Evolution and Growth of Municipal Towns in Kolkata
Metropolitan Area

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August 2008

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Preface

The metropolis of Kolkata emerged through the growth of the core - the twin cities of Kolkata and Howrah - and its integration with a number of municipal towns situated along the two banks of River Hooghly in a linear stretch. The present paper discusses the evolution and growth of these municipal towns from the pre-colonial period, indicating the importance of the geographical, historical, economic, transport network related factors in the process.

This paper was first published from Centre for Urban Economic Studies as Discussion Paper No. 4 in August 1992. In that paper, the analysis of demographic and economic changes in these towns were analysed for the period 1951-1981. After one and half decades, we have decided to republish the same with extending the analysis with the data available from the Census 1991 and 2001.

In the intervening period, the name of Calcutta has been officially changed to Kolkata and that has been reflected in the title of the paper. Secondly, five new municipalities came up in the area (e.g. Madhyamgram, Rajarhat-Gopalpur, Bidhananagar in 24 Parganas(North) and Maheshtala and Pujali in 24 Parganas (South)), we have kept our analysis constricted to the 34 municipalities considered in the earlier version for the sake of parity. The comparative data available for these five municipalities from 2001 Census are compiled in Appendix VI.

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Evolution and Growth of Municipal Towns in Kolkata[1] Metropolitan Area

1 Introduction

J. H. von Thunen, the German agriculturist, hailed as the Father of Urban Economics, started his discourse taking city as an isolated state. His concept of urban area was a market town, situated at the centre of a circular featureless plain with radial transport routes, connecting the city with the boundary of the plain. With the Industrial Revolution, the activities of urban area expanded, it became the centre for manufacturing, not confined to trading and administrative activities. The basic assumptions of von Thunen model were also invalid in the real world, as featureless circular plains are not very frequently found on the earth's crust rather topographical variations are more common. Secondly, the isolation of the urban area was also broken down by the improvement of the transportation system in the latter years. Today, a city hardly grows in isolation. Kolkata Metropolitan Area is a unique illustration of the genesis and development of an agglomerative entity, which is a result of its colonial past, the topography, transportation network and post-colonial developments.

This paper deals with the physical features, history of urbanisation and the consequent urban growth in Kolkata Metropolitan Area, specifically , the evolution and growth of municipal towns along the river Hooghly in a linear stretch; from Uluberia to Bansberia on the west bank and Budge Budge to Kalyani on the east bank and the immediately surrounding area. Around the metrocore of the twin city of Kolkata and Howrah, there are 34 other municipal towns[2]. The metropolis also includes some non-municipal urban areas (presently called Census Towns) and gram *panchayats*.

The idea of greater Kolkata was conceived during the Second World War for the introduction of rationing in this region. The Census authorities recognised it as the Kolkata Industrial Region in 1951. The metropolis in the form of Kolkata Metropolitan District (KMD) was delineated in BDP[3], which became a legal entity called Kolkata Metropolitan Area (KMA) by the West Bengal Town & Country Planning Act of 1979[4]. Meanwhile, in 1971 Census, the Kolkata Urban Agglomeration (KUA) included almost the same area (excepting the southern boundary and the rural part), the term KMD (see figure 1) and Kolkata Metropolis are used in this paper interchangeably, while KUA roughly corresponds to its urban part[5].

The paper is organised as follows: section 2 gives a physical/geographical description of the area whereas section 3 gives an account of the consolidation of the area into a single entity. In section 4, the growth and development of the towns in the region is described and finally in section 5, some demographic variables are analysed for the post-independence period. Some concluding remarks are in section 6.

BASE MAP OF KOLKATA METROPOLITAN AREA

Figure 1

2 The Physical/ Geographical Aspects of KMA

The entire region lying in the Lower Ganga Plain was formed by the delta of river Hooghly[6]. The height of this flat alluvial plain ranges from 5 to 11 metres above the sea-level, the average being 8 metres. The low-lying plain just beside the higher river bank on both the sides is segmented by marshes, swamps and courses of dead rivers. These rivers were active in the past when the Bhagirathi-Hooghly was the main channel of the Ganga. The Hooghly itself changed its course a number of times. The older dried-up courses of Hooghly and other rivers have frequent pockets of waterlogging rendering the area unsuitable for industrialisation and urbanisation. The slope from the north to the south is much less steep than the slope from the river towards the east and the west.

Geologically, the entire area is formed by the alluvial deposition. The plain receives considerable silt from the Damodar and the western tributaries of the Hooghly too. The alluvium is of considerable thickness of more than 400 metres, as borings did not reveal any rock or marine bottom on both the sides of the river. The alluvium consists of alternate layers of clay, sand silt and few layers of gravel. Peat and decayed wood are also found in some places. In general, the entire area originated under fresh water conditions, due to progressive but slow subsidence of the delta. Recent borings show that the process of subsidence and depression is still going on[7].

Morphologically, the region can be divided into three zones: (i) the Hooghly levee, (ii) the marshy lands and (iii) the plains.

The 1.5-2.5 metres wide highland on both the banks of the river is called Hooghly levee. It is parallel to the meandering river stretching from Triberi to Uluberia on the west bank and Kalyani to Birlapore on the east bank. On the banks, the boundary of the levee is identical with the railway line. Only in places like Serampore-Baidyabati, where the levee is quite narrow, urban settlements have spread across the railway line to the other side. It is widest near Kolkata and Howrah. The general elevation is about 10 metres in the north and 3.5 metres in the south. Drainage facilities were adequate in the past, which explains the emergence of the settlements in this region five hundred years back. But there are some low-lying pockets here and there and the water drains into the marshes rather the river. These pockets have rendered urbanisation and construction of roads and settlements difficult in those places. Nowadays, due to numerous encroachments on the Hooghly, like jetties and bridges, and inadequate flow of water from the mother stream, the levee formation has actually stopped.[8]

The plains lie just to the east and west of the levee on both banks. On the south and south-east, the plain is parallel to the levee. The higher areas like levee of the now-extinct Adi Ganga[9] are inhabited extensively where towns like Rajpur and Baruipore have grown up, while the remaining part of this Sonarpur-Baruipore plain are extensively used for agriculture. On the other hand, the Dum Dum-Barasat plain or the plain in the north-east was actually formed by the rivers Nawi, Sunti and Bidyadhari. This area is slightly higher than the south-eastern plain.[10]

On the west bank, the plain is actually the easternmost extension of the Damodar-Banka plain. In general, it is higher than the plain on the east bank. This plain constitutes almost half of the metropolitan district. Excepting a few urban settlements, this plain traditionally supplies fruits and vegetables to the markets of Kolkata and surrounding towns. But, gradually it is encroached upon by haphazard urban growth.

The boundaries on both the sides are formed by a number of low-lying marshes, the Dankuni-Bargachia marsh on the west and the now-filled up Salt Water Lakes on the east. Some of the marshy land are filled up by alluvium from the river and used for agricultural purposes. Marshes are also separated by man-made embankments for the construction of roads and railways. In the past, these marshes were used for irrigation and pisciculture, but later on, lack of proper maintenance discontinued these essential services and they have now become health hazards as breeding grounds of mosquitoes and other insects.

The river Hooghly can be called the life-line of the metropolis. With its old and new tributaries and distributaries, it forms the water system of the area. Rivers like Nawi, Sunti and Adi Ganga (Tolly's Nullah) on the east and Saraswati, Behula and Kunti on the west, also played a major role in the development of the metropolis. They supplied water for domestic and industrial purposes, and supplied fish, the cheapest source of protein in common man's diet till recently.[11]

The marshes along with the river form the natural drainage system of the area. For the part of the KMA that belongs to 24 Parganas all the riparian municipalities drain into the river Hooghly. But for the areas east of the railway line, the drainage inclination is away from the river, either in the rivers of Kulti series or into the Matla-Piyali-Bidyadhari series. The marshlands are connected to the Hooghly River by canals and lockgates[12]. On the west bank, in Howrah, the natural inclination is away from the river[13]. In Hooghly, the land between the rivers Hooghly and Damodar along with its tributaries is characterised by saucer-shaped depressions. These are unsuitable for human habitation but extremely suitable for paddy cultivation[14].The natural water courses along with man-made were also main arteries of the transportation network in the early days.

3. Development of Transportation Network

It took a long time even after the Battle of Plassey, before the British rulers paid any attention to the infrastructural development in the areas beyond the narrow limits of the Kolkata city, where they lived.

For transportation, old *nawabi* roads and *kutcha* village roads continued to form the main network.[15] The trading network of the East India Company depended mostly on the indigenous suppliers, and for, bulk carriage of goods, they extensively used waterways by means of country boats and small ships. However, while small ships, barges and boats could move upstream up to Patna, Kanpur and even Benaras, big cargo ships and barges could only reach up to Tribeni on the right bank and Kanchrapara on the left bank, from the sea. This was one of the major reasons why the Kolkata Industrial Region could not expand beyond these two towns in the north.[16]

The actual spurt in trading activity came with the passing of the Charter Act in 1833, by which private trading was permitted with different countries such as China or Ceylon, the establishment of the Bengal Chamber of Commerce in 1834, and the abolition of the Customs duty in 1837.[17]

The growth of Kolkata port was both a cause and an effect of this increase in trading activities. The excellent navigability of the river Hooghly made Kolkata a first-class riverine port. Though the Bengal Pilot Service was introduced in the last part of the eighteenth century[18] ships of considerable draught could reach the port of Kolkata without the help of dredgers. Consequently, the use of Diamond Harbour Anchorage as a place for loading and discharge was abandoned in 1868[19]. As a prime centre

of colonial trading, the port imported machineries and chemicals necessary for the British-owned industries, and exported agricultural products in bulk, jute and gunny, rice and paddy, wheat, cotton and even hides and skins. Jute was exported to countries like Great Britain, USA, France, Australia, Cape countries, Ceylon, Italy, Burma and Strait settlements, and its quantum increased from 67,483 Cwts. in 1833-84 to 48,58,162 Cwts. in 1868-69; a seven hundred fold increase in quantity in about thirty years and a spectacular 1800%.[20]

The port was also engaged in inland trading. Regular steamer services were extended to riverside marts (*ganjas*) of Eastern Bengal for movement of passengers and raw jute. The enormous increase in inland trade necessitated the construction of wharfs and godowns in the northern part of the city extending from Ahiritolla Ghat to Jagannath Ghat; and, for that purpose, the residential population from the riverfront areas like Kumartuli, Jorabagan and Burrabazar were displaced[21].

In 1853, Lord Dalhousie, then Governor General of India, recommended trunk systems to connect remote areas of each Presidency to its principal port, for ensuring easy transportation of goods from interior markets to the port and vice-versa[22]. This led to the construction of railways under the Old Guarantee System[23], which made a big impact on the city and its economy. The East Indian Railways (EIR) was the first to start in 1854, when Howrah-Ranigaunge branch started functioning, Ranigaunge being the chief coal-mining town in the eastern region. The Indian Branch Railway, opened in 1863, was extended upto Moghalsarai, and in the very next year, upto Delhi. The South Eastern and Kolkata Railway from Kolkata to Champahati was opened in 1862 and extended upto Canning in 1864. The Eastern Bengal Railways (EBR) built its terminus in Sealdah, and the line upto Ranaghat was constructed in 1862. Within thirty years, it was doubled. With the construction of the Jubilee Bridge, East Indian Railways constructed a branch-line from Naihati to Bandel across the river in 1887. The Eastern Bengal Railway built its Ballygaunge-Budge Budge section in 1890-91, though a tramway from Kolkata (Tolly's Nullah) to Budge Budge via Santoshpur was already operating under the management of Kolkata Port Trust. The Sheoraphully-Tarakeswar branch of EIR started functioning in 1883. During this period, the Assam-Bihar section of EBR also opened. The Bengal-Nagpur Railway (BNR) opened its first section from Chakradharpur to Sambalpur in 1890, and within ten years, rail-link between Kolkata and Cuttak was established. So by 1900, Kolkata was connected with the tea districts of Assam, jute districts of eastern Bengal and coal and mineral-rich districts of western Bengal, Bihar and Orissa[24].

Programmes on road development were also undertaken during this period[25]. But, unlike railway, whose development depended entirely on private enterprise, the government only being the guarantor at the first stage, the responsibility of construction and maintenance of roads rested with the administration. The interprovincial trunk roads were constructed and maintained by the Construction and Works Department of the government itself, the district roads were managed by the District Board and so on upto the village level, with a clearly defined hierarchical structure. In 1860-61, as much as ten long roads were built[26]. Appendix I shows how these roads connected Kolkata to different parts of north, south and eastern Bengal, Madras and also some other important places. New G.T. Road from Uttarpara to Paltaghat, Old G.T. Road from Paltaghat to Burdwan via Hooghly and Pandua and Orissa Trunk Road were also constructed in 1860s. All the main roads of 24 Parganas district like the trunk road upto Barrackpore, Jessore Road, Cossipore-Dum Dum Road, built about a century ago, are still retaining their importance.

With the introduction of steam navigation, daily steamer services to Rajganj, Uluberia, Ghatal (via Uluberia) and Kalna (via Bally) from different *ghats* of Kolkata were introduced in the 1870s. Canals were dug around Kolkata and to different parts of south and eastern Bengal for easy transportation of passengers and goods, especially in the rainy season when other forms of transport were difficult to use.[27] Ferry services, over not only big rivers, but also canals and creeks, were also started. By 1912, there were numerous ferry services across the river Hooghly operated by the local *zamindars* or municipalities.

It is quite evident from the above discussion, that a transportation network combining the rivers, railways and roads grew up to connect Kolkata with its hinterland and other parts of India, in the later half of the nineteenth century. The initiative taken by the foreign rulers in this field was mainly due to the Indian Revolt of 1857, which necessitated quick movement of troops. But, once coming into existence, this transportation network helped the process of industrialisation and consequent development of the conurbation in the region[28].

4. Growth and Development of Towns

In this section, an attempt has been made to describe the evolution of the town system in the Kolkata Metropolitan Area (see figure 2). For the convenience of analysis, the description is related to four historical periods, which are as follows:

(i) pre-colonial period - before 1757;

(ii) colonial period I - 1757-1857;

(iii) colonial period II - 1857-1947;

(iv) post-independence period - 1947 onwards;

4.1 Pre-colonial Period

At the advent of Muslim rule in this area, Tribeni near Bansberia, a place whose sanctity is derived from the branching out of the three rivers, Ganga (Bhagirathi), Jamuna (present Kanchrapara *khal*) and Saraswati, was named Firuzabad[29] and made the seat of the local Governors (1298-1358). After that, Satgaon or Saptagram town became the provincial head-quarter other than being the main port and mint. In 1631, the Mughal emperor, Shahjahan shifted the royal port and head quarter to Hooghly[30]. On the other side of the river, Kumarhatta (present Halishahar) was another administrative centre[31]. It was the *Haveli* or hometown of *Haveli Pargana* under *Sarkar* Satgaon. In the later period, Hooghly was developed further as another administrative centre; and Bandel was the port area of the town. Some of the old maps depict the whole team as Bandel. Shahganj, a part of the town named after Shahzada Azim-us-shah, the grandson of Aurangzeb and nawab of Bengal (from 1697-1707), was the principal trading zone and contained large granaries. More southwards, in Chinsurah, Malik Kasim's *hat*, established in last part of 15th century, is the largest market in the district still now[32].

Other parts of the area presently under our consideration did not contain any town of remarkable significance. But there were prosperous villages like Bansberia (Bansabati), Kanchrapara (Kanchanpalli) and Uttarpara[33]. Some places were centres of traditional Sanskrit learning like Bhatpara (Bhattapalli), Baidyabati, Bally and Bhadreswar[34]. The last named place also contained a famous Shiva temple. There were some mart towns specialising in trading of a single commodity; e.g. Baruipore in betel

KOLKATA METROPOLITAN AREA

Municipal Corporation Areas & Municipalities

Figure 2

leaves, Garifa (near Naihati) in *gur* (jaggery), Uluberia in fish, etc.[35]. The Vaishnavite movement in the late 15th century developed some new religious centres in the regions like Khardah, Panihati and Baranagar[36].

Colonial adventurists from different parts of Europe started coming to this region by the river Hooghly from the beginning of 16th century. many of the present towns grew from obscurity as *kuthis* and settlements of foreign traders along the river. The Portuguese were the first to arrive in 1535 followed by the Dutch, the English, the Danish and the French, not to forget minor groups like the Prussians and the Flemish[37]. Thus the area not only became the scene of wars between different colonial powers but also became vulnerable to major events in international history like the American War of Independence, French Revolution, Napoleonic Wars and other wars between European countries. The trading pattern of the colonialists were affected by disturbances in the home country, and sometimes settlements in this area changed hands because of agreements reached by the leaders of European countries after the conclusion of any war in Europe[38].

The Portuguese anchored their bigger ships at Bator in Howrah, and named their settlement at Satgaon 'Porto Piqueno' or Little Haven. After 1575, they settled in Hooghly and the famous Bandel Church was erected in 1599. After a brief conflict with Emperor Shajahan, who attacked and seized the settlement in 1631, the settlers were able to win back the emperor's pleasure in 1633 with a grant of 777 *bighas* of rent-free land on which the Church was re-erected in 1660. But the Portuguese could not revive their commercial monopoly as their trade, by then, passed to the hands of the British and the Dutch[39].

The Dutch also built their first factory in Hooghly in the first part of 17th century on the strength of a *pharman* by Emperor Shahjahan[40]. But this factory was swept away by floods and a new factory was constructed in Chinsurah in 1755 and named Fort Gustavas. They also built a large garden house just south of Chandernagore, a pork-salting factory in Baranagar and a ship station at Palta for sea-going vessels. The Dutch trade prospered for about a century and the Dutch East India Company acquired a fresh *pharman* in 1712 from Emperor Aurangzeb[41].

The Danish East India Company was formed in 1612 but the Danish could not establish their first factory at Gondalpara[42] near Chandernagore only at the end of the century. Though they closed down all their activities around 1714, for some internal disturbances, they soon re-established themselves in Serampore, further downstream. They named the place Frederikanagore, whose administration was run by a 'village committee'[43].

The first settlement of the French was at Hooghly but later they shifted to Chandernagore; their Fort Orleans was constructed before 1701. In 1731, Dupleix was appointed Intendant, within ten years of his assuming office, not only French trade prospered but Chandernagore's golden age also began[44].

In 1650, the English also made their first factory at Hooghly[45]. Though, it was made their head agency in Bengal in 1657, the local Mughal Governor had conflicts with them more than once. The English trade could not make headway due to internal power-politics and the displeasure of the local rulers. The English, led by Job Charnock, therefore, moved along the river further downstream in search of a suitable place. Uluberia in Howrah[46], an important fishing port and transport junction was initially selected and the area was handed over to the British by the Bengal *nawab*. But, in 1688,

Charnock rejected the place and settled in Sutanuti in 1690, which eventually grew into the city of Kolkata[47].

4.2. Colonial Period I: 1757-1857.

During the first century of their rule, the British, *vis-à-vis* their agent East India Company, were busy in consolidating their strength in the region. In this process, on one hand they had to subjugate the local people and on the other, they had to fight with the other European powers. For military purposes, they established two cantonments in Barrackpore and Dum Dum, in 1772 and 1783, respectively, around which settlements grew and later consolidated as towns. In Barasat, they also established a training school for military cadets coming from England. So, in early parts of the 18th century, the town was called 'The Sandhurst of Bengal'[48].

The Dutch in Chinsurah, lured by the British prosperity in the region, supported Nawab Mir Zafar in 1759 and temporarily defeated the British; but when the latter fought back, the Dutch sued for peace. In 1781, as a consequence of a war between England and Holland in Europe, Chinsurah was taken over by the British[49].

The first conflict of the British with the Danes in Serampore arose when the later supported Nawab Sirajaddaulah during his march to Kolkata[50]. It was further accentuated when the French took shelter at the time of British invasion of Chandernagore. But the Danes were doing very well as far as overseas trade was concerned. This was also reflected in the prosperity of the town. Serampore became famous in the Christian world as the head-quarter of the Baptist missionaries. In 1801, during the Napoleonic war in Europe, Serampore was seized by the English; it was again restored to the Danes in the next year by the Peace of Amiens, only to be taken away in 1808, and to be returned again in 1815 by the Peace of Kiels[51]. However, Danish trade suffered as also the town, which by then became an asylum of debtors from British-ruled area. In 1830, this right to shelter was given up and fourteen years later, the King of Denmark transferred Serampore to the British.

Chandernagore[52] remained as a French Colony, surrounded by British India, until 1947. But before 1816, when peace was restored in Europe following the defeat of Napoleon, Chandernagore repeatedly changed hands between the French and the English[53].

At this period, the British also decided to initiate a centralised system of administration with districts as the basic unit. Most of the district and subdivisional head-quarters were established in otherwise prominent urban areas. Gradually, the importance of these towns increased as administrative centres. The increase in the number of persons associated with legal profession as a consequence of the increase in land disputes after the Permanent Settlement in 1793 further enhanced the importance of the head-quarter towns[54].

Apart from their political domination, the Christian missionaries expanded their activities on a large scale. We have already noted the case of Serampore, as the head-quarter of Baptist missionaries. Baruipore and Agarpara near Panihati were two other important centres of Christian missionary activities of different sects[55].

4.3. Colonial Period II: 1857-1947

The area around Kolkata (particularly Barrackpore) was closely involved in the First War of Independence in 1857 along with the rest of northern India. Though the mutiny was suppressed, it led

to some major administrative decisions like the transfer of power from the Company to the British Crown. More or less at the same time, a decision was taken to improve the transportation system of the country with the introduction of the railways. Improved communication facilities along with the growth of Kolkata port initiated the process of industrialisation in this region[56].

The first jute mill was established near Rishra in 1853[57]. It was followed by a number of jute mills on both the sides of the river Hooghly, by different managing agents. Consequently, a number of towns grew around jute mills. Apart from Rishra, Champdany, Bhadreswar, Baidyabati, Bally, Konnagar and Bansberia on the west bank and Naihati, Halishahar, Bhatpara (Kankinara, Jagaddal), Garulia, Titagarh, Panihati, Khardah and Baranagar (Cossipore) on the east bank were the early jute towns. For setting up jute mills, the managing agents either chose traditional jute marts like Bhadreswar, Baidyabati and Naihati or areas in close proximity[58]. After jute, other industries were also established in the region in quick succession, e.g. rubber, paper, chemicals, cotton-textile and engineering industries.

With the improvement of railway system, some towns became associated with activities of railway. Railway workshops were established in Kanchrapara and Lillua near Bally. The Jubilee Bridge across the river Hooghly was opened in 1887 and the two towns Naihati and Bandel, became busy railway junctions for trans-river communication. All types of goods to be exported through Kolkata port, from the west of the river, passed through Naihati for the Kidderpore Dock via the Kankurgachi Chord. The town was also a halting place for the labourers to be recruited to the tea-gardens of Assam and North Bengal. There were six migration depots in the town.[59].

Budge Budge, a riverside town (in South 24 Parganas) around a fort, was captured by Clive in 1756. Budge Budge jute mill was established in 1873, followed by other jute and cotton mills. The importance of the town increased after 1886, when it was selected to be a port and the wharfs for an oil-jetty was constructed, and all the important oil companies constructed their depots in this town. In the early fifties of the present century, a high level government committee considered Budge Budge as a possible site for the location of an oil refinery. Budge Budge is still the main oil depot of Kolkata, and, in addition to petroleum products, imported edible oil is also stored here and then distributed to different parts of the country by roads and railways[60].

The above description shows that the present KMA was extensively industrialised and consequently urbanised in the last half of the nineteenth century. The linear continuum along both banks of the river Hooghly took shape in this period. These towns were accredited with civic status with the passing of the District Municipal Improvement Act in 1864. Provisions of Bengal Local Self Government Act 1885 were also extended upto them[61].

4.4 Post-Independence Period

The independence of the country in 1947, was accompanied by the partition of the erstwhile Bengal province, leading to refugee influx from East Pakistan. The towns in the eastern periphery of KMA like Barasat, Rajpur, Baruipore, Dum Dum[62] and comparatively less congested towns in the industrial region like Panihati[63], North Barrackpore etc., had to accommodate these refugees. Consequently, some of the towns had their population size doubled within a decade.

Apart from old towns, three new towns, namely Kalyani, Gayeshpur and New Barrackpore, emerged in the region mainly to cope with the refugee problem. Though all these three towns share a common cause of emergence and growth, the patterns of their growth and evolution are different.

New Barrackpore Co-operative Colony Society Limited was a non-government scheme for the settlement of displaced persons near Madhyamgram railway station on the Dum Dum- Barasat railway line. It consisted of 2600 families, mostly of the educated middle class. The presence of mainly white-collar commuting workers led to the rapid growth of educational facilities like high schools, colleges etc. and attracted more people as a decent residential township. Within 1961, its population exceeded 20,000 and it was declared a municipality in 1965[64].

Both Kalyani and Gayeshpur owe their birth to a common origin. before Second World War, this part of Nadia was sparsely populated. During the War, all the five villages of the area were acquired and handed over to the U.S. army authorities in India by the British government. They built roads, an airstrip and established an army base at the site which was named Roosevelt Nagar[65]. After the partition, the refugees settled down along the railway line and in the abandoned army camp. In response, the State government put the area under and Administrator for building roads and supplying potable water. It was named '*The Kanchrapara Rural Area Development Colony*'. It was recognised as a town as early as in 1951 census, by virtue of high population density[66]. Between 1950 and 1952, the government settled a large number of displaced persons in villages named Gopalpur, Gayeshpur, Jadavpur and Saguna on the easternside of the Sealdah-Ranaghat railway line.

In 1951, a modern satellite township was planned on the abandoned army base. The main objective behind Kalyani was to relieve population pressure from Kolkata and also to disperse industries. It was also planned to provide all the amenities of a modern urban area[67]. Various government departments and a University were also set up in the township. Despite these efforts, Kalyani did not come up to the expectations. It neither became a satellite of Kolkata nor did it stand on its own[68]. But on the other side of the railway line, the colonies of Gayeshpur, Kataganj and Gokulpur have grown enormously and surpassed Kalyani in both population size and density.

Some other trends were in evidence in the last four decades. Firstly, after a brief spurt of industrialisation during 1951-61, Kolkata Industrial Region had to face severe industrial recession along with political turbulence. The traditional industries of the region like jute and engineering suffered from a fall in market demand, while investment in new industries was negligible. But transportation facilities improved significantly with the electrification of suburban trains and introduction of long-distance buses. Secondly, parts of the agricultural hinterland behind the industrial area experienced some of the benefits of 'green revolution'. Thirdly, activities in the tertiary sector increased due to several reasons like agricultural prosperity, enormous increase in the activities of both Central and State governments and spread of academic institutions like schools, colleges and even higher research institutions. All these, together, have changed the character of the erstwhile industrial towns. In most of them, the proportion of commuting population engaged in service sector activities has increased significantly.

There have been some changes in the transportation network during the period 1951-2001. The navigation channels has been deteriorated due to lack of maintenance, excepting some trans-river ferry services, water transport does not have the same importance, which it had two centuries back. Though there has been little increment

5. Demographic Changes in the Municipalities

In this section, an attempt has been made to estimate and analyse the changes that have taken place in the post -independence period, in terms of the following variables:

(i) City size distribution

(ii) Population growth rate

(iii) Density of population

(iv) Gender ratio

(v) Occupational structure

The analysis should be qualified by the fact that over the years 1951-2001, the Census authorities have frequently changed definitions of variables, making this type of analysis of census data over a longer period of time somewhat hazardous.

5.1 City-Size Distribution

The city-size distribution[69] of the municipal towns in KMA has changed enormously during this period (see Appendix II). Out of the 34 municipal towns of today, only three were recognised as towns as late as in 1961. In 1951, there was only one Class I town in KMA outside the metro core, namely Bhatpara. Among the other 30 towns, as many as 13 belonged to Class III, nine in Class II and seven in Class IV, while Baruipore was the solitary member of the Class V group. There was no Class VI town. Thus, the urban scene of the KMA was dominated by medium-sized towns. Four Class II towns were in the metropolitan shadow and were in effect extensions of the core cities of Kolkata and Howrah: Baranagar, Kamarhati, South Dum Dum and Bally. Other towns in this class were jute towns like Naihati and Titagarh, railway township of Kanchrapara, Hooghly-Chinsura, the district head-quarter of Hooghly and Serampore, a sub-divisional headquarter-cum-industrial town. On the other hand, seven towns of the Class IV category were residential towns. Except Barrackpore and Chandernagore, all other eleven towns in Class III group were jute towns.

In 1961, the number of towns in Class I category increased to five as the four Class II towns of 1951, which were extensions of metro-core, were promoted to this category. But the number of towns in Class II group became ten. Sub-divisional towns like Barrackpore, and Chandernagore and three other towns namely North Barrackpore, Panihati and Halishahar entered this category. There were 15 Class III towns of which eight were jute towns. Six were promoted from the Class just below and the refugee colony of New Barrackpore emerged as a new town in this class. Among the three Class IV towns, Uluberia maintained its position and Baruipore was promoted from Class V.

In 1951, Kanchrapara Rural Area Development Colony, a huge refugee settlement in Nadia, was treated as a town. Later, it was divided into three parts: Gayeshpur, a Class IV town, Government colonies of Kataganj-Gokulpur as a Class V town and Kalyani, an area identified for a planned satellite township as a Class VI town.

In 1971, Hooghly-Chinsurah, Serampore and Panihati was promoted to the status of city (i.e., Class I town). Jute towns like Baidyabati, Bansberia, Champdany, Rishra, Budge Budge and Uttarpara-Kotrang were promoted to Class II group along with North Dum Dum. Uluberia and Baruipore made their entry into Class III town group. Gayeshpur and Kataganj-Gokulpur Government Colony retained their respective positions in Class IV and Class V category, whereas Kalyani made a jump to Class IV category.

According to 1981 Census, there are no municipal towns in KMA belonging to the last three classes. There are 14 Class II towns, followed by 12 in Class I and eight in Class III. Towns promoted to the city category are Naihati, Barrackpore, Titagarh and Chandernagore. They were replaced in

Class II category by Barasat, Garulia, Bhadreswar and Konnagar. Kalyani became a Class III town. Erstwhile government colonies of Gayeshpur, Kataganj and Gokulpur were merged into a single town of Gayeshpur in 1979, and placed in Class III group.

The same trend was continued in the Census results of 1991. There were no towns in the last three classes, i.e. IV, V and VI. The numbers of towns in Class III decreased from eight to four and that of II from 14 to 9. All other twenty two towns became Class I cities.

In 2001 Census, as much as 27 municipalities has become members of the Class I category, i.e. City. There are only seven municipalities in the Class II category. The last four classes, i.e. III, IV, V and VI have no towns belonging to them.

So, it can be said that the municipal towns of KMA has grown in size in the last fifty years. Starting from only one city in 1951, at present there are as much as 27 cities in the region. The increase in population in the region settled mostly in the municipal towns and that is reflected in the inversion of the pyramid-like structure of city size distribution. The preceding narration shows that the city-size distribution has undergone a big change in the period 1951-81. All these towns have grown in size and none has a population less than 20,000. On the other hand, twelve of them are recognised a cities with more than 1 lakh people. While some of the towns have not changed much in terms of population size, some small town have become as big as Class II towns[70]. This change in size-distribution of towns is actually a reflection of population growth during the last four decades[71]. In the next section, we will analyse the dynamics of population growth.

5.2 Population Growth rate

Population growth-rate can be divided into two sub-parts: (i) natural growth rate and (ii) growth due to migration. As migration data are mot available at the town level, our discussion on decadal population growth rate cannot take into account that part.

The municipal towns in KMA are quite dynamic in terms of population growth compared to the city of Kolkata[72]. For the convenience of analysis, we have divided decadal population growth rate into the following categories: (i) very high (above 75%), (ii) high (51-75%), (iii) medium (31-50%) and (iv) low (10-30%) and very low (below 10%) (see Appendix III)

Population growth rate in 1951-61 carried the impact of the partition of the country in 1947 and the consequent in-migration of the refugee population. Towns in the eastern part of the KMA, like Barasat, North Dum Dum and South Dum Dum showed very high growth rates, while some towns in the industrial belt with less concentration attracted the displaced population. But most of the towns in the proper industrial belt showed medium growth rate.

An interesting observation is that jute towns like Bhatpara, Titagarh, Garulia, Naihati etc. belonged to low or very low growth rate group. There may be more than one explanation for this phenomenon. The established jute towns were already congested and, therefore, the refugee population did not find them suitable for settling down. Secondly, in this particular decade, the jute industry faced a severe shortage of raw material due to the loss of the jute-growing areas of Eastern Bengal to Pakistan. In fact, the depression in the jute industry actually repelled migrant labour from other parts of the country from these towns.

During the next decade (1961-71), the mean growth-rate in the KMA, actually came down. As many as 14 towns appeared in the low growth category. However, Kalyani, the new planned township showed very high growth during the decade. Other high and medium growth towns were either bearing the legacy of the refugee influx in the preceding decade or showed a sudden increase in the

growth rate resulting from some purely local factor, e.g. starting of a new factory or re-opening of a closed mill. Some towns like Bally, Baranagar or South Dum Dum showed high growth due to their close proximity to the city of Kolkata. But the overall slowing down of growth rate could be explained by the prevailing economic depression and political turbulence in the state.

The picture somehow changed in the following decade (1971-81). The political turbulence somewhat eased after 1972, but political stability was really achieved in the post-1977 period. The industrial scenario also showed signs of change. Flight of capital from West Bengal, a characteristic of the sixties, slowed and eventually showed a change in direction. Suburban transportation improved with the completion of electrification of railways and introduction of long-distance bus routes. This actually brought the city of Kolkata closer to these towns. Again the hinterland of KMA experienced some of the effects of 'green revolution' in cases of some crops and vegetables. All these encouraged a greater degree of tertiarisation in the economic activities of the towns. Over congestion in the core of the city leading to a break-down of the infra-structural facilities also made suburban municipalities more attractive to the common people for residential purposes. In this decade, towns with low growth-rate, were usually the industrial towns, which failed to recover by 1981. On the other hand, towns with a low level of concentration of industries showed a high or medium level of growth due to this suburbanisation process[73].

For the following two decades, i.e., 1981-91 and 1991-2001, the trend continued in general. The mean growth rate came down even more as most of the municipalities now belong to low growth rate category and the number of towns in the very low growth category also increased compared to the previous decades. Of course, there are a number of towns in the high and very high growth rate category and that is due to some specific reasons. The district of 24 Parganas was bifurcated and Barasat was declared the head-quarter of 24 Parganas (North). So, Barasat started growing at a fast rate since the eighties, which increased even more in the following decade. Some other towns in the Dum Dum area (and also in the southern tip, i.e. Garia-Sonarpur belt) gained from the commissioning of the Metro Railways in the nineties. This fast-moving rapid transit system led to an organised real estate boom, thus enhancing the growth rate of population. On the other hand, the traditional jute-towns continued to decline and the typical jute-based town of Garulia showed negative growth rate in 1991-2001. The traditional industrial base of the towns was lost, tertiarisation has taken over leading to suburbanisation and real estate boom rather than the shift towards some more modern industrial base. There is an argument that all these towns are now dormitory towns, from where people commute to Kolkata for their livelihood. But that is not the complete picture. The smaller towns are also now offering different means of livelihood in small manufacturing units, different types of service activities (like courier and delivery services, food preparation and supply etc.). A more detailed analysis of the occupation and livelihood pattern of the constituents of KMA, would give us a more comprehensive explanation of the demographic growth dynamics.

5.3 Density of Population

Like decadal population growth rate, there is also much intra-urban variation in population density. Though the picture has changed considerably in 1951-2001 period, still the gross population density, i.e. ,persons per square kilometre, varies from 20,00 in some towns to as low as 5,000 in some other towns in KMA. At the outset, it should be made clear that gross population density is not a very stable indicator. The variable in the denominator, i.e.., area of a town or urban area changes due to various reasons like administrative decisions etc.. Sometimes, boundaries of contiguous municipalities are shifted, resulting in increase in the area of one town and decrease in another. Inclusion of rural

areas also changes the area of the towns[74]. Further, lack of data prevents standardisation of the measure of density and meaningful comparison over time. A town may have an over-congested central area resulting in a high density figure for the town as a whole though low-density settlements are scattered all over the area. But another town with same density may have a more uniform distribution of settlements over the area. In spite of these drawbacks, density is being used here as a major indicator of urban development. Again for analytical convenience, density of population has been divided into five groups: very high (above 20,000 persons per sq.km.), high (10,000-20,000 persons per sq.km.), average (7,500-10,000 persons per sq.km.), low (5000-7,500 persons per sq.km.) and very low (below 5,000 persons per sq.km.). Appendix IV gives a tabular representation.

1951: There were as many as 19 towns with very low density. This category included traditional jute towns like Champdany and Rishra, administrative centres like Barrackpore and Hooghly-Chinsurah and also residential towns like North Dum Dum, Rajpur and Baidyabati. On the other hand, some jute towns had higher density of more that 7,500. Titagarh and Serampore were even more densely crowded with more than 20,000 persons per sq. km..

1961: though there was not much change in the number or ranking of high density towns, the overall rise in density was reflected in the fall in the number of very low density towns from 19 to 9 and rise in the number of low-density towns from 6 to 14, even with the inclusion of new towns.

1971: There was no change in the number of towns in the two extremities of the scale, i.e., in the categories of very high and very low density towns. But there was a rise in the number of towns in two upper groups of high and medium density towns and a consequent fall in the number of low-density towns.

1981: The trend observed in the previous three Censuses was reinforced. There is a sudden rise in the number of very high density towns, from one each in 1951, 1961 and 1971 to six in 1981. The number of high density towns also increased from seven in 1971 to 12 in 1981. But the decrease is significant in the number of towns of moderate density: six in 1981 compared to 12 in 1971. The number of low and very low density towns also fell to 2 and 8 respectively. Though there are changes in density of towns, the ranking of towns according to density remains unchanged.

1991: The similar trend was found in this Census also. Most of the towns are in the high density category numbering to 16. For the high density group, the number increased by one and for the next category (i.e. average density), the number decreased by one. As far as number of towns concerned, it remained the same for the low density group (2), but the number decreased significantly for the very low density category. As we have already seen that population growth has been a continuous process in the municipalities, and as there no notable change in the area of the towns, the density of the towns showed an upward trend. There was no noticeable change in the ranking of the towns according to density.

2001: The trend is similar to the previous decade. There are six towns in the very high category followed by 17 in the high category. The next three categories contain 5, 2 and 4 towns respectively. The only noticeable change in this decade is that some towns were demoted. This is not because of fall in the size of population, but because of change in the area of the towns. For some municipalities, the area was increased because of spatial reorganisation and contiguous rural areas were included in the erstwhile municipality.

4.4. Gender Ratio

Gender ratio or the number of females per thousand males is an important indicator of the

settlement pattern of an area. For example, low gender ratio signifies an industrial area with abundance of male migrant labourers, whereas a high gender ratio indicates a higher degree of residential (family) settlements in the area. We have divided gender ratio into the following sub-groups: high (above 900), moderate (751-900), low (501-750) and very low (below 500).

1951: Only four towns in the industrial region, namely, Halishahar, Garulia, Bhadreswar and Budge Budge had very low gender ratio, i.e., below 500. Eighteen towns, mostly on the banks of river Hooghly had low gender ratio (between 501 and 750). Most of the traditional residential areas like Chandernagore, Rajpur, Barasat, Uttarpara-Kotrung had medium gender ratio, more than 750.

1961: Gender ratio on the whole increased in KMD. The number of towns with moderate gender ratio increased in KMD. The number of towns with moderate gender ratio increased from 7 in 1951 to 16 in 1961. The number of low gender ratio towns decreased slightly (from 18 to 17). Surprisingly, the gender ratio of Titagarh came down below 500 and it was the only town belonging to that category.

1971: There was no town with very low gender ratio. All the nine in low gender ratio group were industrial towns. All other towns in KMA including the three new towns of Kalyani, Gayeshpur and New Barrackpore had gender ratio exceeding 750.

1981: In the previous three censuses, there were no town in KMA, with gender ratio higher than 900. But in 1981, there were as many as 11 towns in this category. On the other hand, some traditional industrial towns like Titagarh, Budge Budge, Champdany etc, were still in the low gender ratio category, whereas gender ratio of all other 17 towns in the KMA lie between 750 and 900, that is in the moderate category. Two observed trends may explain this upward movement of gender ratio for the period of thirty years. One is the suburbanisation process; Bengali middle class moving out of Kolkata city and settling in smaller municipal towns. Secondly, in all the traditional industrial towns, there is now an abundance of second generation migrants, who unlike their predecessors, settle down in their places of work with their families[75].

1991: The suburbanisation process strengthened even more. This is evident from the fact that most of the towns (20) in this Census year belonged to the moderate gender ratio category. Only four belonged to the low category. Ten towns are now in the high (above nine hundred) category. Some of these were traditionally residential towns like Kalyani, Gayeshpur and Barasat. But some other towns are situated at the both ends of the underground metro railway system. Rapid connectivity with the core city has made these towns lucrative for the middle class to settle down with relative lower land price and less congestion.

2001: At present, only one town (Bally) belong to the very low gender ratio group. As in 1991, most of the towns (17) are in the moderate gender ratio category, closely followed by 16 in the high category. The explanation remains the same, along with the fact that now the suburbanisation process is assisted by organised real estate boom in these municipal towns. Many of the closed down factories were now turned into housing estates by property developers.

5.4. Occupational Structure

Comparison of occupational structure over a long time period is quite hazardous due to incomparability of Census data. In 1951, the Census reported livelihood classes, i.e., persons earning livelihood from certain activity and their dependents. But this classification was replaced by the reporting

of occupation of workers in the population along with a separate classification of non-workers in 1961 and 1971. This too was discontinued in 1981 Census, where workers were not only divided in the categories of 'main' and 'marginal' workers but only three of the occupational classes out of nine were reported separately upto the town level. The 1971 was pattern was repeated in 1991, again to be discontinued and return to the 1981 format in 2001. This has made intertemporal comparison of occupational structure of the municipal towns quite difficult. In our analysis, the working population is divided into the three main sectors for 1951, 1961 and 1971 and 1991 and compared with some references to 1981 Census, subject to data availability. Eventually for 2001, Census authorities released the data according to NIC classification up to city level only. As all the municipal towns (baring seven, namely Kalyani, Gayeshpur, Konnagar, Garulia, New Barrackpore, Baruipur and Budge Budge) are now Class I cities, in terms of population, we have calculated comparable figures for these 27 municipalities.

5.4.1 Primary Sector

In all the towns presently under consideration, the percentage of workers in the primary sector is very small, almost never exceeding three percent of the total workers in 1951-2001 (Table 1) But in some towns, especially towns outside the riverside industrial belt, the percentage is quite high. Examples of towns with a high percentage of worker in the primary sector are Barasat, Uluberia, Rajpur, Baruipore and Baidyabati. During 1951-61 period, the general trend in the KMA municipalities, was decrease in the percentage of population engaged in primary sector, except in few towns like Champdany and Bhadreswar. (Table 2). This trend was reversed in the next decade, when 25 towns showed an increase in the share of the primary sector population. One explanation for this will be in terms of disparity of Census definition, the effect of which cannot be eliminated even after standardisation. Another explanation is that, it is a reflection of the dismal economic condition in the mid-sixties, when the countryside was suffering from frequent draughts, while the industrial sector, passing through a depression, was unable to absorb the stream of migrants. Analysis of data shows that there was an absolute increase in the number of both cultivators and agricultural labourers during this period, though the percentage increase was larger for the latter (Table 3). In cases of Kalyani and Gayeshpur (erstwhile Gayeshpur Government Colony and Kataganj & Gokulpur Government Colony), there was substantial increases in primary sector workers (36.20% and 46.13% respectively), in 1961-71 period. Here the main reason was the establishment of Kalyani University, specially its agriculture faculty and the State Livestock Farm, the workers of which were classified in the primary sector according to the three-digit National Classification of Occupations.

As we do not have comparable data for 1981, it is difficult to explain the changes in the primary sector for a period spanning two decades. This is more so, because in this period, the agricultural sector of the state of West Bengal, on the whole underwent a transformation. With the Left Front government assuming power in 1977 and its emphasis on agricultural development with land reform as the main weapon for egalitarian society, the sector recorded an unprecedented growth especially in rice cultivation. This was reflected in urban sector as more prosperous farmers settling down in urban areas to enjoy more material comforts. So, the changes in the positive direction in both percentage and absolute terms can be induced by rural prosperity in Bengal countryside and impoverishment as thought before. If we look at the data for 2001, this trend is more strengthened, as for as 15 municipal towns there is a percentage increase in the primary sector, however small that may be. It is also to be noted

from Table 3, the increase in the number of cultivators is uniform for 21 municipalities, whereas it is for 16 municipalities for agricultural labourers.

5.4.2 Secondary Sector

In all municipalities, a high percentage of workers is engaged in secondary sector activities (Table 4). In towns like Titagarh, Champdany, Bhatpara and Bhadreswar, this percentage is as high as 80, and in no town, it is below 20%.

As for the general trend, during 1951-61, all the towns had seen an increase in the percentage of secondary sector workers, except in three contiguous towns of Titagarh, Barrackpore and North Barrackpore (Table 5). But in 1961-71 period, the trend was reversed, i.e., except the three towns named above all other towns saw a percentage decrease in the number of workers in the secondary sector. Gayeshpur, a new town, showed a 20% increase in the percentage of population engaged in the secondary sector, probably due to the establishment of an industrial estate. This dismal performance of the secondary sector in terms of employment, was not unexpected considering the general depression and stagnation in the industrial sector all over the country and especially in West Bengal, due to the near-about stagnation in the jute industry. Non-availability of comparable data for 1981 Census prevents us from seeing whether there was any change in such trend during 1971-81.

For the period 1971-2001, it was a case of continuous decrease in the percentage of workforce engaged in secondary sector for almost all the traditional manufacturing towns, on both banks of the river. Only nine municipalities showed increase during the twenty year period between 1971 and 1991. They are Uluberia, Kalyani, Gayeshpur, Kanchrapara, Barasat, New Barrackpore, Rajpur, Baruipore and Budge Budge. (Table 5). Of these, the increase was nominal in Kalyani, Barasat and Baruipore. It was more than 5% in Gayeshpur and New Barrackpore. None of these five municipalities were traditionally manufacturing towns. So, an initiation in manufacturing activities – household or non-household – attracted workers to this sector. Four municipalities recorded a more than 10% increase. They are Uluberia, Kanchrapara, Rajpur and Budge Budge. Of these, both Kanchrapara and Budge Budge have a major share of the public sector units in terms of railways and oil installations. The increase in the percentage share of secondary sector may have something related to public sector policy of the central government. On the other hand, Rajpur and Uluberia were municipalised in the early eighties – so the increase may be attributed to the added peripheral area – which may had manufacturing units, or this increase was due to starting of small manufacturing units. As we have occupation data for 2001 up to city level only, we are unable to find out whether this increasing trend continued in Kalyani, Gayeshpur, New Barrackpore and Budge Budge in 2001 also. But for the other four municipalities, the percentage of workers engaged in secondary sector deceased in the 1991-2001 decade, just like other 25 municipalities in the region. Uluberia is the only municipality in the KMA area, which showed an increase in this sector during 1991-2001.

The trend described above confirms our earlier finding that the KMA municipalities are no more mill towns. The manufacturing sector is giving way to the tertiary sector in these towns.

5.4.3 Tertiary Sector

In their work on functional classification of Indian cities and towns, Mitra *et.al.*, have classified all but seven of the towns of KMA as manufacturing towns[76]. But the tertiary and the service sector activities are important in almost all the towns. Even in 1951, all the towns had a sizeable percentage

of population engaged in tertiary activities, and nowhere less than 30% (Table 6). During 1951-61, there was a decline in the tertiary sector population. (Table 7); some towns even registered 40% decrease in this period. There may be two reasons behind it. One was the discrepancy between livelihood classes reported in 1951 Census and the occupational classes reported in 1961 Census. Secondly, there was no expansion in the tertiary sector that could be matched with the spurt in industrial activities in the immediate post-independence period, especially in the Second Five Year Plan period. We have already noted that there was an increase in the percentage of secondary sector workers in this decade. Interestingly, among those four towns which showed an increase in the percentage of tertiary sector workers, two had a corresponding decrease in the percentage of secondary sector workers. This trend got reversed in the following decade when 21 towns showed an increase in the percentage. Among 12 towns showing a decrease, for six, it was a continuation of past trend, for three, it was a reversal of the trend while the other three were new towns. In Gayeshpur, the establishment of an industrial estate changed its functional classification to manufacturing town from service town, according to the classification by Mitra *et.al.*[77]. We cannot proceed with our analysis for the next decade for the lack of comparable data.

As we have already stated that the Census authorities reverted back to 1971 format of reporting the nine-fold classification and following the classification by Mitra *et. al.* again, we find that now of the 34 municipalities, as much as 26 municipalities were categorised as manufacturing towns. Of the remaining eight, seven were trading towns and only Gayeshpur was categorised as service town. North Dum Dum and South Dum Dum, two erstwhile manufacturing towns, changed their functional classification to trading town. However, within ten years, tertiary sector has taken over the major share of workforce in the KMA. The available data for 27 municipal towns show that the share of tertiary sector has increased for all of them; the range of increment varies from 2 to 22%. Now, some of the administrative towns like Hugli-Chinsurah, Sermapore, Barrackpore and Barasat have about or more than 70% of their workforce engaged in tertiary sector. Even for typical jute mill towns like Champdani, Titagarh and Bhatpara, the percentage of workforce in tertiary sector is more than 30 (Table 7).

So, we can definitely conclude that as far as occupational structure is concerned there is a transformation. This will have its consequence on the working of the city system, its internal structure and transportation requirements.

We have tried to depict the changes in the functional dominance during 1951-2001 in the KMA municipalities in the charts given below. We have divided the municipalities in five different functional categories and selected two from each group, taking five towns from east bank and five from west bank of the River Hugli:

1. Administrative: Hugli-Chinsurah (Chart 1) and Barasat (Chart 2)
2. Administrative-cum- Industrial: Srirampur (Chart 3) and Barrackpore (Chart 4)
3. Industrial: Champdani (Chart 5) and Titagarh (Chart 6)
4. Service and trade: Uttarpara- Kotrung (Chart 7) and Baranagar (Chart 8)
5. Agricultural transforming to service and trade: Uluberia (Chart 9) and Rajpur-Sonarpur (Chart 10)
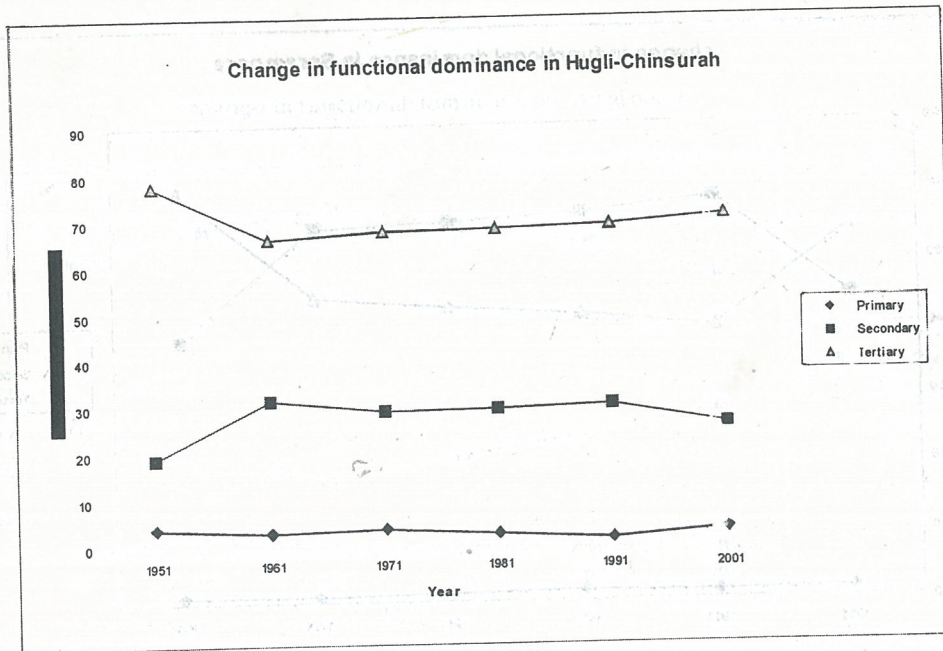
Chart 1

This chart clearly depicts that though Hugli- Chinsurah, being the district head-quarter of Hugli had a dominance of the tertiary sector even in 1951. But there was a sizeable secondary sector, which fact increased after 1951 and remained almost stable till 1991. But it started to show noticeable decline since 1991.
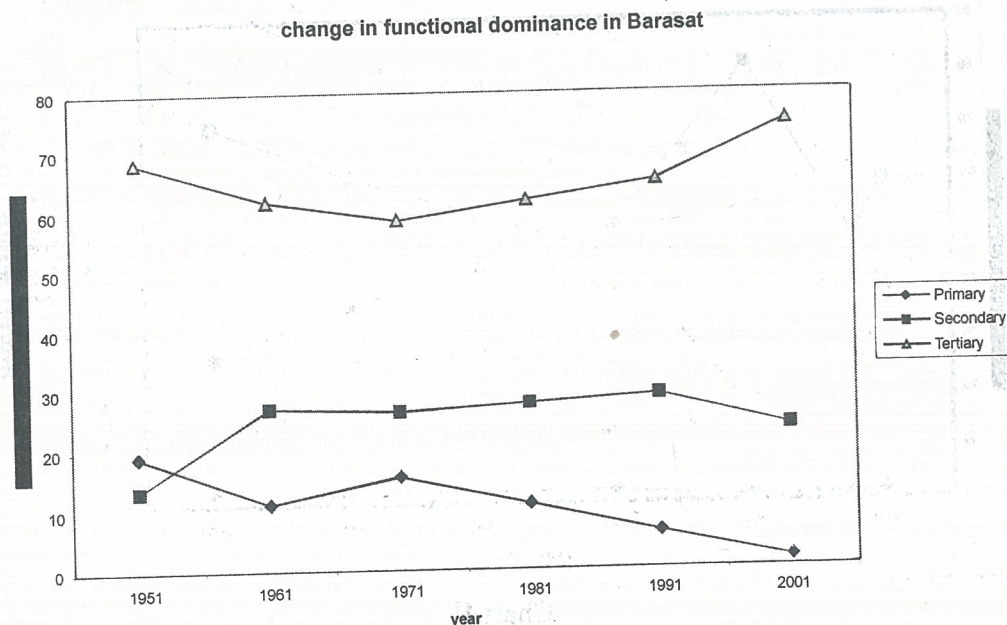
Chart 2

Barasat was a sub-divisional headquarter, but became the head-quarter of the newly-created district of 24 Parganas(North) in late eighties. This gave a boost to the tertiary activities related to administration, which can be clearly seen from Chart 2. It went on increasing in the next two decades, whereas the primary and secondary activities show decline, especially after 1991.

change in functional dominance in Serampore

Chart 3

change in functional dominance in Barrackpore
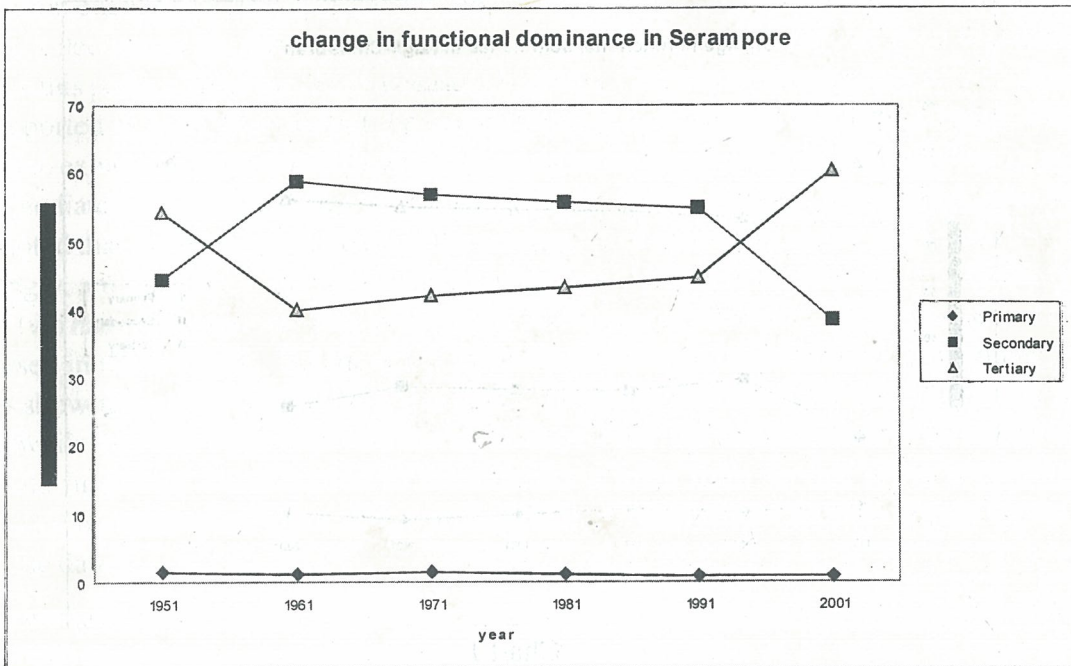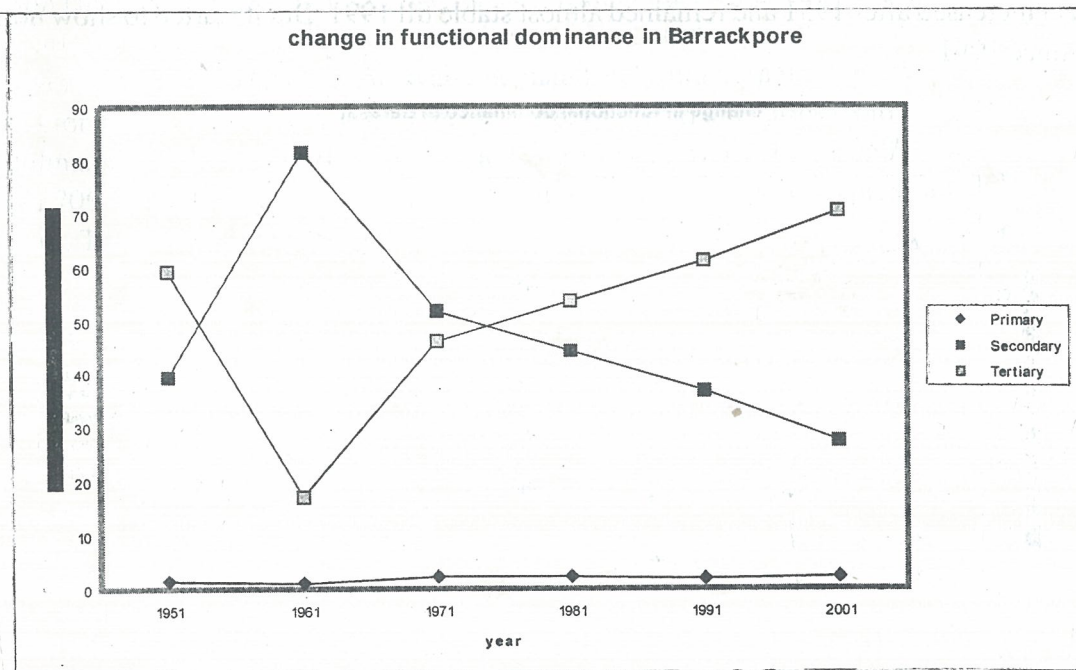
Chart 4

Serampore and Barrackpore, both are sub-divisional head-quarters from the colonial period. But both of them had a sizeable proportion of their population engaged in secondary sector, which was even greater than the tertiary sector. But the tertiary sector started to increase in the eighties and presently, this is the dominant sector as far as the occupational scenario is concerned in both the municipalities.

change in functional dominance in Champdani

Chart 5

change in functional dominance in Titagarh
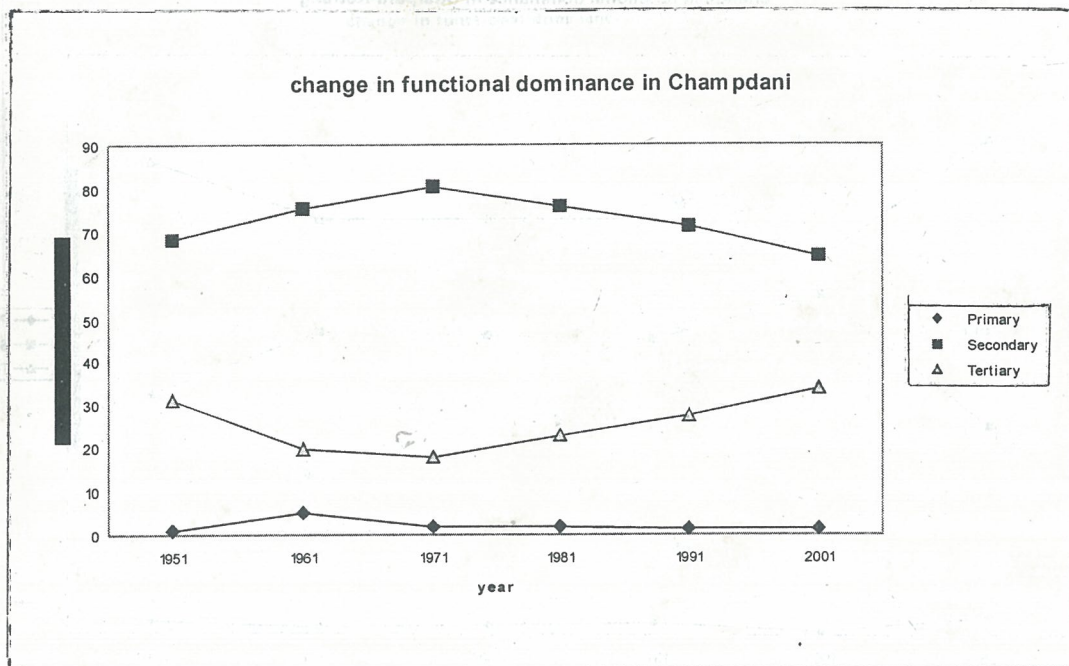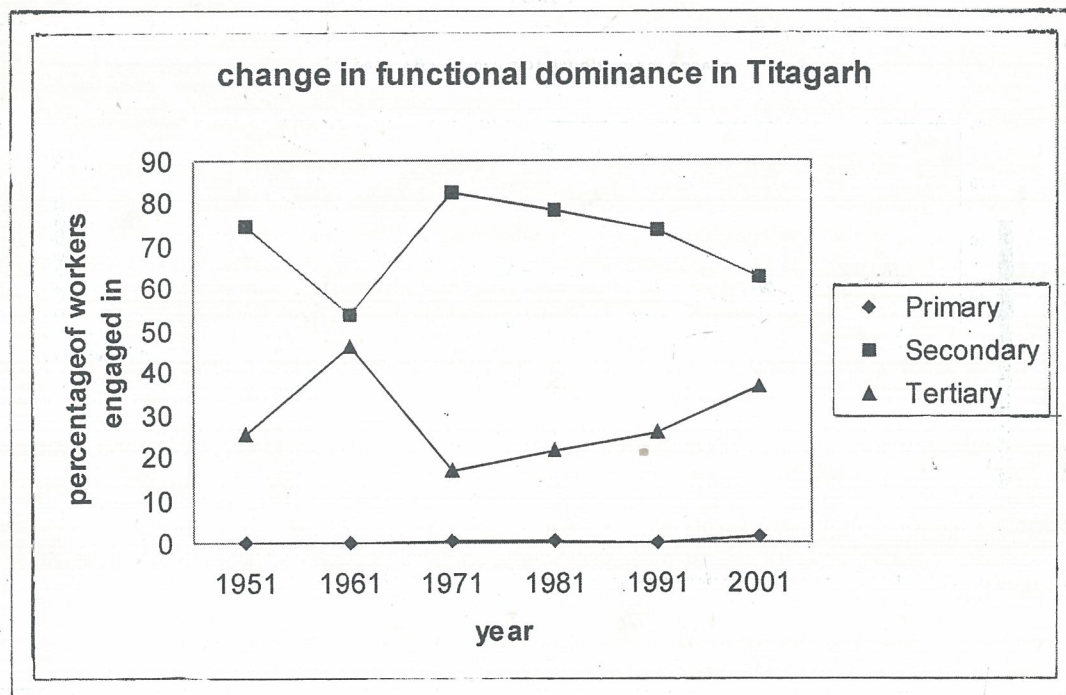
Chart 6

Charts 5 and 6 show the occupational dominance in two typical industrial (jute) towns, namely Champdani and Titagarh.. Due to the decline in jute and engineering industries, the downturn in the secondary sector was clearly visible since 1971. Though the secondary sector is still the most dominant sector in both the towns, the rate of growth of the tertiary sector is quite high, which can be seen in the Charts.

21

change in functional dominance in Uttarpara-Kotrang

Chart 7

change in functional dominance in Baranagar
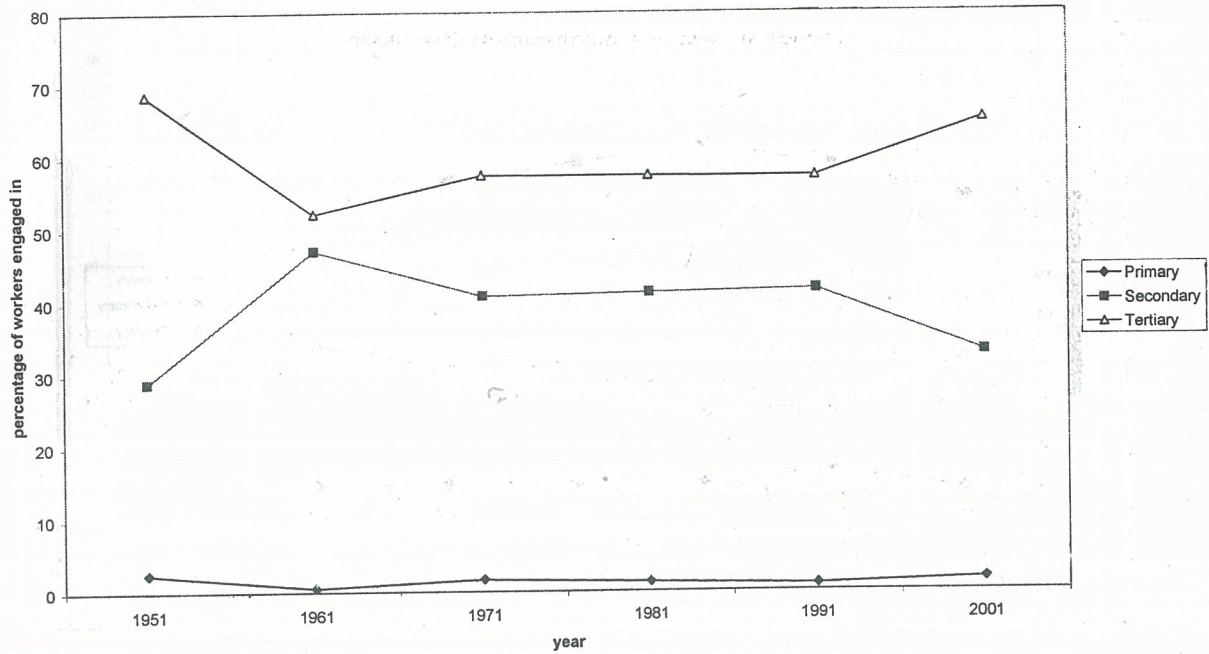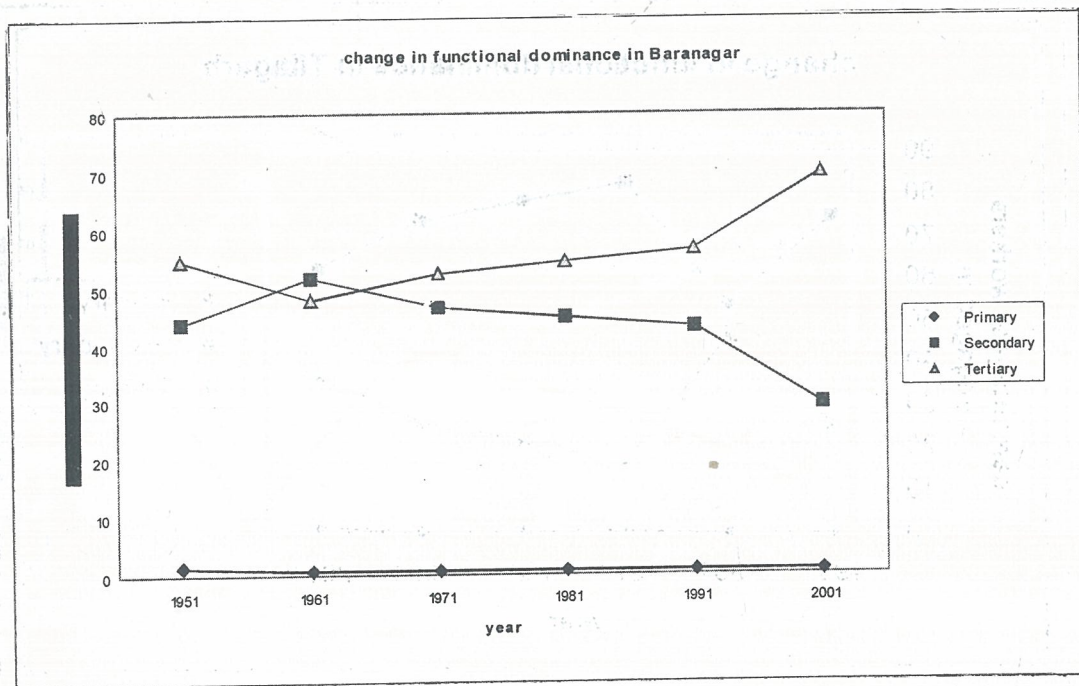
Chart 8

Charts 7 and Chart 8 show the occupational scenario in two municipalities, lying in the metropolitan shadow, nearest to the twin cities of Kolkata and Haora. Traditionally, they are known to be the abodes of Bengali educated middle class. But both of them had a number of medium and small industrial establishments. But from 1991, there is visible decline in the population engaged in the secondary sector. Closure of industries and construction of residential estates are changing the structure of the municipalities.

change in functional dominance in Uluberia

Chart 9

Change in functional dominance in Rajpur-Sonarpur
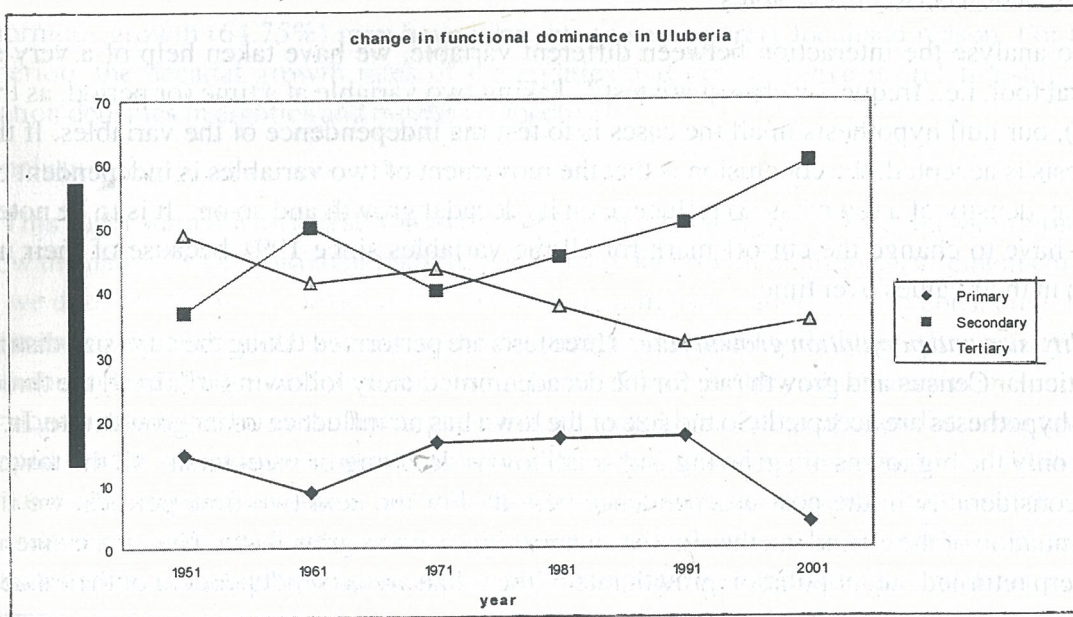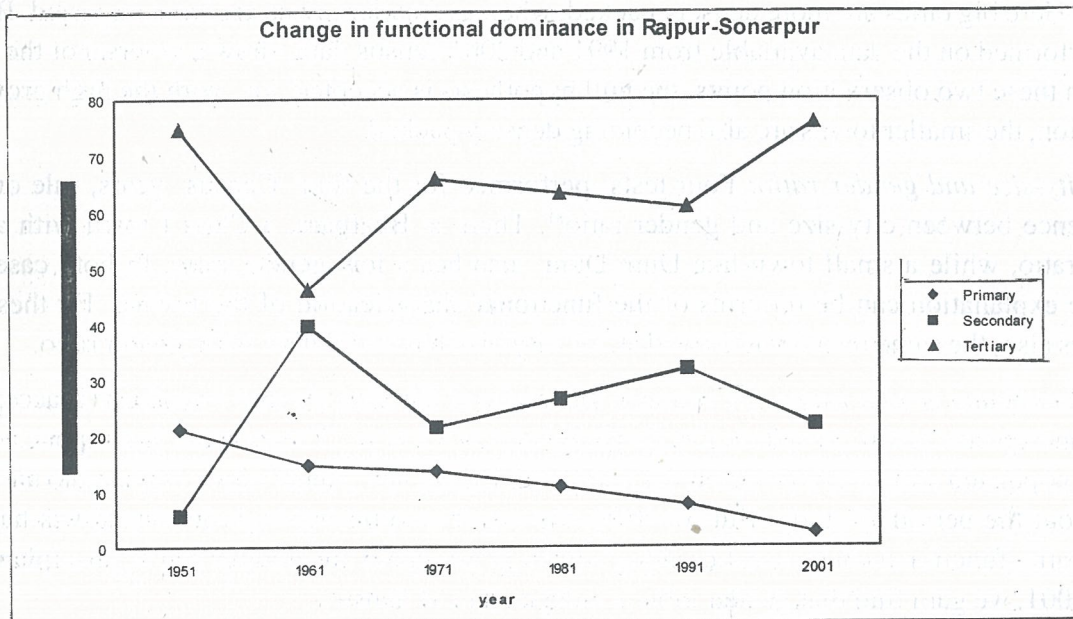
Chart 10

The last two charts show the situation in two municipalities situated almost at the border of the KMA. Uluberia was declared a municipality in late seventies. Rajpur is an old municipality but it was merged with Soanrpur in late eighties and its size and population increased considerably. Both of them have a sizeable section of their population in the primary sector till now, though there are signs of decline. After 1971, these are the only tow towns in KMA, which showed a noticeable increase in the secondary sector employment. This is still on increase in Uluberia, but started to decline in Rajpur-Sonarpur since 1991. But the common feature is the increase in the percentage of population engaged in tertiary sector.

5.4.4 Interaction between Variables

To analyse the interaction between different variable, we have taken help of a very simple statistical tool, i.e., frequency chi-square test[78]. Taking two variable at a time (or period, as the case may be), our null hypothesis in all the cases is to test the independence of the variables. If the null hypothesis is accepted, the conclusion is that the movement of two variables is independent of each other, e.g. density of a town has no influence on its decadal growth and so on. It is to be noted here that we have to change the cut-off mark for all the variables since 1991 because of their upward revision in their values over time.

City-size and population growth rate: Three tests are performed taking the city-size distribution of a particular Census and growth rate for the decade immediately following it[79]. In all the three tests, the null hypotheses are accepted. So the size of the town has no influence on its growth rate. In KMA, it is not only the big towns are growing and small towns decaying or vice-versa. All the towns have grown considerably in the post-independence period. For the next two time periods, we find the discontinuation of the e trend inn the eighties, where bigger towns grew faster. But, in the nineties, the old pattern returned, i.e. population growth rate of the urban areas is independent of their size.

City-size and density of population: For the four tests performed for the four Census years, the null hypothesis is rejected[80]. So we can say that there is positive relationship between city-size and density. Here big cities are more densely packed, whereas smaller towns are less congested. But the tests performed on the data available from 1991 and 2001 census data, show a reversal of the trend. For both these two observation points, the null hypothesis is accepted, i.e., with the high growth of population, the smaller towns are also becoming densely packed.

City-size and gender ratio: Four tests performed for the four Census years, rule out any dependence between city-size and gender ratio[81]. There is Bhatpara, a Class I town with a low gender ratio, while a small town like Dum Dum also has a low gender ratio. In both cases, the possible explanation can be in terms of the functional classification of the towns. Fir these two variables also, the same result was arrived at, i.e. city-size has no relation with gender ratio.

Density and gender ratio: According to the results of the tests, the null hypothesis is accepted[82]. This is an expected result considering the typology of KMA towns. Titagarh and Serampore are both densely populated industrial towns, but the former has a quite low gender ratio compared to the other, throughout the period of study. But for 1991, the result is opposite, high density towns had low gender ratio; functional characteristics along with high growth in the eighties can be an explanation. But in 2001, we gain find that gender ratio is independent of density.

Density and decadal population growth rate: For these two variables, the results are somewhat different. Among the three tests, the first and the third case, i.e. , density of 1951 and growth rate of 1951-61, and with density of 1971 and growth rate for 1971-81, the null hypothesis is accepted. But for the decade in between, it is rejected[83]. For the fifties and seventies, growth took place in the towns irrespective of existing density, whereas in sixties, some high density towns showed higher growth rate compared to the others. Six towns, Bally, Bhatpara, Naihati, Rishra, Kamarhati and South Dum Dum showed this trend. Among them, Kamarhati, Bally and South Dum Dum can be identified as cases of growth due to metropolitan influence, given their proximity to the metrocore. Towns like Bhatpara and Naihati may have grown due to the spurt of investment in the Kalyani area. For Rishra,

the enormous growth (64.75%) may have been due to some purely localised reason. For the latter time-period, the decadal growth rates of the eighties and nineties have no relationship with the population densities in eighties and nineties respectively.

6. Conclusion

This paper started with a description of the geographical features of Kolkata Metropolitan Area and how the natural morphological features had helped the growth of human settlements in the area. Then, we described how the development of a modern transportation system consisting the river, railways and road network in the region in the colonial period linked with the growth and development of Kolkata port ushered industrial age in the region. A brief history of urbanisation from the 12th century onwards showed how the linear pattern of urban agglomeration of manufacturing towns were developed. Then, we analysed some common demographic and socio-economic variables for the post-independence period to show that though industry is still the dominant force but the jute mill towns have nearly changed their economic character. They have become commuter towns for the city of Kolkata. There is widespread intra-town variation in population growth rate and density and other demographic characteristics. In this respect, there is an observable distinction between the towns near the city and those away from it.

Notes:

1. The original version of this discussion paper was named "Evolution and Growth of Municipal Towns in Calcutta Metropolitan Area". As the name Calcutta was officially changed to Kolkata in 2001, we have used that in the updated version.

2. At the time of updating, the number of municipalities has increased to 39, but to maintain parity with the original edition, we have stuck to 34 municipalities.

3. Kolkata Metropolitan Planning Organisation, *Basic Development Plan 1966-86*, pp.4-5. KMDA, *Towards A Perspective Plan... The Physical Plan*, 1986.

4. Census of India, 1971, Series 22, Part 2A (Supplement)

5. Banerjee and Roy (1967), pp.28-41,

6. Ibid.

7. Ibid.

8. Banerjee and Roy (1967), pp.28-41.

9. Adi Ganga is the older flow of the river Ganga which connected the main stream with the Sundarban area. Due to subsequent changes in the course of the river, this stream dried up. Major Tolly excavated this channel in late 18th century. Since then, it is also Tolly's Nullah.

10. Banerjee and Roy (1967).

11. Ibid.

12. Ibid.

13. Ibid.

14. Ibid.

15. *District Census Handbook, 24 Parganas*, 1951

16. Banerjee (1975)

17. Chaudhuri (1971), p.159.

18. Ibid.

19. *District Census Handbook, 24 Parganas,* 1951

20. Banerjee (1975), pp.24-69.

21. Ibid.

22. Munsi (1980), p.85.

23. Old Guarantee System (1853-69) is a system followed by the East India Company for the construction of railways, sanctioned by the Court of Directors as per recommendations of Lord Dalhousie. Land was provided to private companies free of cost by the State; the Indian Government guaranteed interest at 4 1/2-5 per cent at a fixed rate of exchange of 22d. to the rupee on the money raised by the companies; the companies could surrender the railroads at six months notice and get back the actual capital spent; the government could purchase the railroads at the interval of 25 years at the mean market value in London; certain powers of construction and supervision of working were given to the government.

24. Munsi (1980).

25. Ibid.

26. Ibid.

27. Ibid.

28. Ibid.

29: *District Census Handbook, Hooghly,* 1951, pp.6-11, 31.

30. Ibid.
31. *District Census Handbook, 24 Parganas*, 1951, p.32.
32. *District Census Handbook, Hooghly,* 1951, p.32.
33. Ibid, pp. 31-35.
34. Ibid, pp.8-11.
35. Ibid.
36. Ibid.
37. Ibid.
38. See later for cases of Chinsurah and Serampore.
39. Ibid.
40. Ibid.
41. Ibid.
42. The place is still called Dinemardanga (place of Dinemars or Danes). See *District Census Handbook, Hooghly,* p.10.
43. Ibid, p.11.
44. Ibid, pp.8-11.
45. Ibid.
46. *District Census Handbook, Howrah, 1951,* pp.liii-liv.
47. *District Census Handbook, 24 Parganas, 1951.*
48. Government of West Bengal, Department of Local Government and Urban Development (1981), pp. 71-84. Another point to be noted here is that the British also established some Arms and Ordnance Factories in places like Ichapore, Cossipore and Dum Dum. As they are protected defence areas, and not in the municipal areas under our present consideration, we are not taking them into account.
49. *District Census Handbook, 24 Parganas, 1951,* pp. xcvi-xcvii.
50. *District Census Handbook, Hooghly, 1951,* p.9.
51. Ibid, p.10.
52. Presently, it is spelt as Chandannagar.
53. Ibid, p.10.
54. Biplab Dasgupta, 'The Evolution of Settlements and of Urban Classes'; paper presented at 'Conference on Urban Planning and Development', Centre for Urban Economic Studies, Calcutta University, 1986; see also Biplab Dasgupta (1988),
55. *District Census Handbook, 24 Parganas, 1951,* pp.
56. See section II of this paper.
57. *District Census Handbook, Hooghly, 1951,* pp.24-26.
58. Banerjee (1975), pp.70-82.
59. *District Census handbook, 24 Parganas, 1951,* pp. cv-cvi.
60. Ibid.
61. Department of Local Government and Urban Development, Government of West Bengal, (1981), *A Handbook of Municipal Administration,* p.22.
62. North Dum Dum experiences population growth rate of 216 per cent during 1951-61.
63. There are as many as 69 refugee colonies in Panihati, perhaps the highest in West Bengal.
64. *District Census Handbook, 24 Parganas, 1961,* pp cv–cvi

65. *District Census Handbook, Nadia*, 1951and also that of *1961*.

66. *District Census Handbook, Nadia, 1951*.

67. Ibid.

68. Nandita Dasgupta (1985).

69. According to the Census of India, towns are divided into size categories according to their population. The standard classification is as follows:

    Class I: Population of 100,000 and above.

    Class II: Population between 50,000 and 99,999.

    Class III: Population between 20,000 and 49,999.

    Class IV: Population between 10,000 and 19,999.

    Class V: Population between 5,000 and 9,999.

    Class VI: Population less that 5,000.

70. North Dum Dum is an example. It was a Class IV town and now it is a Class II town on the verge of becoming a city in the next Census.

71. See Appendix II.

72. Mukherjee (1985)

73. See Appendix III of this paper.

74. In 1981, the areas of 17 towns are changed. In most of the cases, the Census Authority has stated the reason for change as computational error. There is no way to know whether this error was for the last Census only or for previous Census also.

75. See Appendix V.

76. Mitra et.al. (1981)

77. Ibid.

78. Goon et.al. (1971) for statistical tests.

79. We have followed the following classification: big towns are towns from Classes I, II and III and the towns from rest of the classes are small towns. For population growth rate, high growth rate denotes above 30% and low growth rate below it.

80. For density of population, we have taken 5,000 persons per sq. km. as the cut-off point between high and low.

81. For gender ratio, the cut-off point between high and low is 500 for 1951 and 1961 and 750 for 1971 and 1981.

82. From 1971, there was no town in KMA with gender ratio less than 500 and hence the cut-off point is changed.

83. If we change the cut-off point for density to 7500 persons per sq.km., then the results are slightly modified but conclusions remain unchanged.

REFERNCES:

1. Banerjee, B. and D.Roy, *Industrial Profile of the Calcutta Metropolitan District,* Calcutta, 1967.

2. Banerjee, P., *Calcutta and Its Hinterland – A Study in Economic History of India, 1833-1900,* Progressive Publishers, Calcutta, 1975.

3. Bhatpara Municipality, *Bhatpara Pourasabha: Agragatir Pathe,* (Bengali), Kankinara, 24 Parganas (N), (n.d.).

4. Calcutta Metropolitan Development Authority (CMDA), *Towards a perspective Plan for the Calcutta Metropolis – An Approach Paper,* (Task Force on Perspective Plan, CMDA), 1986.

5. Calcutta Metropolitan Development Authority (CMDA), *Towards a perspective Plan for the Calcutta Metropolis – An Approach Paper, The Physical Plan* (Task Force on Perspective Plan, CMDA), 1986.

6. CMDA, *Seminar on Economy and Employment in CMD for 2001 (*Collected Papers), Calcutta, 1984.

7. Calcutta Metropolitan Planning Organisation (CMPO), *Basic Development Plan, 1966-86 (BDP),* Calcutta, 1966.

8. Census of India, *District Census Handbooks* of Howrah, Hooghly, 24 Parganas and Nadia for 1951, 1961 and 1971.

9. Census of India, 1981, Series 23 (West Bengal): *District Census Handbook, Calcutta, Part XIII A and B (Town Directory and Primary Census Abstract),* 1986.

10. Chaudhuri, M.R. *The Industrial Landscape of West Bengal: An Economic Geographic Appraisal,* Calcutta, Oxford IB Publishing Company, 1971.

11. Dasgupta Biplab (ed.), *Urbanisation, Migration and Rural Change: A Study of West Bengal ,* Calcutta; A Mukherjee and Co., 1988.

12. Dasgupta, Nandita, *A Critique of Perspective Planning of Kalyani Township',* paper presented at Conference on Urban Planning and Development, Centre for Urban Economic Studies, Calcutta University, 1986.

13. Department of Local Government and Urban Development, Government of West Bengal, *A Handbook of Municipal Administration in West Bengal,* Calcutta,1981.

14. Goon, A.M., M.N. Gupta and B. Dasgupta, *Fundamentals of Statistics,* Volume I, The World Press, Calcutta, 1971.

15. Mitra, A., S.B.L. Sherry & B. Dutt, *Shifts in the Functions of Cities and Towns in India, 1961-71* (An ICSSR-JNU study), New Delhi, 1981.

16. Mukherjee, S.B., 'Calcutta 2001: Some Demographic Considerations', paper presented at 'Conference on Calcutta – Yesterday, Today and Tomorrow', Centre for Urban Economic Studies, Calcutta University, 1985.

17. Munsi, Sunil Kumar, *Geography of Transportation in Eastern India under the British Raj* (Centre for Studies in Social Sciences Monograph No.1), Calcutta, 1980.

18. Samiksha Parishad, *Baranagar: Itihas O' Samiksha* (Bengali), Calcutta, (n.d.).

Table 1
Percentage of Workforce Engaged in Primary Sector of Municipalities of
Kolkata Metropolitan Area

Municipality	1951	1961	1971	1991	2001
Bansberia	1.68	2.41	5.99	2.64	3.61
Hugli-Chinsurah	3.78	2.58	3.52	1.33	3.18
Chandannagar	0.72	1.82	2.52	2.39	4.63
Bhadreswar	1.99	5.18	1.40	1.72	1.89
Champdani	0.83	4.96	1.91	1.29	1.51
Baidyabati	6.62	6.92	6.71	5.03	2.81
Serampore	1.39	1.03	1.35	0.79	0.93
Rishra	3.27	0.30	1.52	0.70	1.82
Konnanagar	1.30	0.87	2.92	0.86	NA
Uttarpara-Kotrung	2.52	0.58	1.68	0.92	1.69
Bally	4.15	5.41	-	0.95	1.25
Uluberia	14.52	8.82	16.50	17.49	4.19
Kalyani	-	0.43	36.63	24.40	NA
Gayeshpur	-	3.08	49.21	19.40	NA
Kanchrapara	0.18	0.57	2.44	1.98	2.00
Halishahar	1.34	2.07	0.46	2.42	1.64
Naihati	0.45	0.73	0.45	2.10	2.05
Bhatpara	1.55	0.24	0.95	0.43	1.67
Garulia	0.85	0.34	1.64	1.41	NA
North Barrackpore	2.79	0.71	3.53	2.91	1.70
Barrackpore	1.66	1.21	2.13	2.02	2.16
Titagarh	0.15	0.18	0.37	0.51	1.46
Khardah	2.95	0.21	1.91	4.67	2.73
Panihati	1.73	1.31	2.58	1.10	1.42
Kamarhati	2.44	0.34	0.86	1.53	1.39
Baranagar	1.42	0.62	0.86	0.75	0.82
Barasat	19.19	11.01	15.58	6.05	1.55
New Barrackpore	-	2.23	5.93	1.93	NA
North Dum Dum	14.59	4.58	4.63	4.24	1.02
Dum Dum	0.95	2.01	0.11	0.82	1.22
South Dum Dum	1.87	2.26	1.63	2.11	1.24
Rajpur	21.04	14.48	13.69	7.56	2.37
Baruipore	17.84	6.77	12.04	8.37	NA
Budge Budge	3.06	0.86	0.79	4.15	NA

Source: Calculated from PCA of Census 1951, 1961, 1971, 1991 and B-04City of 2001 Census. As data on NIC Classification is available upto city level only, we do not have comparable data for 1981 Census and for non-cities of 2001 Census.

Table 2
Change in the Percentage of Population Engaged in Primary Sector in Municipal Towns of Kolkata Metropolitan Area 1951-2001

Municipality	1951-61	1961-71	1971-91	1991-2001
Bansberia	+0.73	+4.31	-3.35	+0.97
Hugli-Chinsurah	-1.20	+0.24	-2.19	+1.85
Chandannagar	+1.10	+0.94	-0.13	+2.24
Bhadreswar	+3.19	-3.78	+0.32	+0.17
Champdani	+4.13	+0.32	-0.62	+0.22
Baidyabati	+0.30	-0.21	-1.68	+2.22
Serampore	-0.36	+0.70	-0.56	+0.14
Rishra	-2.97	-3.05	-0.82	+1.12
Konnanagar	-0.43	+1.22	-2.06	NA
Uttarpara-Kotrung	-1.94	+1.10	-0.76	+0.77
Bally	+1.26	-	-	+0.30
Uluberia	-5.70	+7.68	+0.99	-13.30
Kalyani	-	+36.20	-12.23	NA
Gayeshpur	-	+46.13	-29.81	NA
Kanchrapara	+0.39	+1.87	-0.46	+0.02
Halishahar	+0.73	-1.61	+1.96	-0.78
Naihati	-0.28	+2.05	+1.65	-0.05
Bhatpara	-2.08	+0.71	-0.52	+1.24
Garulia	-0.51	+0.30	-0.23	NA
North Barrackpore	-2.74	+2.82	-0.62	-1.21
Barrackpore	-0.45	+0.92	-0.11	+0.14
Titagarh	+0.03	+0.15	+0.14	+0.95
Khardah	-0.42	+1.70	+2.46	-1.94
Panihati	-0.80	+1.27	-1.48	+0.32
Kamarhati	-2.10	+0.52	+0.67	-0.14
Baranagar	-0.80	+0.24	-0.11	+0.07
Barasat	-7.18	+4.57	-9.53	-4.50
New Barrackpore	-	+3.70	-4.00	NA
North Dum Dum	-10.01	+0.05	-0.39	-3.22
Dum Dum	-1.06	-1.90	+0.71	+0.40
South Dum Dum	+0.39	-0.63	+0.48	-0.89
Rajpur	-6.56	-0.79	-6.13	-5.19
Baruipore	-11.07	+5.27	-3.67	NA
Budge Budge	-2.20	-0.07	3.36	NA

Source: Calculated from PCA of Census 1951, 1961, 1971, 1991 and B-04City of 2001 Census. As data on NIC Classification is available upto city level only, we do not have comparable data for 1981 Census and for non-cities of 2001 Census.

Table 3
Cultivators and Agricultural Labourers in Municipal Towns of Kolkata Metropolitan Area, 1951-2001

Municipality	Cultivators						Agricultural labourers					
	1951	1961	1971	1981	1991	2001	1951	1961	1971	1981	1991	2001
Bansberia	231	13	133	239	15	126	283	25	689	352	124	196
Hugli-Chinsurah	1261	39	29	35	17	160	683	138	112	87	34	104
Chandannagar	313	14	48	42	33	833	47	14	56	70	32	813
Bhadreswar	453	14	31	30	46	84	269	112	161	109	116	104
Champdani	201	27	31	26	73	11	62	28	162	99	163	32
Baidyabati	1156	0	246	254	295	192	492	331	546	644	672	322
Serampore	955	319	21	42	21	97	76	17	162	70	16	114
Rishra	255	32	5	21	2	176	642	5	43	162	0	98
Konnanagar	210	012	5	1	0	48	53	0	185	10	0	15
Uttarpara-Kotrung	660	7	9	29	3	121	128	0	188	61	0	137
Bally	841	2	-	64	49	254	1142	43	-	78	71	267
Uluberia	389	36	63	166	1185	213	570	54	408	244	5114	229
Kalyani	-	0	104	147	367	90	-	0	879	851	2176	340
Gayeshpur	-	16	68	338	674	228	-	10	391	912	1379	538
Kanchrapara	102	5	28	98	9	63	1	-	49	144	95	62
Halishahar	282	103	103	99	93	26	183	67	319	867	230	47
Naihati	-	10	5	51	43	178	106	41	43	74	295	123
Bhatpara	1373	18	99	122	143	276	717	17	360	246	180	1089
Garulia	185	6	11	25	276	51	83	0	32	12	14	32
North Barrackpore	805	18	38	47	23	66	93	46	328	47	195	28
Barrackpore	366	14	101	17	34	153	341	22	204	60	84	75
Titagarh	53	2	5	29	13	125	58	1	63	294	7	74
Khardah	432	76	34	19	172	113	114	26	25	77	531	62
Panihati	749	42	141	155	32	80	110	67	616	177	232	103
Kamarhati	1626	13	8	45	19	245	857	58	75	95	230	155
Baranagar	904	520	150	26	30	171	192	19	67	49	39	93
Barasat	1830	443	389	281	298	208	1091	411	1129	1260	1085	529
New Barrackpore	-	65	65	82	50	286	-	16	334	68	160	50
North Dum Dum	526	70	106	67	1034	71	1247	286	442	250	311	91
Dum Dum	129	16	0	1	0	140	4	96	0	0	41	44
South Dum Dum	492	29	119	26	13	422	658	71	204	177	19	206
Rajpur	1396	344	520	387	457	541	2035	368	532	590	247	1497
Baruipore	935	114	118	75	127	127	713	63	424	279	100	177
Budge Budge	831	0	12	28	618	22	154	90	74	174	138	126

Source: Census of India, 1951, 1961, 1971, 1981, 1991, 2001, PCA of the relevant districts, hard copy for 1951-1981, electronic format for 1991, 2001.

Table 4
Percentage of Workforce Engaged in Secondary Sector in Municipal Towns of Kolkata Metropolitan Area, 1951-2001

Municipality	1951	1961	1971	1991	2001
Bansberia	66.56	71.11	66.19	55.17	51.94
Hugli-Chinsurah	18.75	31.20	28.79	30.05	26.06
Chandannagar	31.82	41.40	46.66	42.22	35.32
Bhadreswar	72.73	75.18	78.36	64.83	58.36
Champdani	68.16	75.54	80.26	71.25	64.62
Baidyabati	23.38	38.91	29.57	34.48	28.07
Serampore	44.43	58.96	56.73	54.69	38.55
Rishra	62.39	76.11	76.32	65.29	42.94
Konnanagar	40.61	66.21	50.00	48.13	NA
Uttarpara-Kotrung	28.89	47.15	40.87	41.72	33.11
Bally	46.64	62.83	-	51.67	43.68
Uluberia	36.63	49.94	40.03	50.57	60.22
Kalyani	-	36.23	21.82	25.45	NA
Gayeshpur	-	0.34	21.07	27.43	NA
Kanchrapara	49.68	53.59	39.60	50.34	28.44
Halishahar	49.12	71.04	62.89	63.81	52.91
Naihati	49.21	72.01	62.90	49.88	33.04
Bhatpara	61.61	80.27	79.09	72.87	60.14
Garulia	61.86	52.66	78.97	56.38	NA
North Barrackpore	46.94	43.40	56.61	44.86	26.70
Barrackpore	39.32	81.51	51.74	36.95	27.56
Titagarh	74.82	53.76	82.77	73.62	62.34
Khardah	45.86	52.71	50.52	39.53	27.78
Panihati	47.90	56.47	39.22	42.55	33.97
Kamarhati	52.92	65.98	60.71	51.96	37.23
Baranagar	43.79	51.59	46.54	42.83	29.40
Barasat	13.42	27.19	26.32	28.87	23.44
New Barrackpore	-	26.32	22.10	29.43	NA
North Dum Dum	14.08	37.89	35.07	34.65	33.26
Dum Dum	33.01	60.11	50.29	34.97	20.59
South Dum Dum	29.91	42.89	37.09	29.05	21.16
Rajpur	5.64	39.49	21.29	31.71	21.96
Baruipore	7.53	20.47	20.44	23.05	NA
Budge Budge	51.69	59.42	50.96	62.43	NA

Source: Calculated from PCA of Census 1951, 1961, 1971, 1991 and B-04City of 2001 Census. As data on NIC Classification is available upto city level only, we do not have comparable data for 1981 Census and for non-cities of 2001 Census

Table 5
Change in the Percentage of Workforce Engaged in Secondary Sector in
Municipal Towns of Kolkata Metropolitan Area, 1951-2001

Municipality	1951-61	1961-71	1971-91	1991-2001
Bansberia	+4.56	-4.92	-11.02	-3.23
Hugli-Chinsurah	+12.45	-2.41	+1.26	-3.99
Chandannagar	+9.58	+5.26	-4.44	-6.90
Bhadreswar	+2.45	+3.18	-13.53	-6.47
Champdani	+7.38	+4.72	-9.01	-6.63
Baidyabati	+15.53	-9.34	+4.91	-6.41
Serampore	+14.53	-2.23	-2.04	-16.14
Rishra	+13.72	+0.21	-11.03	-22.35
Konnanagar	+25.60	-16.21	-1.87	NA
Uttarpara-Kotrung	+18.60	-6.28	+0.85	-8.61
Bally	+16.19	-	-	-7.99
Uluberia	+13.31	-9.91	+10.54	+9.65
Kalyani	-	-14.41	+3.63	NA
Gayeshpur	-	+20.73	+5.60	NA
Kanchrapara	+3.91	-13.99	+10.74	-21.90
Halishahar	+21.92	-8.51	+0.92	-10.90
Naihati	+22.80	-9.11	-13.02	-16.84
Bhatpara	+18.66	-1.18	-6.22	-12.73
Garulia	-9.20	+26.31	-22.59	NA
North Barrackpore	-3.56	+13.21	-11.75	-18.16
Barrackpore	+42.19	-29.77	-14.79	-9.39
Titagarh	-21.06	+29.01	-9.15	-11.28
Khardah	+7.45	-2.91	-10.99	-11.75
Panihati	+8.57	-17.25	+3.33	-8.58
Kamarhati	+13.06	-5.27	-8.75	-14.73
Baranagar	+7.80	-5.05	-3.71	-13.43
Barasat	+13.77	-0.82	+2.55	-5.43
New Barrackpore	-	-4.22	+7.33	NA
North Dum Dum	+23.81	-2.82	-0.42	-1.39
Dum Dum	+27.10	-9.82	-15.32	-14.38
South Dum Dum	+12.98	-5.80	-8.04	-7.89
Rajpur	+33.85	-18.20	+10.42	-9.75
Baruipore	+12.94	-0.03	+2.61	-23.05
Budge Budge	+7.73	-8.46	+11.47	NA

Source: Calculated from PCA of Census 1951, 1961, 1971, 1991 and B-04City of 2001 Census. As data on NIC Classification is available upto city level only, we do not have comparable data for 1981 Census and for non-cities of 2001 Census

Table 6
Percentage of Workforce Engaged in Tertiary Sector in Municipal Towns of Kolkata Metropolitan Area, 1951-2001

Municipality	1951	1961	1971	1991	2001
Bansberia	30.58	26.46	27.82	42.19	44.46
Hugli-Chinsurah	77.47	66.22	67.69	68.61	70.77
Chandannagar	67.46	56.75	50.82	55.40	60.05
Bhadreswar	25.28	23.23	20.24	33.45	39.75
Champdani	31.01	19.50	17.83	27.46	33.86
Baidyabati	69.99	54.17	63.73	60.49	69.12
Serampore	54.18	40.01	41.92	44.52	60.52
Rishra	34.34	23.59	22.16	34.00	55.24
Konnanagar	58.09	32.91	47.08	51.01	NA
Uttarpara-Kotrung	68.61	52.27	57.51	57.36	65.20
Bally	49.21	31.76	-	47.38	55.07
Uluberia	48.85	41.24	43.47	31.94	35.59
Kalyani	-	63.34	41.35	50.15	NA
Gayeshpur	-	96.58	29.72	53.17	NA
Kanchrapara	50.64	45.84	57.96	47.67	69.56
Halishahar	49.28	26.89	36.65	33.76	45.46
Naihati	49.28	27.26	36.65	48.02	64.91
Bhatpara	36.84	19.84	19.96	26.40	38.20
Garulia	37.37	47.00	19.39	42.21	NA
North Barrackpore	50.27	55.89	39.76	52.23	71.60
Barrackpore	59.02	17.28	46.13	61.03	70.27
Titagarh	25.02	46.06	16.86	25.87	36.21
Khardah	51.78	27.66	47.57	55.80	69.49
Panihati	50.36	42.22	58.20	56.35	64.61
Kamarhati	44.64	33.68	38.43	46.51	61.38
Baranagar	54.79	47.79	52.40	56.41	69.78
Barasat	68.39	61.80	58.50	65.09	75.01
New Barrackpore	-	71.44	71.97	68.64	NA
North Dum Dum	71.33	57.53	60.30	61.11	65.72
Dum Dum	66.04	37.88	49.60	64.21	78.18
South Dum Dum	68.21	54.85	61.28	68.84	77.60
Rajpur	74.62	46.03	65.62	60.73	75.66
Baruipore	74.63	72.76	67.52	68.58	NA
Budge Budge	45.25	39.72	48.52	33.42	NA

Source: Calculated from PCA of Census 1951, 1961, 1971, 1991 and B-04City of 2001 Census. As data on NIC Classification is available upto city level only, we do not have comparable data for 1981 Census and for non-cities of 2001 Census

Table 7

Change in the Percentage of Population Engaged in Tertiary Sector in the
Municipal Towns of Kolkata Metropolitan Area, 1951-2001

Municipality	1951-61	1961-71	1971-91	1991-2001
Bansberia	-4.12	+1.36	+14.37	+2.27
Hugli-Chinsurah	-11.25	+1.47	+0.92	+2.16
Chandannagar	-10.71	-5.93	+4.58	+4.65
Bhadreswar	-2.05	-2.99	+13.21	+6.30
Champdani	-11.51	+1.67	+9.63	+6.40
Baidyabati	-15.12	+9.56	-3.24	+8.63
Serampore	-14.17	+1.91	+2.60	+16.00
Rishra	-10.75	-1.43	+11.84	+21.24
Konnanagar	-25.18	+14.17	+3.93	NA
Uttarpara-Kotrung	-16.34	+5.24	-0.15	+7.84
Bally	-17.45	-	+47.38	+7.69
Uluberia	-7.61	+2.23	-11.53	+3.65
Kalyani	-	-21.79	+8.80	NA
Gayeshpur	-	-66.86	+23.45	NA
Kanchrapara	-4.80	+12.12	-10.29	+21.89
Halishahar	-22.39	+9.96	-2.89	+11.70
Naihati	-22.02	+9.39	+11.37	+16.89
Bhatpara	-17.36	+0.48	+6.44	+11.80
Garulia	+9.63	-27.61	+22.82	NA
North Barrackpore	+5.62	-16.13	+12.27	+19.37
Barrackpore	-41.74	+28.85	+14.90	+9.24
Titagarh	-21.04	-29.20	+9.01	+10.34
Khardah	-24.12	+19.91	+8.23	+13.69
Panihati	-8.14	+15.98	-1.85	+8.26
Kamarhati	-10.96	+4.75	+8.08	+14.87
Baranagar	-7.00	+4.61	+4.01	+13.37
Barasat	-6.59	-3.75	+6.59	+9.92
New Barrackpore	-	-0.53	-3.33	NA
North Dum Dum	-13.80	+2.77	+0.81	+4.61
Dum Dum	-28.16	-11.72	+14.61	+13.97
South Dum Dum	+13.36	+6.43	+7.56	+8.76
Rajpur	-28.59	+18.99	-4.89	+14.93
Baruipore	-18.70	-5.24	+1.06	NA
Budge Budge	-5.53	+8.53	-15.10	NA

Source: Calculated from PCA of Census 1951, 1961, 1971, 1991 and B-04City of 2001 Census. As data on NIC Classification is available upto city level only, we do not have comparable data for 1981 Census and for non-cities of 2001 Census

APPENDIX 1

Lists of Roads Constructed during 1860-61

      (i)   Kolkata to Karmanasa river

      (ii)   Kolkata to Chutterpore (Madras frontier)

      (iii)   Kolkata to Berhampore and Murshidabad

      (iv)   Kolkata to Mutlah (Port Canning)

      (v)   Kolkata to Diamond Harbour

      (vi)   Howrah branch road

      (vii) Midnapore branch road via Bankura and Ranigaunge

      (viii) Tamluk branch road

      (ix)   Barasat- Barrackpore Road,

      (x)   Jessore Branch road

Source: Banerjee (1975), Chapter 1.

Appendix II
Size Distribution for Municipal Towns of Kolkata Metropolitan Area, 1951-2001

Citysize/year	1951	1961	1971	1981	1991	2001
I	Bhatpara	Bhatpara, Baranagar, Kamarhati, South Dum Dum, Bally	Hugli-Chinsurah, Sermapore, Bhatpara, Baranagar, Kamarhati, Panihati, South Dum Dum	Naihati, Bhatpara, Barrackpore. Titagarh, Panihati, Kamarhati, Baranagar. South Dum Dum, Bally, Hugli-Chinsurah, Chandannagar, Serampore	Kancrapara, Halishahar, Naihati, Bhatpara, North Barrackpore, Barrackpore, Barasat, Titagarh, Panihati, Kamarhati, Baranagar, North Dum Dum, South Dum Dum, Hugli-Chinsurah, Chandannagar, Champdani, Serampore, Rishra, Uttarpara-Kotrung, Bally, Uluberia	Kancrapara, Halishahar, Naihati, Bhatpara, North Barrackpore, Barrackpore, Barasat, Titagarh, Khardah, Panihati, Kamarhati, Baranagar, North Dum Dum, South Dum Dum Rajpur, Bansberia, Hugli-Chinsurah, Chandannagar, Bhadreswar, Baidyabati, Champdani, Serampore, Rishra, Uttarpara-Kotrung, Bally, Uluberia
II	Bally. South Dum Dum, Titagarh, Naihati, Kanchrapara, Baranagar, Kamarhati, Serampore, Hugli-Chinsurah	Chandannagar, Hugli-Chinsurah, Serampore, Barrackpore, Kanchrapara, Naihati, North Barrackpore, Panihati, Titagarh, Halishahar	Baidyabati, Bansberia, Champdani, Chandannagar, Rishra, Uttarpara-Kotrung, Barrackpore, Panihati, Titagarh, Halishahar	Barasat, Kanchrapara, Halishahar, Garulia, North Barrackpore, North Dum Dum, Budge Budge, Bansberia, Bhadreswar, Champdani, Baidyabati, Rishra, Konnagar, Uttarpara-Kotrung,	Bansberia, Baidyabati, Khardah, Garulia, Budge Budge,-Bhadreswar, New Barrackpore, Konnagar, Rajpur,	Kalyani, Gayeshpur, Garulia, New Barrackpore Baruipore. Budge Budge, Konnagar,
III	Budge Budge, Barrackpore, Halishahar, Panihati, Garulia, North Barrackpore, Bhadreswar, Bansberia, Baidyabati, Konnagar, Rishra, Champdani, Chandannagar	Baidyabati, Bansberia, Bhadreswar, Champdani, Konnagar, Rishra, Uttarpara-Kotrung, Barasat Budge Budge, Dum Dum, Garulia, Khardah, New Barrackpore, North Dum Dum, Rajpur	Bhadreswar, Konnagar, Uluberia, Barasat, Baruipore, Dum Dum, Garulia, Khardah, New Barrackpore, R Rajpur	Kalyani, Gayeshpur, Khardah, New Barrackpore, Dum Dum, Rajpur, Baruipore, Uluberia	Kalyani, Gayeshpur, Dum Dum, Baruipore	
IV	Uluberia, Rajpur, Barasat, Dum Dum, Khardah, North Dum Dum, Uttarpara-Kotrung	Gayeshpur, Uluberia, Baruipore	Kalyani, Gayeshpur			
V	Baruipore	Kataganj-Gokulpur	Kataganj-Gokulpur			
VI	—	Kalyani	—			

Source: Calculated from Census of Various Years.

Appendix III

Municipal towns of KMA classified according to Decadal Population Growth Rate (1951-2001)

Population growth rate	1951-61	1961-71	1971-81	1981-91	1991-2001
Very High (More than 75%)	North Dum Dum, Kamarhati, South Dum Dum, Barasat, North Barrackpore, Baidyabati	Kalyani	Kalyani. Gayeshpur	Uluberia, Khardaha	Dum Dum, Barasat, South Dum Dum, Naihati
High (51-75%)	Uttarpara-Kotrung, Kamarhati, Bally, Rajpur. Baruipore, Khardaha	North Dum Dum, Rishra, Panihati, South Dum Dum, Dum Dum, New Barrackpore, Garulia, Baruipore	Barasat North Dum Dum	Barasat, North Dum Dum	Rajpur
Medium (31-50%)	Barrackpore, Uluberia. Halishahar, Hugli-Chinsurah, Bansberia. Konnagar. Dum Dum, Rishra, Baranagar, Champdani, Chandannagar	Barasat. Naihati. Champdani, Bhatpara, Rajpur, Bansberia, Kamarhati, North Barrackpore, Halishahar, Bally	Konnagar, New Barrackpore, Khardaha, Halishahar, Naihati, Kamarhati, Panihati, Uluberia, Chandannagar, South Dum, Baruipore, Budge Budge, Baidyabati	Baranagar, Champdani, Bally, Panihati, Rajpur, New Barrackpore, Garulia, Barrackpore, Kalyani	Uluberia, New Barrackpore, Khardaha, Chandannagar, Bally, Serampore, Bhatpara, Kalyani, Bhadreswar, Uttarpara-Kotrung. North Dum Dum
Low (10-30%)	Budge Budge, Serampore, Kanchrapara	Uttarpara-Kotrung, Bhadreswar, Budge Budge, Gayeshpur, Baranagar, Hugli-Chinsurah, Baidyabati, Konnagar, Titagarh, Kanchrapara. Khardaha, Uluberia, Chandannagar, Serampore	Champdani, Garulia, Bhadreswar, Rajpur, Bhatpara, Serampore, Baranagar, Barrackpore, Titagarh, Uttarpara-Kotrung, Kanchrapara	Budge Budge, Kanchrapara, Kamarhati, Naihati, Chandannagar, Halishahar, Bhatpara, Konnagar, Bansberia Dum Dum, North Barrackpore, Bhadreswar, Barrackpore, Hugli-Chinsurah, Gayeshpur	Rishra, Baranagar, Bansberia, Hugli-Chinsurah, Konnagar, Kamarhati, Baruipore, Baidyabati, North Barrackpore, Kanchrapara, Panihati
Very Low (below 105)	Bhatpara. Titagarh, Naihati, Garulia, Bhadreswar	—	Dum Dum. Bally, North Barrackpore	Titagarh, Serampore, South Dum Dum	Champdani,, Budge Budge, Gayeshpur, Barrackpore, Titagarh, Halishahar. Garulia(-ve)

Source: Calculated from Census of Various Years.

Corrigendum to Appendix III
In 1981-91 in the list of medium growth towns, read Baruipore for Barrackpore and the set of low growth towns include Rishra, Baidyabati, and Uttarpara-Koutrung.

Appendix IV
Municipal Towns of KMA Classified According to Density (1951-2001)

Density (ppsq.km)	1951	1961	1971	1981	1991	2001
Very High (above 20,000)	Titagarh. Serampore	Titagarh	Titagarh	Titagarh. Naihati, Baranagar. Serampore. Kamarhati, Bhatpara	Titagarh. Baranagar. Naihati, Bhatpara. Kamarhati, Serampore, South Dum Dum	Titagarh. Baranagar, Serampore, South Dum Dum, Kamarhati, Bally
High (10-20,000)	Naihati	Serampore, Baranagar, Naihati. Bhatpara. Rishra. Kamarhati	Baranagar, Naihati, Serampore. Bhatpara. Kamarhati. Bally. South Dum Dum	South Dum Dum, Bally. Rishra, Champdani, Konnagar, Halishahar, Uttarpara-Kotrung, Dum Dum, Hugli-Chinsurah. Panihati, Chandannagar	Rishra, Bhadreswar, Bally, Konnagar. Panihati Uttarpara-Kotrung, Halishahar, Dum Dum, Khardah, Garulia, Champdani, North Barrackpore, Barrackpore, Chandannagar, Kanchrapara. Bansberia	Naihati, Panihati, Baidyabati, Rishra, Khardaha, Bhadreswar, Konnagar, Champdani, Bhatpara, Halishahar, Garulia, Kanchrapara, Barrackpore, North Barrackpore, Bansberia Dum Dum, Hugli-Chinsurah
Average (7,500-10,000)	Bhatpara. Bally. Baranagar	Gayeshpur. Bally. South Dum Dum. Kanchrapara	Dum Dum, Rishra, Uttarpara-Kotrung, North Barrackpore, Champdani, Kanchrapara. Halishahar, Barrackpore. Konnagar, Chandannagar. Khardah, Panihati	Kancrapara, Barrackpore, North Barrackpore, Bhadreswar, Bansberia, Garulia	Baidyabati. Hugli-Chinsurah, Budge Budge, New Barrackpore, North Dum Dum	Uttarpara-Kotrung, Budge Budge, North Dum Dum, Chandannagar, Barasat
Low (5-7,000)	Kamarhati. Garulia, Kanchrapara, Dum Dum. Bhadreswar, Chandannagar	Garulia, Khardah. Uttarpara-Kotrung. New Barrackpore. Dum Dum, Chandannagar. North Barrackpore, Champdani, Bhadreswar, Barrackpore, Hugli-Chinsurah. Budge Budge. Bansberia	Bhadreswar, Bansberia, Garulia. Budge Budge. Hugli-Chinsurah	Budge Budge, Baidyabati	Uluberia. Barasat	Uluberia. Rajpur
Very Low (Below 5000)	Champdani, Rishra. Uttarpara-Kotrung. Budge Budge. South Dum Dum. North Barrackpore, Hugli-Chinsurah, Konnagar. Barrackpore, Bansberia. Baidyabati. Panihati, Uluberia. Halishahar. Khardaha. Barasat. Baruipore. Rajpur. North Dum Dum	Baidyabati, Panihati, Uluberia. Halishahar, Barasat, North Dum Dum. Baruipore, Rajpur, Kalyani	Baidyabati. North Dum Dum. Uluberia, Baruipore. Barasat. New Barrackpore. Rajpur. Gayeshpur, Kalyani	North Dum Dum, Uluberia. Barasat, Baruipore. New Barrackpore. Rajpur, Gayeshpur, Kalyani	Baruipore, Rajpur, Kalyani, Gayeshpur	Baruipore. New Barrackpore, Kalyani, Gayeshpur

Source: Calculated from Census of Various Years.

Appendix V

Municipalities of Kolkata Metropolitan Area Classified According to Gender Ratio (1951-2001)

Gender Ratio (Females per thousand male)	1951	1961	1971	1981	1991	2001
High (above 900)	—	—	—	Barasat, Gayeshpur, Uluberia, Rajpur, North Dum Dum, New Barrackpore, Baidyabati, Uttarpara-Kotrung, Hugli-Chinsurah, South Dum Dum, Chandannagar	Gayeshpur, New Barrackpore, North Dum Dum, Barasat, Rajpur, Kanchrapara, Kalyani, South Dum Dum, Baidyabati, Panihati	New Barrackpore, South Dum Dum, Barasat, Kalyani, Gayeshpur, North Dum Dum, Rajpur, Panihati, Baruipore, Kanchrapara, Chandannagar, Baidyabati, Hugli-Chinsurah, Dum Dum, Uluberia, Uttarpara-Kotrung
Moderate (751-900)	Uttarpara-Kotrung, Hugli-Chinsurah, Uluberia, Barasat, North Dum Dum, Rajpur, Baruipore, Kanchrapara, Chandannagar	Baidyabati, Panihati, Barasat, North Dum Dum, Rajpur, Baruipore, Uttarpara-Kotrung, Kanchrapara, North Barrackpore, Hugli-Chinsurah, Chandannagar, Barrackpore, South Dum Dum, Gayeshpur, New Barrackpore, Baranagar	Baidyabati, Uluberia, Rajpur, Baruipore, Barasat, North Dum Dum, Kalyani, Gayeshpur, New Barrackpore, Bansberia, Hugli-Chinsurah, Uttarpara-Kotrung, North Barrackpore, Kanchrapara, Khardah, Panihati, Chandannagar, Konnagar, Barrackpore, Baranagar, Serampore, Naihati, Kamarhati, South Dum Dum	Kalyani, Baruipore, Bansberia, Bhadreswar, Kanchrapara, North Barrackpore, Garulia, Barrackpore, Bally, Halishahar, Khardah, Panihati, Konnagar, Bhatpara, Baranagar, Serampore, Naihati	Barrackpore, Chandannagar, Uttarpara-Kotrung, North Barrackpore, Uluberia, Baruipore, Hugli-Chinsurah, Garulia, Konnagar, Baranagar, Khardaha, Bansberia, Kamarhati, Serampore, Halishahar, Naihati, Bhadreswar, Champdani, Dum Dum, Budge Budge	Konnagar, Khardah, Naihati, Barrackpore, Baranagar, Bansberia, Garulia, Serampore, Kamarhati, Halisahar, Budge Budge, Bhadreswar, Champdani, Bhatpara, Rishra, Titagarh
Low (501-750)	Bansberia, Baidyabati, North Barrackpore, Kharadah, Panihati, Champdani, Rishra, Barrackpore, South Dum Dum, Konnagar, Bally, Dum Dum, Naihati, Serampore, Titagarh	Halishahar, Uluberia, Kalyani, Bansberia, Bhadreswar, Khardaha, Konnagar, Bally, Budge Budge Champdani, Garulia, Dum Dum, Bhatpara, Serampore, Rishra, Naihati, Kamarhati	Bhadreswar, Halishahar, Champdani, Rishra, Budge Budge, Garulia, Dum Dum, Bhatpara, Titagarh	Budge Budge, Champdani, Rishra, Dum Dum, Titagarh, Kamarhati	Rishra, Bally, Bhatpara, Titagarh	Bally
Very Low (below 500)	Halishahar, Budge Budge, Garulia, Bhadreswar	Titagarh	—	—	—	—

Source: Calculated from Census of Various Years.

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Appendix VI

Comparable Information of the Five New Municipalities in KMA Area (2001)

Municipality	Population	Gender Ratio	Cultivator	Agr. Labourer	HHI worker	Other Worker	Percentage of workers in		
							Primary	Secondary	Tertiary
Bidhan Nagar	164221	973	276	213	543	61849	3.14	15.30	81.56
Rajarhat-Gopalpur	271811	938	560	328	1583	91532	1.78	26.60	71.62
Madhyamgram	155451	950	438	485	1264	50892	3.23	30.94	65.83
Maheshtala	385266	904	358	417	11619	107268	1.32	51.83	46.85
Pujali	33858	917	28	410	483	10252	NA*	NA*.	NA*

Source: Calculated from Census 2001.

*As the detailed NIC classification is available for city level only in 2001 Census, we cannot calculate corresponding percentages for Pujali

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