown in map, Serial No: 12). Land distribution programme is successfully implemented in the Kakdwip Block (Source: District Handbook, 2001, Government of West Bengal).

As per objectives of the research mentioned in introduction and chapter five, these two districts and one CD Block (which are also known as Panchayat Samity) from each district fulfill the purpose of the research. The objective boundaries of these two CD Blocks coincide with the Panchayat Samiti boundaries also.

### 4.2 Baridharaman

Baridharaman is a part of Baridharaman division of the state of West Bengal. The district has always been famous for different reasons. In past, it was famous as one of the most important divisional headquarters of Bengal and as the gateway to the plains of Bengal from Bihar plateau. In modern times it has been famous for its coalfields in Raniganj area which was discovered towards the end of 19th century that helped the district in fast becoming the major industrial base of the country. Today the district is not only famous for its industrial belt, also it has now become the granary of West Bengal.

The district of Baridharaman has derived its name from the name of its principal town called Baridharaman. The word might have originated from the name of 24 Jaina Tirthankara ‘Baridharamanawami’ who came in this area to preach Jainism, or, as according to another view, the district is so named as the word means ‘growing and prospering’. During the period of Aryanisation it was the last growing and prospering
frontier colony in the furthest east. The name ‘Barddhaman’ is an anglicised form of the Sanskrit word ‘Vardhamana’.

In ancient period, at the time of Hindu supremacy in Bengal, this area was a part of ‘Radh’. ‘Radh’ was divided into two parts - Subbhabhumi and Vajjabhumı, according to Jaina Acharangasutra. Barddhaman belonged to Subbhabhumi, that is, ‘Dakshin (South) Radh’. Later, in the writings of Greek Historians, ‘Radh’ finds many mentions. In 4th century B.C. it formed a part of the mighty Magadhan empire of the Nandas and continued to be the constituent of the successive empires of the Northern India - the Mauryas, the Kusans and the Guptas. In the first part of the 6th century A.D. Sasanka was the ruler of this area and Barddhaman was included in the empire of Gour. Sasanka died in 637 A.D. The history of the district is blank for next hundred years. During the last part of the eighth century Pal rule came into being with the election of Gopal as King by the people. And this area was under Pal rule for the next two centuries. When the sun of the glory of Pal empire finally set with the death of Rampal in about 1130 A.D., the district was still a part of the Pal empire. After the Pals, the Sen dynasty ruled South Bengal. The Govindapur Copper Plate inscription clearly indicates Barddhamanabhukti as under the control of Lakshmansen. The name of a semi-independent local dynasty extant in this period should also be mentioned. It was Sadgop Dynasty of Gopbhum possibly extended from south of Katwa to the west of the Bhagirathi during the Pal era. It existed in curtailed form even in modern times. The name of one Ichhai Ghosh or Iswar Ghosh of this family has also been immortalised by the major poets of Dharma Mangal. Another Raja of the Sadgop community whose name still survives is Mahendra nath or as is locally called, Mahindi Raja.
In the medieval period this area came under the rule of the Pathans. Bakhtiar Khilji entered Barddhaman and captured the eastern and northern side of Barddhaman. In 1567, Suleman Karnani captured the western part of the district. His son Daud Khan came to war with Todarmal the Diwan of Bengal appointed by the Mughals. This war made the area of Barddhaman famous in the history of Bengal. During the period of Todarmal as Diwan of Bengal in 1583, this area came to be known as Barddhaman Mahal or Pargana. Moreover, at the time of rule of Murshidkuli Khan, it was named as Chakla Barddhaman. At the end of the second part of the 16th century the area of Barddhaman was mentioned as a specific area of Bengal in official documents for the first time, and at that period, the area of Chakla Barddhaman was larger than the present area of the district.

In the modern period, Barddhamanabhukti came to be regarded as Barddhaman division in Bengal and the shape of the district undertook a change in this period. In the year 1760 the area of Barddhaman along with Medinipur and Chittagong came under the control of the East India Company. The district of Barddhaman was created in the year 1885 by carving out from an area which was included in the present district of Bankura. In this period, the history of the district of Barddhaman is associated with the rise and fall of a local ruler - the Raj family of Barddhaman. Raja Krishnaram Rai was the founder of the Raj family and Raja Chitraser Rai was the most powerful king of the Raj family. Raja Udaychand was the last king of the Raj family of Barddhaman. His zamindari came to an end in 1955.

The history of Barddhaman is also associated with Vijaysingha - the king who, it is said, conquered Lanka. Kantideb, Vijaysen - famous Samanta kings, Sher Afghan and Meherunnisa later Noor Jehan - the legendary Mughal figures and Raghuji Bhosley - the Maratha leader associated with the ‘Bargi invasion’ in the history of Bengal are also linked with this district.
As per Census of India, 2001, Barddhaman district has a population content of 68,95,514 with a rank of 4th among the districts of the State. Barddhaman had density of population at 861 persons per sq. km. in 1991 which has gone upto 982 per sq. km. in 2001 which is much higher than the State density of 903. The rank of the district has remained unchanged being 7th in the state in 2001 (as shown in Map, Serial No: 3).

4.2A Physical Feature

(i) Location and size: Barddhaman district extends from 22056' to 23053' north latitudes and from 86048' to 88025' east longitudes. Lying within the Barddhaman division, the district is bounded on the north by Jharkhand, Birbhum and Murshidabad, on the east by Nadia, on the south by Hugli, Bankura and Puruliya and on the west by Jharkhand. The river Barakar forms the state boundary to the west, the Ajay separates Birbhum and Jharkhand to the north with the exception of a portion of Katoya subdivision that lies to its left bank. The Damodar forms the natural southern boundary with Bankura and Puruliya and Bhagirathi forms the main eastern boundary with a few exceptions. The total length of the district from Barakar to the Bhagirathi below Kalna is 208 km. while its maximum breadth from east to west is only 112 km. Barddhaman district is the 3rd in West Bengal in respect of its area in the State covering 7,024 sq.kms., while it is the 6th district in terms of its population which consists of 6,895,514 persons accounting for 8.6 per cent of the state’s total population. Elevation of the district from the mean sea level is 296 meters (as shown in Map, Serial No: 1).

(ii) Physiography: The Barddhaman district is a part of ‘proper delta’ of the Lower Gangetic Plain. The district has two main diversions. The eastern portion is a wide alluvial plain, highly suitable for cultivation, enclosed by the rivers of Ajay,
Bhagirathi and Damodar on the north, east and south. The river Bhagirathi has left some portions (dead channel) along the western banks and the area is waterlogged and swampy. The western portion of the district is a strip of rocky, undulating land, lying in between the Ajay and Damodar. The rocky land is an extension of the hill ranges of Chhotanagpur plateau. This portion is not suitable for cultivation. This area has many coal and iron fields. The general slope is from west and north-west to east and south east.

Topographically the district is divided into the following sub-micro regions.

1) Ajay-Damodar-Barakar Tract - The region covers the western portion of the district. It is characterized by the narrow strip of rocky and undulating land with laterite soils between the Ajay on the north and the Damodar on the south, while the Barakar as a river boundary line on the west. The highland range rises at places to over 60 metres and runs to the south of the Ajay river. The general slope is from north-west to south-west. Most of the streams of the region fall into the Damodar which flows towards the south-east direction.

2) Kanksa-Ketugram Plain - The region occupies the northern portion of the district. This part is also narrow strip of land lying entirely along the river Ajay, which makes river boundary with district Birbhum. The general slope is from west to east as evident by the flow of the river Ajay. The region is a plain area and influenced by the flow of the Ajay. The river beds are sandy and the banks are very low.

3) Barddhaman Plain - The region covers the central plain area of the district. This area is surrounded by Bhagirathi on the east, the Ajay on the north-west and the Damodar on the west and south. Old river channels and small creeks which can be found in the region are almost dry during the dry season. The region is generally sloping towards south-east. The Banka and the Khari are flowing eastward and finally
they fall into the Bhagirathi river. Barddhaman Plain is sometimes subjected to heavy floods during rainy season because of the rivers that surround it.

4) Bhagirathi Basin - The region is extending entirely along the basin of the Bhagirathi. The whole eastern boundary of the region is formed by the Bhagirathi river. The region is much characterised by the course of the Bhagirathi and its tributaries. The Khari, the Ajay and other steams fall into the Bhagirathi which flows from north to south. Many swamps and other waterlogged areas are present in the region due to the oscillation of the river and overflow of the tributaries.

5) Khandaghosh Plain - The region lies on the south-western portion of the district. It is an alluvial plain area bounded by the Damodar on the north-east, on the west by the Bankura district and on the south by the Hugli district. The general slope is from west to south-east as is evident by the flow of the river Damodar. The bed of Damodar is higher than the surrounding areas and the right bank is protected by embankments against the floods in portions to the south of the Damodar. (Extensive help taken from Regional Divisions of India - A Cartographic Analysis, Series 1, Vol.XXV, West Bengal).

Flora and Fauna:

Trees such as Silk Cotton (Simul), Neem, Emblic Myrobalan (Amlaki), Coconut (Narikel), Dates (Khejur), Palmira(Tal), Banyan (Bat), Peepul / Holy Fig (Asvattha), Palas, Krishnachuda, Mango (Am) and shrubby species such as Ashsheoda, Onion (Pianj), Garlic (Rasun), Night Queen (Rajanigandha), Ghentu or Bhat, Red Amaranth (Kurabaka), Gulancha, Holy Basil (Tulsi), Shiora and Fig (Dumur) etc. constitute the flora of the district. The upland of the Asansol subdivision is covered with Sal, Mohua, Bamboo (Bans), Shireesh, Arka, Kend, Arjun and Ashan in places. In the used up coal mines, ditches and rocky plains Putush and Regni are found. Putush
forms a thick shrub forest with some height during monsoon and have attractive pink white and reddish flowers. The common plants in hedges and wastelands are Lal-bharendra, Ban-okra, Hati-soond et cetera. The common aquatic and marsh weeds found in the jhils and swamps are Kush, Bena, Pond-weed, Kesar-dam, Jhangi, Pana, Water hyacinth etc. Most interesting feature of the flora of the district is the fact that a few species which are characteristic of Punjab and Rajasthan area have managed to find their way through Bundelkhand and Bihar thus far to the east and found to be grown in the district and a few species equally characteristic of Coromondal have also succeeded in spreading through the deltaic plains of Orissa and Medinipur thus far to the north and found to be grown in the district.

The carnivora of the district once comprised of Leopard, Wolf, Hyaena, Jackal etc., but today they are not common. Tigers were also formerly common in the district, especially in the jungles of the Asansol subdivision adjoining the Santal Parganas, but have now entirely disappeared. Wild Pigs are numerous in the district and do considerable damage to the crops. Monkeys are in plenty including the popular variety called Hanuman. Poisonous snakes are very common and include several kinds of Cobra. Occasionally Python is visible. Snipes are common in the rice fields. Other game birds include Grey and Black Patridges, Pea-fowl and Jungle fowl. On the Damodar and in the marshes and jhils east of the Hugli, Goose, Duck and Teal are found in fair numbers. The other common birds are Crow, Treepie, Red-whiskered Bulbul, Red-spotted Bluethroat, Brown-backed Robin, Shama, Tailor bird, Mayna, Munia, Sparrow, Woodpecker, Cuckoo, Nilkantha, Koel, Parakeet, Kingfisher, Hornbill, Owlet, Vulture, Falcon, small spotted Eagle, Hawk, various types of Pigeon and Dove, Stork and Heron etc. Rohu, Mrigel, Katla, Kharke Bata, Bhangan Bata, Bagda Chingri (Shrimps), Murala, Pabda, Tengra, Chela, Punti, Boal, Galda Chingri
(Lobstar), Vacha, Chital, Pholoi etc. are the principal catches from the rivers of the
district. (Source : West Bengal District Gazetteers - Barddhaman, March 1994
edition).

Drainage:

The river system of Barddhaman is rich. That the district is surrounded by its four
main rivers on all the four sides is its specific characteristic. The natural boundaries
formed by these rivers are fairly constant.

The Damodar - Barddhaman district forms the core of the Damodar Valley region of
which more than 44 per cent is in West Bengal. The Damodar or the Deonad Nadi
rises from hills at Rajruppa in Ranchi district. It is towards the Bagodar upland that
the Damodar and the Barakar converge, where two reservoirs have been constructed
by the Damodar Valley Corporation for control of flood, irrigation and power.
Maithan is one such reservoir on the Barakar and the Panchet hill on the Damodar.
The Nonia, the Singaran, the Tamla and the Kukua, its left bank tributaries drain the
southern slopes of the Ajay-Damodar interfluve (joint-flow). On entering the alluvial
terrain the Damodar attains its maximum width and has been controlled at Durgapur
by a barrage. The river takes a turn to north-east near Khandaghosh and receives its
last tributary, the Sali, which deposits a considerable amount of sand and silt into the
Damodar. Near 24 km. below Barddhaman, the Damodar suddenly turns southward
and on its right bank a number of spill channels locally called hanas can be found.
The hanas fall into the Dab Khal and its branches and they pass across a shallow
depression that run parallel to the main river to its south and west. Before leaving the
district at Jamalpur it goes into the Mundeswari distributary that is now the main
channel of the Damodar.

The Bhagirathi - The Bhagirathi enters Barddhaman district from Murshidabad. Then
it flows southward as far as Kalna where it is joined by the Ajay. After flowing a little distance, it receives the Khari and continues its southward course. There are many long loops of dead channels along the western bank left by the Bhagirathi. The banks of the river are generally low and their beds are sandy.

The Barakar - The river rises from Ichak, a small town, seven miles north of Hazaribagh on the low Kodarma plateau and first touches the Barddhaman district in Salanpur at ‘Ghatkul’ village (now submerged under the Maithan reservoir) and then flows along the side of the Hatinal village in Kulti. It is the largest Damodar feeder. Apart from the Barsoti from the south and the Usri from the north, the two principal tributaries, it receives more than 10 tributaries from the north and 5 from the south. In its lower course it also receives numerous small tributaries issuing from the springs on the Damodar-Barakar interfluve.

The Ajay - The Ajay rises in the Monghyr district of Bihar. It is a torrential stream and floods quickly. The bed is sandy and the banks low. Owing to extensive soil erosion in its upper reaches, the Ajay carries down enormous load of coarse sand making the agricultural land infertile. Formerly the river was the only route through the dense jungle that once covered this part of Bengal and its importance is evidenced by the line of forts found along its banks. The river turns east-southeast a few miles east of Chittaranjan to describe the district boundary between Jharkhand and Barddhaman. The Birbhum-Barddhaman boundary runs through the centre of the stream till the Ajay enters Katoya. It flows east in a meandering channel through Katoya forming the boundary between Mangalkot and Ketugram and Ketugram and Katoya until it joins the Bhagirathi above Katoya. The Tumuni and the Kunur are the two largest tributaries of the Ajay in the district (as shown in Map, Serial No: 4).

Apart from these four main rivers, there are some beheaded streams in Barddhaman
viz. Khari, Banka, Behula and Gangur - important in the physical history of the district. It is not properly known whether these streams were parts of previously used channels of Damodar or, its upper deltaic distributaries now severed from the main channel. But it is certain that formerly they had huge catchment areas in the Chhotanagpur plateau, though now mere collectors of water from paddy fields. The Khari now rises in a furrow north of Mankar and after crossing the Damodar Branch Canal runs parallel to the Eastern Railways’ main line. The Banka rises in paddy fields just east of Gopalpur, quite near the Damodar. After passing through Barddhaman town the Banka crosses National Highway 2 and the rail line and flows north of them parallel to the Chanda Nala which rises from north of Barddhaman. The source of the Behula (north of Rasulpur railway station) is within one kilometre from the point where the Banka changes its direction from east to north-east. The Gangur takes off from the Eden Canal south of Rasulpur and flows east across Memari. (West Bengal District Gazetteers, Barddhaman, March, 1994).

Tanks are found all over the district. Within the Damodar Valley region of Barddhaman (excluding Asansol) alone there were 17,311 tanks and the tank-irrigated area was 100,000 acres as compared to only 50,000 acres irrigated from other sources as per 1994 publication of West Bengal District Gazetteers, Barddhaman. Asansol subdivision does not get any benefit from the major irrigation projects of the districts and mainly depends on tanks. In the mining belt around Asansol, absence of sandstowing in the mines has resulted in a fall of water table rendering many tanks dry. In the eastern parts numerous tanks can be found and they are the mainstay of the highland and double-cropped areas.

The Durgapur barrage and the Maithan dam have formed two large reservoirs at the
south-western and western periphery of the district. The Durgapur barrage is 692.2 m. long, formed of 25 bays and 5 under-slues each of 18.3 m. span. It carries a roadway 7.62 m. wide across the river at 67.8 m. i.e. 12.8 m.above the level of the river bed. The head regulator on the left bank is provided with under-slues of required span for a discharge of 9,137 cusecs (where the maximum flow was 5,000 cusecs in 1959) and that on the right bank with two similar sluices for a discharge of 2,271 cusecs (where the maximum flow in 1959 was 2,000 cusecs). Burnpur, Raniganj and Durgapur receive their supply of water from this reservoir.

The Maithan dam is a composite structure of concrete and earth. The maximum height of the main earth dam is 49.4 m. and that of the concrete dam is about 45 m. above diversion channel and 56.4 m. above the lowest foundation. The overall span of the dam is about 4.8 km. The underground power station on the left bank is the first of its kind in India. The power station vault is 71.4 m. long, 13.7 m. wide and 21.3 m. high. The access to it is through a tunnel 213 m. long. It has a total generating capacity of 60,000 kw. with 3 units of 20,000 kw. each. Rupnarayanpur and Chittaranjan now stand on the fringe of this vast reservoir and draws water and hydel power from it.

Besides these two main reservoirs, numerous artificial reservoirs can be found in the coal mine areas. The most important of them occur along the tributaries of the Nonia Khal and the Singaran Nala. The Purbasthali swamps formed by the changing course of the Bhagirathi and waterlogged abandoned channels of the river and its tributaries is one of the most important depressions of the district where the migratory birds now come in season. The other is the marshes between the Khari and the Banka and bilis on the fringe of the Damodar embankments. Ox-bow lakes also occur along the Ajay. The Baruli Bil occurs to the east of Kanksa-Ilambazar Road. There are numerous water bodies of similar origin. Some of these have provided irrigation water for
developing pisciculture.

There are five springs in the district, most prominent of them are three - one on the right bank of
the Nonia Khal near Asansol, one on the right bank of the Ajay near Pandabeswar in Ondal and one on the right bank of the Tumuni. In the extreme west surface water is not readily available and the inhabitants resort to extraction of groundwater through dug wells. Dug wells are generally shallow and go dry and retain scanty water during the summer. As such the area suffers from general scarcity of water. Of late, irrigation by deep tubewells has become popular. (West Bengal District Gazetteers, Barddhaman, March, 1994).

Climate:
The tropic of cancer has overpasses almost the central part of the Barddhaman district (23030’ North Latitude). As a result the climate of this district is tropical; weather is hot and humid as monsoon climate is. Relative humidity is oppressively high all the year round especially from the middle of May to mid-October. In the winter in eastern part of the district the weather is comfortable, but in the western part the temperature considerably goes down. No great difference has been observed in the temperature in different seasons in the Bhagirathi delta (as shown in Map, Serial No: 6). But in the Asansol-Durgapur belt there is marked difference between the winter and the summer temperatures (West Bengal District Gazetteers - Barddhaman, March 1994 edition).

4.2B Economic resources

a) Forest Area: The district has 25,516.3 hectares of land under forest. Out of the total forest area, 20,172.4 hectares of land is under protected forest and 2,514.0 hectares of land is under reserved forest. From the forest produce the government collected revenue of Rs.8,924,176 in 2000-01. (Source: District Hand Book, Barddhaman,
b) Mineral product: The principal mineral resources of the district are concentrated in the Asansol subdivision which include coal (non-coking but blendable) and a kind of inferior Iron-ore. Besides coal and iron, important minerals found in the district are fire clay, Raniganj clay silica, building materials, lime-stone, apatite, laterite etc. The discovery of coal and the opening of the first coal mine near Raniganj in 1774 marked the beginning of an industrial expansion of the district. Within 20 years, extraction of coal became the major economic activity of the subdivision, the output being approximately 36,000 tonnes a year. Coal is the most important mineral of West Bengal and contributes about 99 per cent of the State's mineral production both in terms of value and output. As a source of fuel, it continues to hold its importance even in this nuclear age. Major industries like the railways, power, paper, cement and textiles consume millions of tons of coal every year (as shown in Map, Serial No: 5). White and cream coloured tertiary clays occur within the Durgapur beds near Durgapur. Fire-clay occurs above, below and within the coal seams, sometimes maintaining constant thickness over a wide area in the Raniganj coalfields. Iron-ores also occur in some areas (laterite ores in eastern part of the Raniganj coalfield) but not of much economic value for commercial exploitation at present. (Source: West Bengal District Gazetteers, Barddhaman, March, 1994).

c) Soil and Cropping Pattern: The land surface of the Ajay-Damodar-Barakar Tract is generally covered with red loamy clay and sand. The shallow black and brown alluvial soils occur in the central and western parts, whereas the red loamy and red sandy brown alluvial soils are found in the northern part of the Kaksa-Ketugram Plain. Barddhaman Plain has recent alluvial soils. The soils are shallow black and brown and hydromorphic and coastal in character. The soils of Bhagirathi Basin are
shallow black, hydromorphic, coastal and alluvial. Khandaghosh Plain also has alluvial soils of recent formation. The shallow black and brown soils consisting of sandy loam and silt deposits occur in the south-eastern parts of this plain.

Though the rocks are exposed and large portions of the land are unsuitable for cultivation in the Ajay Damodar-Barakar Tract, paddy is cultivated in terraces of the slopes. The narrow strips of land are well-cultivated with a good harvest. Aus paddy is the principal crop of this region. Sugarcane, oilseeds and pulses are also grown in this area. Paddy, pulses, oilseeds and other vegetables are grown in the Kaksa Ketugram Plain. Aman paddy is the principal crop grown in the Barddhaman Plain. Sugarcane, oilseeds, pulses and potatoes also are grown in this region. Silts in the beds and banks of the rivers in the Bhagirathi Basin are very much suitable for the growth of wheat, pulses, oilseeds and vegetables. Pulses, wheat, and oilseeds etc. are grown in the Khandaghosh Plain (as shown in map, Serial No: 7).

d) Land and land-use pattern: The eastern, northern, southern and central areas of the district are extensively cultivated, but the soil of the western portion being of extremely lateritic type is unfit for cultivation excepting the narrow valleys and depressions having rich soil and good moisture. The cultivation in the district has improved since 1953 with the implementation of the irrigation projects undertaken by the Damodar Valley Corporation and the Intensive Agricultural District Programme, commonly known as the Package Programme (as shown in map, Serial No: 8).

According to the Department of Land Revenue, West Bengal, the total area of land in the district is 698.5 thousand hectares. Out of the total area, 28.8 thousand hectares of land is under forest and 9.8 thousand hectares of land is under current fallow. (Source: District Hand Book, Barddhaman, Government of West Bengal, 2001).

e) Tenancy: The State Government is the owner of the all estate land since the
enactment of West Bengal Estate Acquisition Act, 1948. But in case of agricultural land the tenancy is contractual with the owner. After the land reform measures taken up by the State Government there is no intermediary system of tenancy in the district. In terms of operational land holding, more than 71.2 per cent falls under the marginal (below 1.0 acre) size class of holding in the district as per 1995-96 account. Till 30.09.2000, as per Board of Revenue, West Bengal, 22,881.00 hectares of vested agricultural land have been distributed among 196,202 beneficiaries. Out of the total beneficiaries, 62.6 per cent belongs to the scheduled caste and scheduled tribe community together. (Source: District Hand Book, Barddhaman, Government of West Bengal, 2001).

f) Agriculture: The district may be divided into two main sub-tracts, one completely differing from each other in natural characteristics. The eastern portion is a delta consisting of wide plains highly suitable for cultivation but the western portion consists mostly of rocky and rolling country scattered with coal pits and factories though not altogether barren, especially at places with alluvial deposits of the washed up silt from the hills of the erstwhile Santal Parganas, Singbhum, Manbhum and Chhotanagpur plateau, now Jharkhand. This area requires heavy irrigation to make agriculture successful.

Rice is the most important crop of the district and in the alluvial plains to the east little else is grown. The rice grown with its numerous varieties can be broadly grouped under the three primary classes - the aus or autumn, the aman or winter and the boro or the summer rice. Paddy covers about 83 per cent of the gross cropped area. Apart from rice, other cereals grown in the district are wheat, barley and maize. Total food grains include gram and pulses also. Rape, seed, mustard and linseed are among the oilseeds. Potatoes, chillies, fruits and vegetables are among the other
subsidiary crops. Among the commercial crops jute, mesta and sugarcane are grown in the district.

g) Irrigation: It has already been stated that the Damodar Valley Corporation and the Intensive Agricultural District Programme, commonly known as the Package Programme which has been in operation in the district since 1962-63 has a great role in the extensive cultivation of the district. Besides, there is Mayurakshi Project which mainly serves the Birbhum district, also irrigates a vast tract of arable land of Ketugram Police Station of Barddhaman district. Apart from these, several small and minor irrigation schemes were implemented in the district in recent years (as shown in map, Serial No: 9).

Out of the total area under crop, 320,320 hectares of land is under irrigation including the area under river lift irrigation. 292,680 hectares of land receives water from Government Canals, 18,740 hectares of land is irrigated by wells and 8,900 hectares of land by other sources. There are 581 deep tubewells, 282 river lift irrigations and 408 shallow tube wells (out of which only 72 STWs are functioning at present). (Source: District Hand Book, Barddhaman, Government of West Bengal, 2001).

h) Animal Husbandry: As per last Cattle Census Report, West Bengal and Livestock Census Report, more than 16 lakhs cattle, more than 1 lakh 28 thousand buffaloes, more than 1 lakh 28 thousand sheeps, nearly 10 lakhs goats and more than 35 lakhs 43 thousand poultry birds were returned in the district. (Source: District Hand Book, Barddhaman, Government of West Bengal, 2001).

i) Fishery: The supply of fish is mainly drawn from the Bhagirathi, the Damodar and the internal rivers and channels in which a large variety of fresh water fishes are found. The considerable portion of the supply is also obtained from the numerous
tanks in the eastern part of the district. The types of fish available in the district are - ruhi, katla, mrigel, kalbose, ilsa (hilsa), chital, air, boal, phatul, tangra, punti, mourala, chela, bata, sal, sol, lata, koi, chanda, magur, pabda, rita etc. Of these the most common fish are the ruhi, katla and mrigel. The magur is found in the tanks only. Due to rapid silting up of the Ganga and the Damodar, the migration of hilsa fish to the upper reaches for breeding purposes has become difficult and as such hilsa fishery in these parts of the rivers within the district is almost lost. (Extensive help taken from West Bengal District Gazetteers, Barddhaman, March, 1994).

j) Electricity and Power: When the Damodar Valley Corporation commenced their supply of energy in the district, the West Bengal State Electricity Board, from 1956, instead of operating the small power station of the Company at Barddhaman, arranged to purchase electricity from the Corporation for their sub-station at Barddhaman. Meanwhile Durgapur, a small village in the district until then, turned into an industrial complex and its requirement was initially arranged to be met by the Corporation. Subsequently Govt. of West Bengal undertook the construction of a thermal power-station of moderate capacity through the Durgapur Projects Ltd. It was also arranged that surplus power available from the station would be purchased by the West Bengal State Electricity Board for distribution in some areas of the district as well as transmitting the same towards Bankura/Birbhum and the greater Kolkata complex. (Extensive help taken from West Bengal District Gazetteers, Barddhaman, March, 1994).

In the district there are 66 towns and 2,529 villages with 2,207 villages having been electrified. In the year 1999, of 2,207 villages, 2,118 villages are having electricity for domestic purpose, 1,276 villages for agricultural purpose, 913 villages for other purposes and 534 villages are using electricity for all purposes.
k) Industry: Though the ancient economic history of Barddhaman is virtually unknown, it is evident that in agriculture, manufacture and commerce it was one of the most prosperous districts of Bengal under the Mughal administration and throughout the 18th century. At that time the premier industry of the district was the manufacture of cotton and silk goods, which was by no means small in volume or insignificant in its total effect upon the economic wealth of Bengal. It was the chief sugar producing district in the middle of the 17th century. It was famous for its copper and brass utensils and best earthen utensils also. Besides, weaving of woolen blankets was an old time industry of Asansol (as shown in map, Serial No: 10).

The discovery of coal and opening of the first coal mine near Raniganj in 1774 marked the beginning of the new kind of industrial prosperity of the district in the modern age. Then came the Damodar Valley Corporation that commenced the supply of energy in the district. With the availability of these two major components, the Asansol subdivision, which until the beginning of the 19th century was a rural area, turned into an extraordinary industrial belt, especially in and around Durgapur. Today the principal industries besides Durgapur Steel Plant and the Durgapur Projects Ltd. are ACC-Vickers-Babcock (AVB) producing cement making machinery, boilers, pressure vessels etc., Alloy Steel Plant (unit of SAIL) producing a variety of alloy steels, Durgapur Chemicals Ltd. (a state government undertaking) producing basic organic and inorganic heavy chemicals, Durgapur Thermal Power Station (unit of the DVC), Mining & Allied Machinery Corporation (a central government undertaking) producing coal mining, bulk handling equipments and other heavy machinery. However it should be stated that some of these large scale industries have been subjected to basic infrastructural change into the organizational set-up in recent years.

Among the major industries of Asansol subdivision, most prominent one that deserves
the special mention is the Indian Iron and Steel Company (IISCO), Kulti Works of which is the biggest foundry in the east. It came into being in 1919 to produce only pig-iron and few bye-products mainly for export. From 1934 it started participating in steel production also. In the year 1953 another steel producing company- Steel Corporation of Bengal (SCOB) that used to procure the entire supply of the hot-iron for steel making, merged with the IISCO and SCOB’s factory at Burnpur was then renamed as the Burnpur Works of IISCO. This integrated plant, starting from the basic raw materials, has been manufacturing pig-iron and steel in various forms now.

Next comes the Chittaranjan Locomotive Works situated about seven miles from Asansol near Mihijam Station and the Hindustan Cables Ltd. set up near Chittaranjan. The development of the locomotive industry at this place opened up a new avenue for the utilization of steel produced in the industrial belt. Originally designed to produce steam locos the Works later started producing AC electric locos also. Hindustan Cables Ltd. is the only manufacturer of underground dry core telephone cables and coaxial cables in India. The industrial belt of the district can be divided into two zones on the basis of economic classification:

1. Large Scale Industries Zone (Heavy Industries) - Durgapur, Chittaranjan, Burnpur, Ballavpur and Hindustan Cables Town.


1) Trade and Commerce: The important agricultural commodities of this district that are marketed are paddy, rice, jute, potato and sugarcane. The most important feature in the marketing of jute which is the second big cash crop of the district is that the growers sell an overwhelmingly large proportion of jute in the villages to the itinerant
dealers or to the agents of Jute Corporation of India. In its movement there are three distinct stages, namely, (1) from village to the primary assembling markets, (2) from the primary assembling markets to the aratdars and kutch-baling centres (secondary markets) and (3) from secondary markets to the wholesale jute markets in Kolkata or to the mills. In the marketing of potato (which is the third important commercial crop of Barddhaman) about 70 per cent of the market arrivals are assembled by the growers themselves and 30 per cent by the middlemen. The aratdars in the assembling markets maintain godown and hold the stock on behalf of the growers for sale on commission and also conduct export outside the district. The establishment of a large number of cold storages in the district has encouraged potato cultivation in recent years and also contributed to a marked improvement in its marketing. (Extensive help taken from West Bengal District Gazetteers, Barddhaman, March, 1994).

m) Transport: The historical Grand Trunk Road enters the district at the 84th km. from Kolkata and leaves it at the 240th km. An important addition in recent years is the six lanes Durgapur Express Highway which connects Howrah with Durgapur as an alternative route till it merges into the G.T. Road at Durgapur and has helped to reduce the heavy congestion on the G.T. Road. The Barddhaman – Kalna Road was constructed by the Barddhaman Raj which continues to play an important role in transport of the district. A number of roads radiate from the district headquarters and the subdivisional towns to different places in and outside the district. The industrial complexes of Asansol and Durgapur have also become the meeting points of many roads leading to several places. In recent years Durgapur has become a focal point wherefrom roads lead to Bankura and the neighbouring places.

Total roads maintained by the Public Works Department (Roads) in the district of Barddhaman are of 1,966.4 kms., total roads maintained by the Zilla Parishad
(Panchayat) are of 1,782.0 kms. and by Municipalities and Municipal Corporations are of 1,802.0kms. Total number of registered Motor Vehicles (Goods Vehicle / Motor Car & Jeep / Motor Cycle & Scooter/ Taxi & Contract Carriage / Auto Rickshaw / Mini Bus / Stage Carriage / Tractor and Trailor / Others) plying on the roads is 296,264. (Source: District Hand Book, Barddhaman, Government of West Bengal, 2001).

Gram Panchayat

The three tier Panchayat system has been functional in West Bengal since 1978. In the district at the top there is Zilla Parishad (ZP); the Panchayat Samities (PS) are coterminous with the CD Block. There is Gram Panchyat at the lowest level consisting of elected members from the respective villages. Since 1978 the panchayat system has been performing a vital role for the development activists from village to district level and fund are placed for implementing the development plans from GP level to district level.

In spite of some shortcomings, the Panchayat System has changed the village economy, social and political system. In West Bengal small and marginal farmer have got cultivable land, the wages of agricultural labourers have increased. Due to land reforms and other village development program the productions of agriculture have also increased significantly. As a result the intake of food has also increased. As found in 2001 Census Barddhaman district has 31 panchayat samities with 278 gram panchayats consisting of 2,588 villages.

4.3 South 24 Parganas

The landmass called ‘South 24 Parganas’ was, in ancient period, a part of the country of people variously called Gangaridae, Gangaridai, Gangarides etc. The reference to
this country is found in the writings of Greek navigators, geographers, chroniclers and historians writing between the first century B.C. and the A.D. third century. The account provided by Diodorus Siculus, the B.C. first century historian, Pliny, the A.D. first century historian, Ptolemy, the famous second century geographer and Q. Curtius Rufus, the A.D. first century writer, all taken together, it seems that the whole of deltaic Bengal between the Bhagirathi-Hugli in the west, the Padma-Meghna in the east and the Ganga-Padma in the north was the land of the Gangaridai people and the present day district of South 24 Parganas occupies the southern part of this tract.

Under the Regulation of XIV of 1814 the whole district was divided into two subdivisions - one comprising Kolkata and its suburbs and other comprising rural areas away from Kolkata in both northern and southern side. This arrangement was undone by another regulation in the year 1832 and Kolkata got its separate entity. From then on reorganization of the district had taken place many times - 1861, 1882, 1904, 1905 and 1947. Finally the district of 24 Parganas was divided into two - North 24 Parganas and South 24 Parganas in the eighties and with effect from 1st March, 1986 South 24 Parganas began its journey as a separate entity.

As per Census (2001) the population of West Bengal stands at 80,176,197 as on 0.00 hours 1st of March, 2001. West Bengal retains its position as the fourth largest state in India as was in 1991. West Bengal in 2001 has a share of 7.8 per cent of total population of India, while it occupies only 2.7 per cent of the total India’s land area. As per 2001 Census, South 24 Parganas district has population content of 6,906,689 out of which 5,820,469 persons or 84.3 per cent population live in rural areas and 1,086,220 persons or 15.7 percent population live in urban areas. The rank of the district is 10th in 2001 Census as per percentage of rural population, which was 8th in 1991 and it stands in 9th position in terms of percentage of urban population in 2001.
which was 11th in 1991. West Bengal holds the highest density of population among the states of India; it has 903 persons per sq. km. in 2001 while in 1991 density per sq. km. is 767. The density of population of South 24 Parganas district is 693 persons per sq. km. in 2001 which was 574 persons per sq. km. in 1991 (as shown in map, Serial No: 13).

4.3A Physical features

(i) Location and size

South 24 Parganas is the southernmost district of West Bengal. The district lies between 21°29'0" and 22°33'45" north latitudes and 88°3'45" and 89°4'50" east longitudes. The total area covered by the district is 9,960 sq. km. South 24 Parganas is one of the biggest district of West Bengal so far as area is concerned. The district has rural area of 9,783.24 sq. km. and urban area of 176.76 sq. km. In respect of area, as per 2001 Census, the district occupies second position among all 18 districts of West Bengal.

South 24 Parganas is bounded on the north by the district of North 24 Parganas and the Metropolis of Kolkata, on the south by the sunlit waters of the Bay of Bengal, on the east by Bangladesh and on the west by the tidal river Hugli - a distributory of the Ganga which separates the district from the districts of Haora and Medinipur (as shown in map, Serial No: 11).

(ii) Physiography:

The district South 24 Parganas is the part of vast Ganga Plain. In this Ganga Plain delta building process is still very active. This Gangetic delta is locally known as the land of ‘Bhati’ in north i.e. in the mature part of delta the land rises to 5-6 metres above the sea level. The plain of the mature delta includes the Baruipur-Jaynagar
Plain and Kulpi-Diamond Harbour Plain. On the other hand the Sundarbans consists of low flat alluvial plains. Here the process of land making process is still going on and it comes under the active delta. This active delta is intersected by wide tidal estuaries or rivers from north to south and by narrow tidal creeks from west to east.

Numerous islands are separated through this tangled network of estuaries and tidal creeks. During the tides, many of these islands get submerged completely twice a day. This land is studded with swamps and marshes called ‘bils’. These bils occupy the central parts of the saucer shaped depressions. In the low swamp the depression water is collected and through tidal water it drains out which is called ‘Khals’. Each depression is surrounded by the natural areas.

Topographically the district has been divided into four sub-micro regions:

1. South Hugli Flats
2. South Bidyadhari Plain
3. Hugli delta
4. Sundarbans

Sundarbans South Hugli Flats, South Bidyadhari Plain and Hugli Delta can be combinedly called Southern Plains and is situated in the boundary between mature and active delta. Sundarbans, on the other hand, is entirely in active delta (as shown in map, Serial No: 14).

1. South Hugli Flats: The region extends over the western part of the district with Kolkata in the north and Diamond Harbour in the south. This is a narrow flat alluvial land, richly arable, stretching along the Hugli river. The Hugli forms the district boundary in the west flowing towards south-west upto Diamond Harbour and receives the Rupnarayan river in the Hugli point. Then it turns towards east for about 12 kms. After reaching Diamond Harbour the river resumes a southerly direction until
it falls into the Bay of Bengal. The Hugli is an important tidal river navigable by the steamers and ships up to Kolkata.

2. South Bidyadhari Plain: The region covers the northern part of the district. It is a plain area and its general slope is towards south. The Matla is a prominent river flowing towards south and falls into the sea. It is a tidal river and navigable by the steamers up to Canning. There are many streams and water channels (locally Khals) which are falling into the rivers and estuaries assuming the characteristics of Sundarbans Deltas.

3. Hugli Delta: The region extends in the southwestern part of the district. The Hugli forms the district boundary in the west. The long channel of Hugli comes to an end in this region and falls into the Bay of Bengal. The banks of the rivers are higher than the adjoining areas and have a gradual slope towards south. The river Hugli, before reaching the sea, bifurcates into two channels. The main channel is passing to the west and the other called Baratala to the east of Sagar Island. The southern part of the region has numerous water channels and islands. Henry’s Island, Sagar Island, Frederick Island and Fraserganj Island are some of the worth mentioning islands in the region. Strong tides prevail in this area. During the dry season the tides raise up strongly and range from 3 to 5 metres high in the lower reaches of Hugli.

4. Sundarbans: The region lies in the south-eastern part of the district. It is under the entire stretch of Sundarbans. The Sundarbans has a network of tidal channels, river creeks and numerous islands. There are some swampy morasses which are covered with low forests. The region has gradual decline towards the sea. This area has a typical characteristic of new deltaic formation and is in such state of half land and half water which is almost imperceptible into the sea. Physiographically the area
is a drowned land broken by the swamps and intersected by many river channels. The Saptamukhi, the Thakuran, the Matla, the Gosaba and the Raimangal are estuaries of the sea which are interspersed and separated by several large islands such as Lothian Island in the mouth of the Saptamukhi, Bulcherry Island between Thakuran and Matla, Dalhousie Island between the Matla and the Gosaba and the Bangaduni Island at the mouth of Gosaba. The area is not conducive to the human settlements due to adverse nature of low lying area and since it is liable to be submerged (Source: Regional Divisions of India - A Cartographic Analysis, Series I, Vol. XXV, West Bengal).

Flora and Fauna

Flora: The district South 24 Parganas encompasses the mature and active parts of Ganga delta. While the southern plains surround the mature delta, the Sundarbans surrounds the active. In the mature delta cultivated crops have replaced the natural cover. The cultivated crops consist of vegetables of various kinds, cereals, pulses, fiber plants, oil seed crops and other food accessories. Rice is the most important cereal. Various types of weeds occur on the paddy fields. Many algae and angiosperms are also common in the low lying areas. Around settlements and along roads many indigenous as well as exotic varieties of fruit trees, bamboo groves, flowering garden plants and low scrub stand out prominently against the cultivated stretches. In the fresh water pools, ponds and rivers various pteridophytes and angiosperms occur in abundance.

Fauna: The great bio-cycles of ocean, fresh water and land coming into contact around the margins of the largest delta of the world situate South 24 Parganas in a unique position in terms of zoogeography. The gradients from salt water to brackish
water (salinity 0.5-30.0 per cent) to entirely fresh water fluctuates back and forth with the tides. Since fresh water is less dense and warmer, it flows over the top of the salt water, with the result that strata with different physical characteristics are formed, which are inhabited by different kind of fauna. Influx of fresh water is one of the principle sources of dissolved nutrients. Species of marine organisms extend towards fresh water as far as permitted by their tolerance of reduced salinity, and the species of fresh water are just the reverse way about. Thus the intermediate zone of brackish water under the salt marshes is one of the most fertile areas of the world. The food chain is extremely diversified and the biomass productivity is several times more than that in the interior of the land or on the outer sea. However, pollution due to the industrial wastes and also changes in salinity in the estuarine parts caused much change in the biota. As a rule the food chain has got a setback and species depending on particular food were forced to change their foraging areas.

Geology: The district is covered with recent alluvium, which is of great depth. A boring near Akra Road in the Garden Reach Municipality reached a depth of 1,306 feet without signs of either a rocky bottom or marine beds. In the eastern and central parts, the surface soil is chiefly a clayey loam with some peaty patches in the marshy areas. Surface soil in the Sundarbans area is heavy clay impregnated with salt (as shown in map, Serial No: 15).

Drainage:

The rivers which criss-cross the land of South 24 Parganas are mostly headless distributaries of the Ganga. Fed by the sea-tides, these rivers are the Hugli, Bartala, Saptamukhi, Thakuran, Bidya, Mridangabhanga, Matla, Gosaba, Hariabhanga and Raimangal. Twice a day, sea water enters more than 100 km. through these estuaries.
and inundates the low lying plains. However the principal rivers are the Hugli, Bidyadhari and Piyali. Each of these rivers itself forms the centre of a minor system of interlacing distributaries of its own. Many change their names at different parts of their course, re-enter the parent channel and then break away again or temporarily combine with other distributaries or artificial canals until, approaching the sea, they are merged in the estuaries which pierce the Sundarbans.

Climate:

The climate of the district is characterised by an oppressive hot summer, high humidities almost all through the year and well distributed rainfall during the monsoon season. The average temperature in the district varies from a maximum of around 38\(^0\)C to a minimum of around 13.5\(^0\)C. The highest maximum temperature recorded at Sagar Island on June 2, 1929 was 40\(^0\)C and the lowest minimum temperature recorded on February 12, 1950 was 7.2\(^0\)C.

The temperatures are generally lower and the humidities higher in the Sundarbans than in the rest of the district. May is the hottest month and January is the coldest. During summer, the afternoon humidity is comparatively less. The cold season is about the middle of November to the end of February followed by the summer from March to May. The south-west monsoon season is from June to September. October and the first half of November constitute the post-monsoon season (as shown in map, Serial No: 16).

4.3B Economic resources

a) Forest Area: The district South 24 Parganas can be divided into two broad zones - The Sundarbans and the Non-Sundarbans. While the Non-Sundarbans encompasses
rural, urban and semi-urban areas contiguous to Kolkata covering 5,694 sq. km., the Sundarbans contains the world’s largest mangrove forest covering an area of 4,266 sq. km. It includes 2585 sq. km. of the ‘Project Tiger’ area including Sajnekhali Reserve Forest (both to the east of Matla) in which 1330 sq. km. form the ‘Core Area’ and the sanctuaries of Lothian and Halliday Islands. Out of 102 islands of the Sundarbans, 54 have human habitation and 48 are under reserve forests. As per District Statistical Hand Book, 2001, expenditure incurred in the year 2000-01 was Rs. 47,246,000 though the revenue earned was scanty - Rs.1,342,000 only (the forest produce of timber, fuel and pole was not done in that period).

The Sundarbans: Biosphere Reserve under threat

The active delta of the Sundarbans is a land of marshes and tidal forests called ‘Mangroves’ - a unique type of vegetation of halophytes like keora, byne, genwa, garjan, hental, keya, golpata, sundari etc, which have special characteristics to adapt themselves to the highly saline soil, strong winds and inundation of sea water twice a day during tides.

The mangroves are important for many reasons. To begin with, the halophytic plants of the mangroves offer protection against storms, tidal waves and erosion. Their root systems also provide haven for fish, crustaceans, and other marine organisms. Mangroves are also important for their storage of energy. The shedding of their leaves contributes a great deal of organic matter to estuarine and other marine organisms which, in turn, feed larger organisms and so on. As a result, marine life around mangrove communities is often greater than that found in other areas.

Approximately four hundred plant species populate the mangrove forest of the Sundarbans. These plants dwell within each of the Sundarbans’ three ecosystems: the
beach/sea face, the ‘formative’ islands and the swamp forests. Many animal species reside within the Sundarbans as well. Creatures living here include chital deer, wild pigs, rhesus monkeys, olive ridley sea and other turtles, dolphins, sharks, king cobras, pythons, water monitors, crocodiles (one of the world’s largest and rarest) that reach upto 27 feet in length and approximately four hundred species of fish.

This area is home to many endangered species and has already seen the disappearance of the leopard, wild water buffalo, Javan rhinoceros, hog deer and swamp deer. The animal that has brought fame to the Sundarbans, however, is the Royal Bengal Tiger, whose rapid demise in the late 1960s spurred sudden interest in the protection of India’s wildlife. The value of conserving the Sundarbans was recognized and a national park and reserve were established. The core area of the Sundarbans National Park surrounded by a reserve was created by World Wildlife Fund’s ‘Project Tiger’ in the year 1984. In 1989 UNESCO upgraded the Park and some of the surrounding region to the status of World Heritage Site upon following considerations:

1. This is the only Mangrove Tiger Land on the Globe.
2. This is the Largest Estuarine Delta in the world.
3. This has largest species of Mangroves in one area.
4. This is the Last Great Coastal Wetland left in the world.
5. This has largest number of Royal Bengal Tigers in the world.
6. This has Largest Species of Estuarine Crocodiles in the world.

But the conservation of this Biosphere Reserve is not an easy matter and uncertainty over the future of the Sundarbans still looms large. To be frank, it was never and has never been a fit place for human settlement. It has long been one of India’s last frontiers, an uninhabitable thicket of mangrove swamp land separating the expanding Indian population from the Bay of Bengal. The conversion of forested land into rice
paddies began under the early foreign influences, first, the Indo-Turkish Sultans, then the Mughals and finally the British. All of these foreign powers, mostly British, acted in utter disregard of India’s strong tradition of conservation and respect for all life that dates back as far as 2000 BC when a classification of animal species and their preferred foods and habitats was begun by Hindu sages.

The Sundarbans has undergone enormous changes at the hands of its human inhabitants. Motivated largely by foreign influence, the perception of this region as wasteland by those who were not largely dependent upon its resources for subsistence (‘a sort of drowned land, covered with jungle, smitten by malaria, and infested by wild beasts’ - W.W. Hunter in his Statistical Account of Bengal) inspired in its inhabitants the desire to turn it into something considered more useful. Although the small indigenous populations regularly utilized such resources as fish, honey and firewood, it is the transformation of the forests into paddy lands that seems to have made the greatest negative impact upon this rare eco-system.

Now that the desire to exploit and transform has changed into an appreciation of the existing eco-system and a desire to protect it, the case of the Sundarbans raises many global issues. How do we best protect eco-system/natural resources while providing for human needs? What roles should humans play in protected areas- can they safely inhabit these areas and how far should management be taken? What is sustainability and how can it be achieved? These are difficult questions to answer. It is highly hoped that the answer would be found out soon. But the answer would never be found out so long the inhabitants of the Sundarbans are kept at bay and in dark. Their conscious, motivated and active participation is the only key to the success of this protection programme.
b) Mineral product: The district South 24 Parganas has the probable deposits of oil and gas and groundwater. The limestone lies too deep for exploitation under known technology. The Quaternary alluvium of the district is reported to contain ilmenite, hornblende, garnet, epidiorite, kyanite, tourmaline, staurolite and sillimanite (as shown in map, Serial No: 15).

The economic deposits within the Recent Alluvium are gold, sand including the coastal dune sands, black sands containing magnetite, ilmenite, rutile, pottery and brick clays, other building materials including river sands, kankar and gravel and saline efflorescence.

c) Soil and Cropping Pattern:

Soil -The soil of the district may be broadly divided into two classes, namely, non-saline soils and coastal soils of tidal origin. The parent materials are (i) Ganga alluvium and (ii) salinised Ganga alluvium. The direct deposits of Ganga alluvium which are either rich in calcium or magnesite are salt free and are rich in nutrients. The Ganga alluvium differs in composition in different periods.

The indirect deposits of Ganga alluvium, going into the sea, gets salinised and are returned back by tides, to get deposited in the estuarine region as alluvium, very rich in salt. The silt and clay loads carried down into the sea beyond the delta undergo partial transformation in their exchange complex due to the exchange reaction with sodium chloride of sea water. During tides, these constituents in suspension rush back through the numerous tidal creeks in the coastal region and get partially deposited due to the gravitational force becoming greater than the force of suction exerted by ebb water in the flood plains situated inland (as shown in map, Serial No: 17).
The district South 24 Parganas can be divided into two broad zones - (1) The Sundarbans, and
(2) The Non-Sundarbans. The region as a whole is formed of Recent Alluvium. The soils of the Non-Sundarbans area that encompass areas contiguous to Kolkata are mostly non-saline.

Non-saline soils are, on the whole, composed of Ganga riverine soils, Ganga low land soils and Ganga flat land soils. However it should be noted that Ganga flat land soils on young alluvial flats or other secondary deposits do not occur in South 24 Parganas.

Ganga riverine soils wholly or partly occur in Baj Baj, Maheshtala, Jadavpur, Sonarpur, Baruipur, Jaynagar, Kulpi and Magrahat. Ganga low land soils partly occur in Sonarpur and Baruipur.

Coastal soils of tidal origin are formed of saline soils, saline alkaline soils, non-saline alkaline soils and degraded alkaline soils.

Saline soils comprise soils which have been deposited due to back tides over the old flat plains in the river beds, river courses, creeks and land depressions and occur wholly or partly in Tollyganj, Behala, Maheshtala, Baj Baj, Magrahat, Sonarpur, Phalta, Diamond Harbour, Sandeshkhali, Canning, Jaynagar and Kultali.

Saline alkaline soils deposited by back tides in depressions and river beds occur wholly or partly in Sagar, Kakdwip, Namkhana, Patharpratima, Mandirbazar, Gosaba, Kulpi, Mathurapur, Canning and Sandeshkhali.

Non-saline alkaline soils occur wholly or partly in Bhangar and Mathurapur.
Degraded alkaline soils are to be found in Sandeshkhali and Canning in varying degrees.

Cropping pattern - Rice is the most important food crop in South 24 Parganas. Apart from rice, potato, pulses, gram, chilli etc. are also important food crops of the district. Jute is the most important cash crop.

The topography of the Ganga riverine lands is plain with a mild slope towards the south and as such only rabi crops like potato, wheat and vegetables are irrigated from tanks and bils. The topography of the Ganga low lands is basin shaped and it gets submerged partially by accumulated rain water. Crops are usually irrigated from bils in Ganga low lands. The clayey soil of the Ganga low lands is very good for Aman paddy. With the first rain, Jute is sown. In July and August Jute is harvested and is allowed to lie on the plots to shed their stems for rotting.

The topography of the saline soils is plain and its characteristic is the constant interaction between Ganga alluvium and saline soils. During rainy season the area of saline soils goes under Aman paddy. Except in the bheris and fisheries the entire area presents a landscape of Aman paddy. The nature of saline alkaline soil being silty it contains lower organic matter and nitrogen content and is not suitable for growing of crop as the salt concentration increases in such type of soils. Non-saline alkaline soil undergoes such a natural process that it becomes salt and calcium carbonate free and becomes favourable for growing of jute and rabi pulses. Degraded saline soil is highly unfit for growing of paddy and cultivation is often considered uneconomical on this soil and thus abandoned.

d) Land and land-use pattern: The district is situated in the Proper Delta of Lower Ganga Plain. It is little higher above the flood level and the physical features are
similar to deltaic land of the country. The northern inland tract is fairly well raised
delta and the southern portion is a low lying Sundarbans towards the seaboard. The
Sundarbans are a network of tidal channels, river creeks and islands. There are some
swampy marshes covered with low forest and scrub wood (as shown in map, Serial
No: 18).

e) Tenancy: The State Government is the owner of all estate land since the enactment
of West Bengal Estate Acquisition Act, 1948. But in case of agricultural land, the
tenancy is contractual with the owner. After the land reform measures taken up by the
State Government there is no intermediary system of tenancy in the district.

In terms of operational land holding, more than 84 per cent falls under the marginal
(below 1.0 acre) size class of holding in the district. As per the record available from
the District Statistical Hand Book, South 24 Parganas, 2001, a total of 27,324.31
hectares of vested agricultural land was distributed among the total beneficiaries of
153,605, of which 60,583 were Scheduled Castes and 12224 were Scheduled Tribes
constituting 39.5 and 7.96 per cent respectively.

The land tenurial system of undivided 24 Parganas was different from what prevailed
in the rest of Bengal from the beginning of the British rule in the country. The lands
did not belong to the zamindars here through whose fixed revenue commitments
British used to prosper, on the contrary the lands were parcelled out to the different
lessees in ‘lots’ for terms of 40 years and 99 years. These first order lessees came to
be known as latdars. The latdars were supposed to clear forest, bring the land under
cultivation and settle cultivators, to set up hats or markets and ganjas (nodal points of
communication within their ‘lots’). But instead of taking interest in extension of
cultivation the Latdars found the source of reaping high profits in letting the lands out
to sub-lessees. Thus the sub-lessees born. The sub-lessees were called *chakdars*. Having found the ‘lots’ too big for themselves to manage, the *chakdars* also began to sub-let parts of their *chaks* to a second variety of sub-lessees called *gantidars*. The *latdars* were mostly absentee landlords. Some of the *chakdars* resided within manageable distances of their *chaks*, some were absentees. Gantidars were mostly local residents, interested in extension of cultivation. The resident *chakdars* and *gantidars* used to provoke some selected cultivators to bring new land under cultivation by assuring them of the *raiyati* tenure and with the passing of time these selected cultivators became the *jotedars*. At the lowest rung of the ladder were the poorest tribal and cultivators belonging to the so called castes of lower order who remained non-occupancy raiyats and under-raiyats, many of whom in course of time became sharecroppers or *bargadars*.

The footing of the *Bargadars* or the sharecroppers was also different in Sundarbans. They used to, on behalf of the *latdars* and *chakdars*, reclaim the lands, make the paddy fields grow where saline backwater and jungle flourished before. But the reward of the Sundarban *bargadar* or *bhagchasi* was always eviction from that land once it was improved and engagement in another land to repeat the process of improvement there without any right having been conferred upon him. The *bhagchasi* also had to render service gratis for the jobs other than cultivation like maintaining the embankments etc. Actual agents of the oppression in the field were the naibs, the gomostas, the clerks and the accountants. Even the otherwise famous latdari estate of Daniel Hamilton in Gosaba did not escape this blemish.

Against this backdrop, the peasant movement had broken out in various areas of Sundarbans in 1946 and continued till 1950. This movement is generally known as *Tebhaga Movement* as the main demand of the *bhagchasis* was *adhi nai tebhaga chai*
i.e. “not half but two-third of the standing crop should belong to the tiller” (discussed in Chapter III). The movement affected Kakdwip (studied area), Namkhana, Bhangar, Sonarpur and Canning thanas of the district South 24 Parganas most. The level of militancy the movement achieved at the villages of Layalganj, Budakhali, Lakshmipur, Bhubannagar, Kakdwip, Bisalakshipur, Phatikpur, Rajnagar-Srinathgram and Durganagar in Kakdwip thana and at Uttar Chandanpuri, Dakshin Chandanpuri, Madanganj, Namkhana, Narayanganj, Dwarikanagar, Sibrampur, Rajnagar, Dakshin Chandannagar, Radhanagar, Dakshin Durgapur, Sibpur, Maharajganj, Haripur and Debinbas in Namkhana thana were unparallel.

f) Agriculture: South 24 Parganas is mainly an agricultural district. The main source of livelihood of the people is cultivation, but most of the agricultural lands in the district are mono-cropped owing to poor irrigation facilities and high salinity in water. Besides, the district being coastal the agriculture of the district periodically suffers from setbacks like Storm, Cyclone, and Depression etc. The crops are also often subjected to attacks by various diseases, insects and pests owing to relatively high humidity (85.0 per cent).

Rice is the most important food crop of the district. All the three well-known types of rice, Aus, Aman and Boro are cultivated in the district with Aman occupying the first place and outstripping the other two in both area of cultivation and production of grain. As per District Statistical Hand Book, South 24 Parganas, 2001 Aman was cultivated in 335.5 thousand hectares of land whereas Aus and Boro were cultivated in 6.9 thousand and 83.5 thousand hectares of land respectively in the year 2000-01. So far production of crops is concerned, Aman was reported to be 628.2 thousand tonnes, whereas Aus and Boro were 12.5 thousand and 226.2 thousand tonnes respectively in the year 2000-01.
The reason behind the success of Aman paddy is the excess rainfall of July-August which highly helps the farmers in successfully sowing the Aman seeds. Besides, the clayey soil of the Ganga low lands makes condition for growing Aman paddy highly favourable. Though this soil is generally hard, during rains becomes soft enough for the easy movement of the plough and successful transplantation of paddy and help water stand on the field up to November or December (the clay particles choke the big pores which make downward movement of water difficult). The saline soil area is also equally favourable for Aman paddy. It is already stated that during rainy season the entire area except in the bheris and fisheries presents a landscape of Aman paddy. What happens is that slow movement of stagnant water of these fields into drainage channels and then their departures through the lock gates during ebb tides highly helps reduce the concentration of injurious salts and seems to help the paddy crop during the subsequent dry periods.

Aman has its own nomenclature like that of the other two. Some names are old, some are new. The kinds such as Malabati, SR 26B, Patnai 23, Dudsail, Rupsail, Dasail, Kamini, Kanakchud etc. are old ones and are still in cultivation. Some new kinds of Aman, fit for the lands of the district, have been developed by the Chinsurah and Hooghly Rice Experimental Stations with the passing of time. This minikit comprises Sabita, Purnendu, Jitendra, Golok, Subir etc. Also the Experimental Station of Canning under Government of India has developed some salt-tolerant kinds of both Aman and Boro and they are called CSR 1, CSR 4(Mohan), CSR 6, Canning 7 etc.

It would be interesting to note that so far rice is concerned; Sundarbans reclamation and cultivation once gained much prominence, though this reclamation and cultivation are questioned today from the sociobio-ecological point of view.
Up to the beginning of this century practically up to World War I, Calcutta was fed by imports of rice from Barisal; Balam rice which derived its name from a particular type of boat called Balam, was the accepted rice in Calcutta up to 1914. Between 1914 and 1944 Calcutta was mainly fed by rice from the south country, i.e., from the Sundarbans. This rice was called Patnai; it is still grown but not enough is grown to feed the population of Calcutta and its surrounding. Since 1944 rice for feeding Calcutta has to be imported from places like Midnapur, Bankura, Burdwan, Birbhum and Murshidabad which means that the Sundarbans can no more cope with the demand and it is possible that the yield of rice per acre is falling too (District Handbooks, 24 Parganas, 1951). The 1951 DCH also reported that 96.0 per cent of the cropped area was under Aman paddy in Sundarbans during that period.

Another comparatively unknown local varieties of rice classed as *uridhan* is grown in the deep marshes in the district and is occasionally used as food by poor people - fishermen and boatmen.

Apart from rice, potato, pulses, gram, chilli etc. are also cultivated in the district. Jute is the most important cash crop. The extensive cultivation of jute dates back only half a century.

g) Irrigation: Although excessive rainfall in the district South 24 Parganas is certainly a boon for cultivation of the Aman paddy, it is harmful for other crops, because, with the exception of the high land along the banks of the rivers, the country is low and swampy and tends to become water-logged whenever there is excessive rainfall. Irrigation from rivers, dams and canals too does not help much as the water in winter is saline (as shown in map, Serial No: 19).
Despite such constraints, the Irrigation Department in last two decades has constructed some sluice gates and dams. They resist inflow of the saline water to certain extent, though cyclones and high tides often damage them. Excavation of tanks and sinking of shallow tube wells in some areas and use of transported water of the Hooghly river through back-feeding process has enabled the district to gain some more cropped areas.

Area irrigated by Government Canals in the district is 16.06 (in ‘000) hectares, by tanks 33.75 (in ‘000) hectares and number of deep tube wells in the district is 36, river lift irrigation is 44 and shallow tube wells 7,805 during 2000-01. (Source: District Hand Book, South 24 Parganas, 2001)

Incidentally, irrigation by private canals is the most important source of irrigation covering almost 85 per cent of the total irrigated area in the district.

h) Animal Husbandry: South 24 Parganas doesn’t occupy any significant place in animal husbandry. There is very little pasturage and cattle usually graze in the fields after the crops have been reaped, having very little to eat in the open. The local cattle are usually of non-descript type, ill-fed in most cases. There is also a crisis of the land for raising fodder crops and the villages try to overcome the crisis by cultivating seasonal fodders.

In absence of separate statistics for the district South 24 Parganas, an account of live stock of 24 Parganas, North and South combined, is presented below.

There were a total of 114,725 cattle, 24,923 buffaloes, 208,376 sheeps, 1,017,784 goats, 47,525 pigs and 4,328,817 poultry in the district in 1994 as per the latest Live Stock Census Report.
i) Fishery: South 24 Parganas is extremely rich in fish fauna, courtesy Sundarbans. The common marine fishes alone are represented by more than 55 species belonging to 28 families, the corresponding number for fresh water fishes are 31 and 17 respectively. They are plentiful and found at all times of the year.

While this is so, the supplies in the market are regrettably poor. There is no arrangement for the preservation of fish and they are mostly consumed afresh. Small fishermen manage to reach the market with alive fish by keeping their catch in bamboo cage in water tied to their boats. Other traders collecting and carrying fish in motor-launches or special boats use ice for preservation.

There are altogether 12 landing centres in Sundarbans region - eleven in South 24 Parganas and only one in the counterpart district, i.e. North 24 Parganas. These are Basanti, Kultali, Gosaba, Sandeshkhali, Namkhana, Kakdwip, Diamond Harbour, Kalinagar (P.S. Nadakhali), Raidighi and Port Canning in South 24 Parganas and Hasnabad in North. Wholesale fish market of the region is Canning which serves as an important fishing centre. Bulk of the fish is collected from different parts of the Sundarbans, including Basanti, Gosaba and Sandeshkhali and part of Kultali. The trade attains its peak volume from August to March.

The Endangered Prawn

It is already stated in ‘Fauna’ that the district contains economically important varieties of edible crustaceans available both from the estuarine water and from fresh water. Here lies the pathetic story of the Prawn. This particular crustacean is long since over-exploited as they have a good market not only in the Kolkata metropolitan district but also in Japan, U.S.A. and Europe, having serious negative bearing upon the economy of the district. It is but only natural for the youngs of the Prawn to stay
for a while in the less saline water and then go back to the deep sea for full growth. But this natural process of their growth has been halted by an insensible profit-motive, both national and multinational, that acts in utter disregard of the ecological balance of the Sundarbans and the economic security of its inhabitants. Acres of agricultural land have been turned into bheries for developing the crustacean to the commercially viable extent thereby making these lands unfit for agriculture anymore owing to salinity. Taking full advantage of the helplessness of the poor people, these companies engage them in collecting youngs (mean in vernacular) of the Prawn when the youngs are even hardly visible. Poor people, simply for the sake of a tempting payment, undertake this impossible and uphill task. For this earning, they overlook and ignore everything - scorching heat of the summer, tumultuous or incessant rain, freezing winter, even the danger of being attacked by a crocodile or a tortoise in the river. From Canning to Raimangal this is a disgusting sight. Age no bar, from seven to seventy, all will be seen collecting the youngs of the Prawn all day long. The students absent themselves from the schools, the domestic affairs go mismanaged in absence of the homemakers; the patients keep eternal waiting for medical treatments. Above all, this momentary fabulous income does not help in alleviation of their poverty in absence of proper planning and management.

Notwithstanding, these people cause even a greater harm to the ecological balance of the Sundarbans, by indiscriminately eliminating youngs of various fishes when they are netted along with the youngs of the Prawn. They sort out their particular item and throw away the others on the high and dry lands. This is resulting into fast disappearance of the fishes of the saline water.

Protection of the Prawn during its breeding season is certainly overdue in this district. And as Sri Tushar Kanjilal, a veteran teacher and the pioneer of the Rangabelia
Project under Tagore Society for Rural Development has suggested, a well-planned Prawn-centric co-operative-based Pisciculture may save both this particular crustacean and the fish fauna of the Sundarbans from total extinction and at the same time may help the local people in becoming economically self-reliant.

j) Electricity & Power: As per District Hand Book 2001, 213,548 units (thousand KWH) of electricity have been consumed in South 24 Parganas in the year 2000-01. There are in all 2,140 villages in the district out of which 1,322 villages are electrified. Of them, 1,300 villages are using electricity for domestic purpose, only 6 villages are using electricity for agricultural purpose, 683 villages are using electricity for other purposes and 14 villages are using electricity for all purposes.

The non-conventional energy sources play an important role in electricity and power of the district that has been discussed in detail in ‘Industry’.

k) Industry: Despite its proximity to Kolkata, the district South 24 Parganas has not developed industrially. Except Baj Baj stretch, there are no other major industrial areas.

Some of the old fashioned industries are still in existence in the district. The centres for manufacturing of cutlery and agricultural implements are located in some places. Leather tanning is done at Mollarhat, Sahpur and Gopalpur. The pottery industry is located at Jaynagar, Baruipur and Baj Baj. Button making is done in small towns around Kolkata while manufacture of steel trunks and suitcases is a common place phenomenon in almost all the towns in the district. The manufacture of gur from date-palm juice is mainly carried on in Jaynagar and also throughout the Diamond Harbour subdivision.
Cotton handloom weaving which is an old time industry still manages to survive with the help of the co-operatives in Bhangar, Begampur (PS Baruipur), Darea (PS Sonarpur), Kanyanagar etc. Handicrafts of the district deserve special mention. They reflect the skill and dexterity of the artisans and their sense of finesse. These goods comprise mats and asans, earthen dolls and images, cane and bamboo products, conchshell products, etc.

As per District Handbook, 2001, the number of factories reported by the district of the year 1997-98 those which manufacture machinery and equipments other than transport equipments was 287, those which manufacture Rubber, Plastic, Petroleum and coal products and process nuclear fuels was 161, those which manufacture basic chemicals and chemical products (except products of petroleum and coal) was 121, those which manufacture metal products and parts was 111 and those which manufacture leather and products of leather, fur substitutes etc was 108. The rest of the factories none cross 100 and most of them are even beyond 50 in number. The number of small industrial establishments registered with the Directorate of Cottage and Small Scale industries was 15782 in the year 2001 in the district (as shown in map, Serial No: 20).

1) Trade and Commerce: Paddy, rice, jute, wheat, pulses, chillis, watermelon, vegetables and coconut these are most important agricultural commodities of the district that are marketed. Of these commodities, the marketing of paddy and rice is now done through the Government-run authorised agency, namely, Food Corporation of India and the old market functionaries like fariahs, aratdars, brokers and rice mills are now simply agents through whom paddy or rice is procured. However, supplying of rice to the village consumers by the growers, village merchants, beparies and aratdars still continues at a large scale. Besides, there exists another class of
middlemen, known as ‘Bhenkis’ who buy paddy from the primary assembling markets, process it in ‘dhenkis’ or husking machines and market the product to the aratdars and retailers and sometimes to the consumers direct. These market functionaries handle about 75 per cent of marketed surplus.

There is a Government-run authorised agency for jute too, namely, Jute Corporation of India that controls the raw jute trade. It acts through a chain of direct purchasing centres and co-operative marketing societies and thereby tends to protect the interests of the growers by ensuring the minimum support price to the growers as announced by the Government of India from time to time.

Another important group of commodities of the district is Vegetables. The most commonly grown and marketed are cabbage, cauliflower, tomato, radish, brinjal, patal, jhinga, ladies finger, sweet pumpkin, bottle gourd, bitter gourd, papaya, spinach, carrot, beet and potato. The most important wholesale markets for vegetables in the district are Baruipur and Bhangar.

The assembling markets for chilli, one of the most important cash crops of the Sundarbans, are Chhotomollakhali and Kakdwip, and for green coconut, another important cash crop, are Amtala and Bhangar. Watermelon is grown in Sundarbans in rotation with paddy and chillis. Of late this crop has assumed tremendous importance in this mono-cropped area. The main assembling markets are Kakdwip, Diamond Harbour, Kolkata and its suburbs.

Imported agricultural produce in the district are Pulses, Sugar, Gur, Mustard seeds and oil, Fruits, Potato and Onion. Export trade of the district mainly consists of jute and mesta, vegetables, chillis, fruits (especially guava, watermelon and coconut), fish and gur.
m) Transport: The oldest trade route of the district is the Ganga-sagar-sangama that is the estuary of the Ganga in South Bengal referred to both in connection with the legend of Bhagiratha and the pilgrimage of Yudhisthira. The archaeological finds from Harinarayanpur near Diamond Harbour on the Ganga attests to the fact the early trade and commerce of the district was carried on along this river route. That this river route along the Adi Ganga was alive even at the time of Sri Chaitanya is evident from the fact that this great religious reformer while undertaking his pilgrimage to Puri had taken rest at Atisara near Baruipur and at Chhatrabhog, a village in Mathurapur under Diamond Harbour subdivision wherefrom he crossed the Ganga. The present course of the Ganga in the south is believed to have been excavated sometimes during the Mughat period.

Sri Chaitanya’s itinerary also referred to the land route which passed very close to the Ganga. The present road system is the continuation of the old route. The very first attempt to formulate a co-ordinated road policy for the whole country was undertaken by the British Government in the famous Nagpur Conference of 1943. The Nagpur plan envisaged the construction of three categories of roads - national, provincial and local. The National Highways were to carry uninterrupted road traffic across the states, the provincial roads were to serve as the main arteries of trade, commerce and administration, while the local roads were to be of two types, namely, the district roads and the village roads, the former branching off from the National and State Highways and lying within 2 to 5 miles of important villages, while the latter were to be the outer links of this network connecting isolated rural settlements. The present road system of the district is the continuation and extension of this policy with necessary changes. However it should be informed that there is no National Highway in the district of South 24 Parganas.
As per District Hand Book, 2001 total length of the roads, both surfaced and unsurfaced, maintained by P.W.D. and Zilla Parishad together is 12,226 kilometers in the year 2000-01. The length of different classes of roads maintained by P.W.D. in the district of South 24 Parganas is for State Highways 294 kilometers, for District Roads - 341 kilometers, for Village Roads - 468 kilometers thereby making a total of 1,103 kilometers and the length of roads maintained by Municipalities in the district is 1383.50 kilometers. The total number of registered Motor Vehicles plying on the road is 104,159, out of which the number of Goods Vehicles recorded as on 31st March, 2001 is 18,183, Motor Car & Jeeps 23,869, Motor Cycle & Scooter 48,045, Taxi and Contract Carriage 3,813, Auto Rickshaw 5,559, Mini Bus 495, State Carriage 3,335, Tractor & Trailor 517 and Others 343.

Gram Panchayat

The three tier Panchayat system has been functional in West Bengal since 1978. In the district at the top there is Zilla Parishad (ZP); the Panchayat Samities (PS) are coterminous with at CD block. There are Gram Panchayats at the lowest level consisting of elected members from the respective villages. Since 1978 the panchayat system has been performing a vital role for the development activists from village to district level and fund are placed for implementing the development plans from GP level to district level.

In spite of some shortcomings, the Panchayat System has changed the village economy, social and political system. In West Bengal small and marginal farmer have got cultivable land, the wages of agricultural labourers have increased. Due to land reforms and other village development program the productions of agriculture have also increased significantly. As a result the intake of food has also increased. The
district has 29 Panchayat Samitis with 312 Gram Panchayats consisting of 2,139 villages.

4.4 Conclusion

From the above description of geonomic parameters of the two study areas, it is evident that the issues related to land relations encompassing the characteristics of physical set up, agrarian situations, man-woman land relationships and historicity of the evolution of agrarian economy in the two sample regions exhibit ample locational justification from the standpoint of the present economy.