

# Impact of Urbanization in the Development of South Suburban Area of Kolkata

Moumita Saha\*

**Abstract :** *Urbanization is a determinant as well as a consequence of economic development. It lays the foundation for Metropolitanization which in turn causes suburbanization. The purpose of this paper is to analyze the impact of urbanization by its trend and nature in the south suburban area of Kolkata, to understand the reasons behind the uneven formation of this fringe area, to identify the problems of over congestion on basic service related to the uneven urbanization pattern and to understand the future population scenario which will have an effect on resource availability in the study area. Data about temporal variation of population and nature of urbanization have been collected from published government materials and census documents, random sample survey helps to depict deprivation level of basic services and to find correlations. The south suburban area of Kolkata has experienced high rate of population growth and unplanned expansion due to industrialization, improvement of transportation networks outward from the city core, cheap affordable land in the transition areas and various other socioeconomic reasons. The development of urban centres is in some pockets than a continuous development and these pockets create high population congestion and scarcity of resources. There is a huge primacy seen at the municipalities than other constituent units. With rapid rate of urbanization rural areas were swallowed up into the urban landscape, and attained the suburban to urban character. Increasing nature of urbanization increased the aspiration level of achieving standard high quality basic services and thus creating pressure in basic services. This area thus must attain attention of planners to check the congestion scenario after two decades.*

**Key words:** *Urbanization, suburbanization, urban sprawl, deprivation index.*

## Introduction

Urbanization is a determinant as well as a consequence of economic development. It reveals through temporal, spatial and sectoral changes in the demographic, social, economic, technological and environmental aspects of life in a given society. Urbanization is an indicator of development as it indicates that more and more people are engaged in secondary and tertiary activities. It lays the foundation for Metropolitanization which in turn causes suburbanization. Urbanization increases population in urban areas and raises the aspiration level of

---

\* Assistant teacher at Salkia Vidyapith, Howrah, West Bengal 711106,  
Email : mou.rinky@gmail.com

achieving standard high quality basic services and thus creating pressure in those services. Urbanization in the demographic sense is an increase in the proportion of the urban population to the total population over a period of time (Bose, 1980). As long as the urban population to the total population increases the rate of urbanization increases but sometimes the rate of urbanization does not increase though the pressure of urban population increases due to migration to the urban area and when the absolute numbers of urban population increases with zero urbanization rate the situation is problematic. The urbanizing India has long history of urbanization which will see India's urban population will reach a figure close to 600 million by 2031. India's urbanization is characterized by increasing tendency towards metropolitanization by increased concentration of urban population in the big cities and surrounding areas. The formation of huge metropolis has influenced its surrounding area and has formed extended suburbs, rural areas were swallowed up into the urban landscape, and thus with time the villages at the immediate surroundings of the towns and cities attained the suburban character. The word suburb originated from Latin word "Suburbium" means the transitional zone located between purely urban and purely rural areas around a city. These transitional zones with different aspects of location, land use, demographic composition and socio economic status has been defined in many ways and in different terms like "fringe area", "umland" hinterland" of a city or suburbs. Oosthuizen (1969) has proposed various terminologies like "rural suburb", "quasi urban area" or "quasi urban township". The formation of fringe areas is the result of suburbanization (Sengupta, 1998). The process of suburbanization took place rapidly in India since 1970 with rapid urbanization. Unlike the western countries the suburb in India is an extension of the continuous built up area of the city. The land includes both agricultural and residential areas with high land price and huge population pressure. People depend on the city for their regular necessity work, like education health shopping etc. due to the insufficient development of the facilities. Due to the immigration of rural people for better civic services people started to come to the core city centre but the unbearable price of land, lack of residential accommodation compelled these immigrants to reside close to the vicinity of the core city. These areas have no urban local administration but have distinct urban character which shows rural urban differences and are closely linked to the city economically, socially and there are a huge amount of daily commuting between the suburban area and the municipal towns.<sup>3</sup>Urban extensions with lack of services make them depended on the proper city. Rural urban differentials and lack of infrastructure is a hindrance to economic development (Gowda et al., 1997) Kolkata which is the 10<sup>th</sup> largest megacity in the world and second in the country and an important cultural and economic centre of eastern India with its increasing population and extended urban growth has formed vast suburban area around it. The south suburban area due to its close vicinity to Kolkata is expanding most rapidly and posing a challenge in the development of the area with its ever changing nature.

## Study Area

South suburban area of Kolkata is under South 24 Parganas district, and situated around the Kolkata Municipal Corporation (Fig.1). The study area comprises 5 municipalities viz. Budge Budge, Maheshtala, Pujali, Sonarpur, Baruipur, 4 census towns named Uttar Raipur, Balarpur, Chotokalikapur, Muragacha; 2 census towns i.e. Joka and Nischintapur and 172 rural units within Kolkata Metropolitan Area

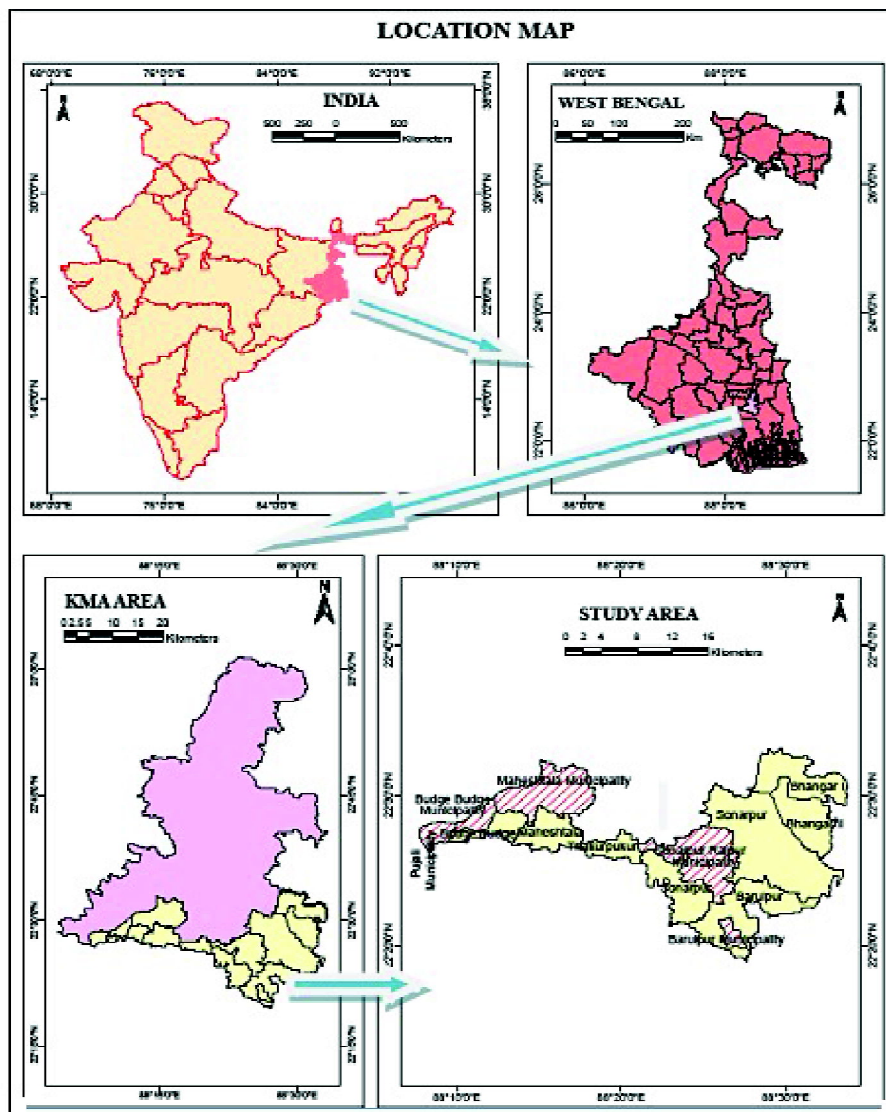


Figure- 1

boundary under Thakurpukur Maheshtala C.D. Block, Budge Budge I block, Sonarpur block, Baruipur block, Bhangar I and Bhangar II blocks with total area of 437.48 sq. km. (according to the 2001 census) has been taken as the study area. This area mostly suffers with problems of urban sprawl with high population density than other part.

### **Objectives of the study**

The objectives of my study are -

1. To show the impact of urbanization on distribution and structure of population.
2. To identify the problems hindering the development of the area.

### **Methodology**

Data about trend and temporal variation of population has been collected from published government materials and census documents; the study area map has been extracted from the map of K.M.A. collected from K.M.D.A. Primary data has been collected by survey procedure with simple random sampling technique. Two types of structured questionnaires are used as data collection instrument, one for people who getting the services mainly by the household survey, and other for institutional survey where both the recipients and the providers of the services are surveyed.

Collected data has been analyzed by line graph, choropleth map, bar diagram; Deprivation index of some basic services has been calculated to understand the backlog of services in the area. Some basic infrastructure services are taken in consideration so infrastructure deprivation index has been calculated after summing up of composite deprivation index of education, health and cultural services. The index has created for each of the services to measure the relative achievement.

The proportion of deprivation of services was first calculated and then expressed as goalpost value between 0 per cent and 100 per cent to obtain a deprivation index by applying the following formula:  $\text{Deprivation index} = \{(\text{maximum value} - \text{actual value}) / (\text{maximum value} - \text{minimum value})\}$  and the areas are classified into three regions of low deprivation, medium deprivation and high deprivation with the level of deprivation values ranging from <3, 3-4 and >4. The Pearson Product-Moment Correlation Coefficient has been calculated to correlate variables by using the Excel Pearson function.

### **Nature and Trend of Urbanization in the study area**

The south suburban area of Kolkata (originally known as Calcutta) has transformed time to time with changing nature of urbanization. The rate and level of urbanization has been measured by percentage of urban population to total

population, urban rural population share and tempo of urbanization which indicates rate of change brought by urbanization in the area and measured by average annual growth rate of urban population. The urban area is comprised of municipalities, census towns, and outgrowths (OGs). The south suburban area in its formation was an integral part of Calcutta city and changed its boundary with time. In the first complete census of 1876 Calcutta had a population just over 6 lakh. Since then the population started bouncing. In 1921 the population in the proper city of Calcutta was about 10 lakh. Since 1921 Calcutta's population has increased by more than two and three quarter times. There was a great peak during 1931-41 when the CMD grew by almost two million in ten years, after years the rate of growth had slowed down markedly. With becoming a primate city with vast hinterland it had a population of 145 million in 1961. Within next 10 years due to Calcutta's economic and cultural dominance over the entire region of eastern India, it contained a quarter of India's total population. Its magnetic attraction for migrants in search of employment was unrivalled by any other urban centre and in 1971 Calcutta emerged as the largest Urban Agglomeration in India with 3.5 times increase in population i.e. about 70 lakh.

During the period 1901-1981 the urban population in the country increased from 10.84 per cent to 23.31 per cent, the corresponding change in the state was 20.4 per cent to 26.5 per cent. Among the Indian state West Bengal ranked 6<sup>th</sup> according to 1981 census in terms of urbanization. The relatively high rate of urbanization in West Bengal is due to the presence of Calcutta city and its surrounding fringes. Calcutta with its emerging fringe areas shared about 90 per cent and among its southern fringe shared 50 per cent of total urban population of the state in 1971, but it started declining and it came down to 70 per cent in 1981. The increase of population has been due to the continual inflow of migrants from the hinterland and from more distant part of India. Two streams of migration have contributed to the flow: the one generated by the search of opportunities for employment and the other by political insecurity. Many people came here from East Pakistan as refugees and started living in colonies later which formed south Kolkata. The average density in southern parts of Calcutta like Dhakura, Kasba, Jadavpur was 18000 persons per sq. km. In terms of age and sex most of the migrants were adult males. The impact of these migrants were great, as at one hand the unskilled and unurbanized migrants supplied the labour force which helped in the economic progress; on the other hand it raised the rate of population and thus the city's utility services collapsed, mainly health and hygiene by increasing the number of slums due to the lack of housing facilities. Formation of urban sprawl and its consequences laid its foundation in the very beginning with the growth of the area. Thus though the number of urban population increased but the rate of urbanization did not increase.

In 30 years large parts of Calcutta conurbation had reached the saturation level and are not absorbing population growth. Most of the metropolitan growth took place outside the densely settled parts of the central city. The population during the period 1951-1961 showed that the outer ring of the central city areas growing two times faster. The population distributed in extremely fragmented and scattered manner in the fringe areas surrounding the metropolitan core. The most rapid growth has occurred in the southern fringe mainly in the municipalities immediately bordering the city. From an oil refinery centre Budge Budge municipality grew as an industrial area on the bank of river Hooghly, and Baruipur and Pujali municipalities as fishing grounds.<sup>8</sup> The huge population pressure forced to expand physical limit of the study area outward. The increasing congestion at the central part of the Kolkata city drives people out but not too far away from the central area as the city till is the magnet for the cultural and economic specialization, Sonarpur-Rajpur and Maheshtala municipal areas surrounding the city core grew as the reason. The improvement of transportation networks outward from the city core and availability of lands in low price helped in the dispersion of population. Scattered population compromised with the low standard of housing and sanitation for the urge to live near the city. Percentage variation of population between 1951 and 1961 shows that here municipalities witnessed a positive rise up of more than 50 per cent. Among five municipalities being the oldest municipality Budge Budge had less rate of urbanization in contrast to Rajpur Sonarpur municipality that experienced highest urbanizing rate. The out growths has shown highest growth in urban population. Percentage of urban population in the area was 66 per cent in 1982 and increased to 67 per cent in 1991 and again decreased to 65 per cent in 2011. The rural urban share of population decreased from 2 per cent in 1981 to 1.8 per cent in 2011 that means the area is getting more urbanized. The average annual growth rate of urban population in the area decreased from 34 per cent in 1981 to 29 per cent in 2011 which is the signal of total urban stagnation and people selecting surrounding areas than densely urbanized areas.

### **Impact of Suburbanization**

Outside the city and within 100 km from the city core areas largely linked with Kolkata through various services, through large volume of daily travel and communication. This ring round the city is mainly the area from which the city gets its supply of products like vegetables, eggs, fish, milk etc. In this area there are subtle variations in the levels of development: these can be divided into three broad categories on the basis of physical characteristics. First, the core area, or the relatively compactly built-up zone; second, the intermediate band or the inner periphery developing zone; and third, the outer land or outer periphery, which is predominantly undeveloped rural land. The outer periphery consists of vast areas under panchayats, which account for not less than 50 per cent percent of the

suburban area. This area called as twilight zone where the transformation of rural into urban settlement is constantly taking place without conforming to any urban developmental norms, here rural land is being divided into small plots for building and this is the most effective breeding ground for future urban chaos. Surrounding areas of all 5 municipalities in the study area grew in this manner as urban sprawl. Every day the urban sprawl is being extended further into the heart of the rural hinterland. This means a few scattered huts or half-finished buildings right in the middle of paddy fields; settlements loosely connected to the main urban concentration, whose inhabitants depend on the urban centre as their primary source of livelihood. Unless this trend is arrested in time, it will eventually engulf the whole area and will frustrate attempts of urban development. The contiguous rural areas surrounding the municipalities are integral part in terms of taking the services. The municipalities as grew in patches the inter municipal areas are included in the development process from the adjoining villages and localities people are immigrating into the municipalities because of rapid pace of urbanization. Thus the population increases with the dependence on the municipalities as well the conversion of the land uses into urban changed the rural nature of the area and the expectancy for the civic amenities increases. Thus with time the adjacent urbanized panchayat areas changed into out growths, census towns and more far areas are included in the suburban area boundary. The setup of the south suburban railway network has increases the settlements along the railway lines to get better connectivity to the Calcutta city which was the main impetus towards the expansion of the rural areas. The rapid growth of transportation, development of technology increased the contacts between the city and the suburbs. With the urbanization of the countryside the sharp division of land use, lifestyle and culture of the residents between urban and rural areas become less perceptible and now it is difficult to draw a boundary at where the urban ends and rural area starts. In terms of availability of services there are two zones the zone near to the city core where the infrastructure facility is transitional in nature with new residential houses with sewerage system, water connection, electricity etc. existing in the municipalities and other urban units but the houses at the core suburbs i.e. in panchayat areas away from the city have neither any sewerage system nor any water connection. There are also differences in demographic composition income education and residential structure of these two zones, these two groups of residents at the transitional zone has formed the dual characteristics of this suburban area and which is almost similar to all Indian suburbs. Thus the main difference lying between the western and Indian suburbs are the out migration from the city in case of the western countries and immigration to the core city in the Indian suburbs.

### **Demographic Dynamics of the Study Area**

Size of population and its distribution over space play a very significant role in spatial planning. The share of land and population of southern suburb of Kolkata

city is 23.63 per cent area with 9.51 per cent population.<sup>9</sup> Population trend and the growth pattern are the most important demographic aspects to assess the present and future situation.

### Trend of Population

The total population of the study area was 441144 in 1961, and increased to 796447 in 1981, 1082986 in 2001 and 1707962 in 2011 (Fig. 2). Between the period 1971 and 2001 municipalities, CTs, OGs and rural areas have more than double their population. Among all the municipalities Sonarpur Rajpur have grown more than three times during 1961-2001, in South 24-Parganas, new areas are being incorporated within and old areas changing their status, with unclear trend in population growth

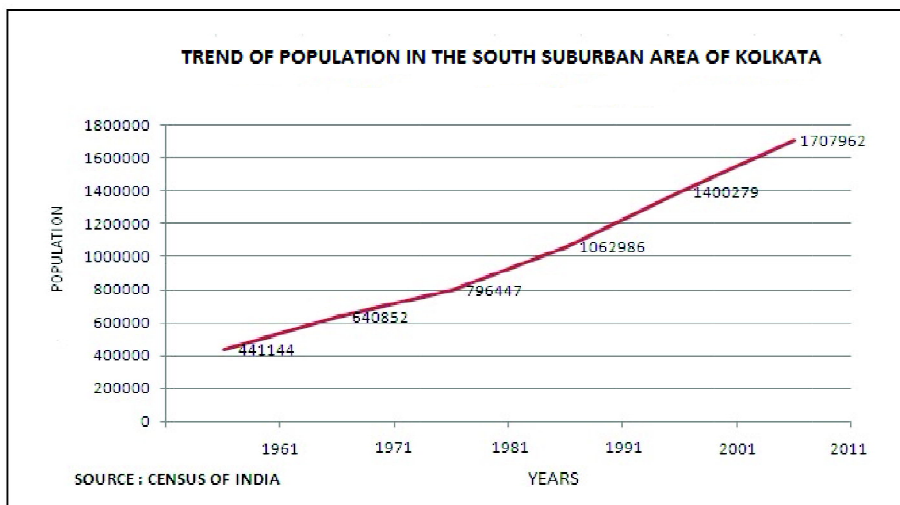


Figure – 2

and the rates always lie at a much higher level compared to other part surrounding Kolkata. The total population in the area in 1961 was 441144 and increased to 1707962 in 2011. So there is a rise in population throughout the years where during 1971 to 1991 there is a gentle decrease in the trend in population which again started to increase during 2001 to 2011 (Fig. 2). Population in different constituent units also increased with time, during 1961 to 2011 all the constituent units show increase in total population. The population is very high for the municipalities than the population of its adjacent rural units again the population is high at the western part of the study area i.e. at the Maheshtala municipality which is in its formation is the extended part of the south suburban municipality has the highest population and the next highest population is seen at the Sonarpur Rajpur municipality, both these places are just adjacent to the Kolkata Municipal Corporation (Fig. 3). Among the outgrowths Joka has experienced highest population growth from 1944 in 1961

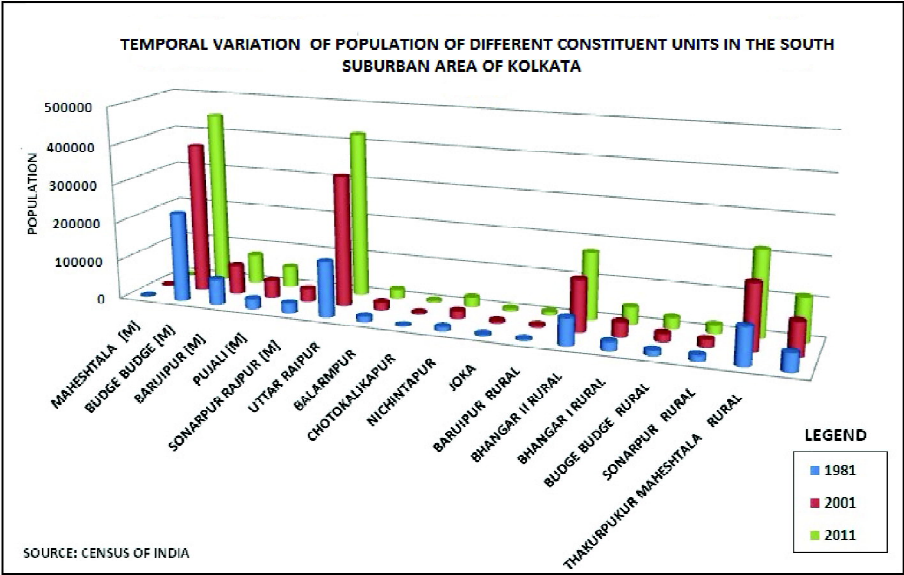


Figure – 3

to 9302 in 2011. Thus the area has been incorporated in the Kolkata Municipal Corporation boundary in 2011. Population in the rural tract has also been increased since 1961 to 2011, in Baruipur block population has increased from 40061 in 1961 to 173049 in 2011, 65565 to 219135 in Sonarpur block, 24527 to 113824, in Budge Budge block 8276 to 22334, in Bhargar I block 10451 to 26751 and in Bhargar II

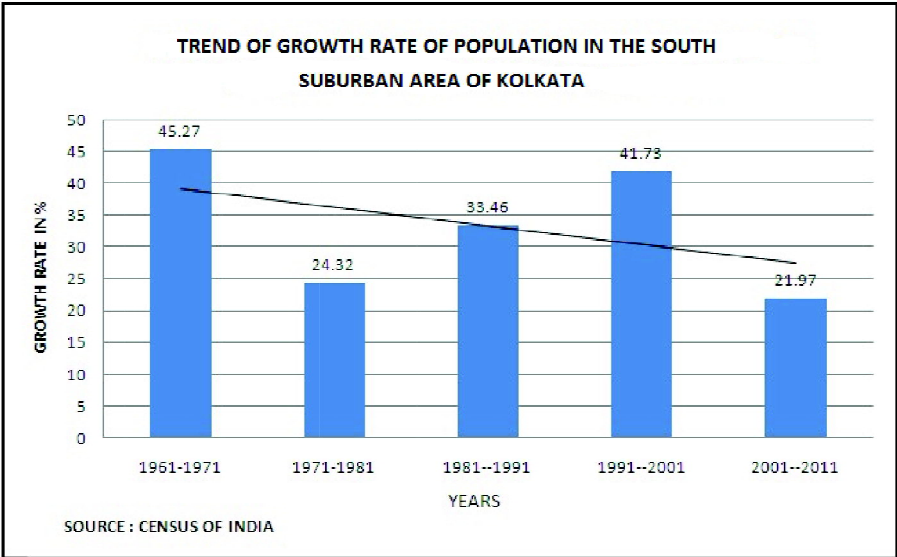


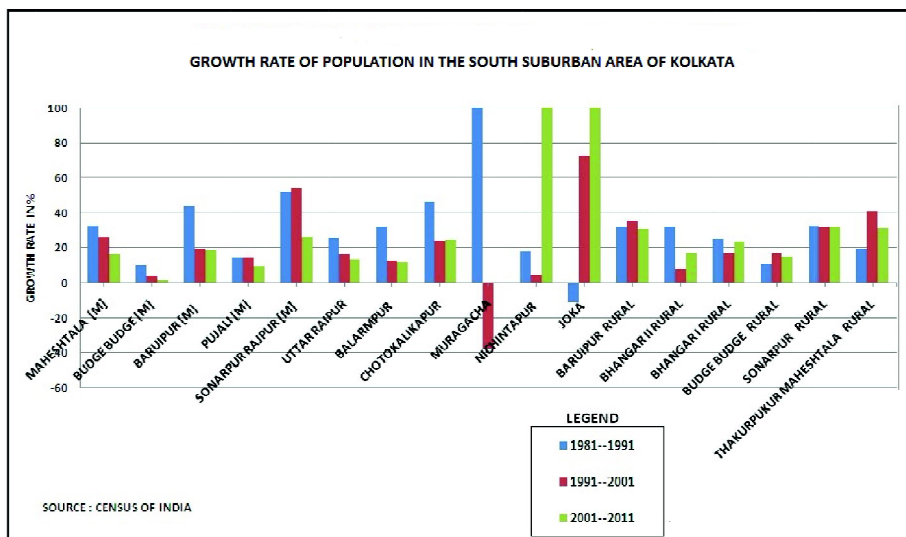
Figure-4

block 14872 to 44197 from 1961 to 2011. Population from 2001 to 2011 has also increased for all constituent units (Fig. 3).

### Growth Rates of Population

The growth rate of population in the area as a whole was 45.27 per cent during 1961-1971 which was decreased to 24.32 per cent during 1971-1981 again increased to 33.45 per cent, 31.73 per cent and 21.97 per cent during 1981-1991, 1991-2001, and 2001-2011 respectively (Fig. 4). Growth rate of population for all the constituent units were high since 1961 to 2011 except during 1971-1981, when growth rate was low. Constituent wise all the units has decreased its growth rate during 1991-2001 except in the out growths where there was a huge growth rate in population. Though there is a huge decrease in growth rate from 1981-2011 in the municipalities and census towns but the rural areas has shown an increase in its growth rate in 1991-2001 and the decrease in 2001-2011 was less than the other constituent units.

Thus it is clear that the population is increasing in the rural areas and it has not yet reached at its saturation level and in near future it will provide maximum chance for its population increase in the rural areas and it will change its nature. The entire areas Rajpur Sonarpur municipality, Nischintapur and Joka has shown highest growth rate. Where in 1981-1991 the rate of increase in Joka was negative but it has given the chance for highest rate of increase during 1991-2011. Which has given the opportunity to include Joka in the boundary of Kolkata Municipal Corporation (KMC) in the year 2011. Thus fast changing nature may incorporate more areas within corporation boundary in next census.



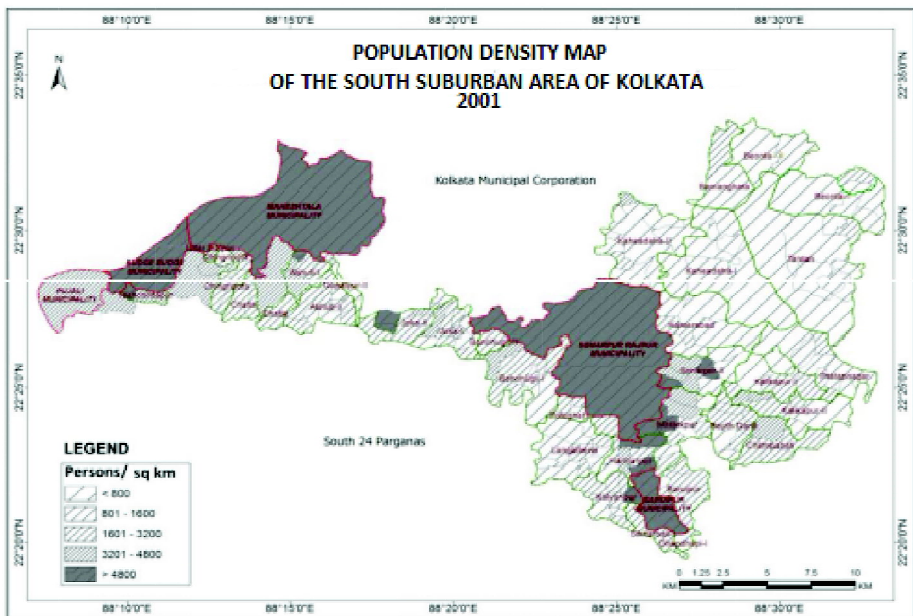
**Figure-5**

All the other areas have reduced its growth rate. [Figure - 5] The growth rates for 5 municipalities was high during 1961-1971 i.e.51.18 per cent, the rate decreased only during 1971-1981 and again started to increase for rest of the period till present and the corresponding rates are 25.02 per cent, 34.83 per cent,32.03 per cent 18.64 per cent during 1971-1981, 1981-1991, 2001- 2011.<sup>10</sup> Growth of population from 2001 to 2011 has also increased for all constituent units.

### Density of Population

The population density in the study area over the period of 1991 – 2011 have been examined. Gross population density showing the land-man ratio in a given area. The area is becoming more and more crowded as reflected in its density which is continuously rising over this period. Population living in municipalities is consistently rising and density of population in the respective municipalities having a very high density. The percentage of population living in other units like CT's, OGs and rural units also rising.

The density map of the year 1991 reveals that highest density is seen at the municipalities mainly at Budge Budge and Maheshtala municipalities followed by Pujali, Baruipur and Sonarpur Rajpur municipality and Uttar Raipur and Balarampur census towns. The population in the rural areas has less population density mainly in the areas of Bhangar I and Bhangar II blocks and the rural areas in the Budge



Source: Census of India, 2001.

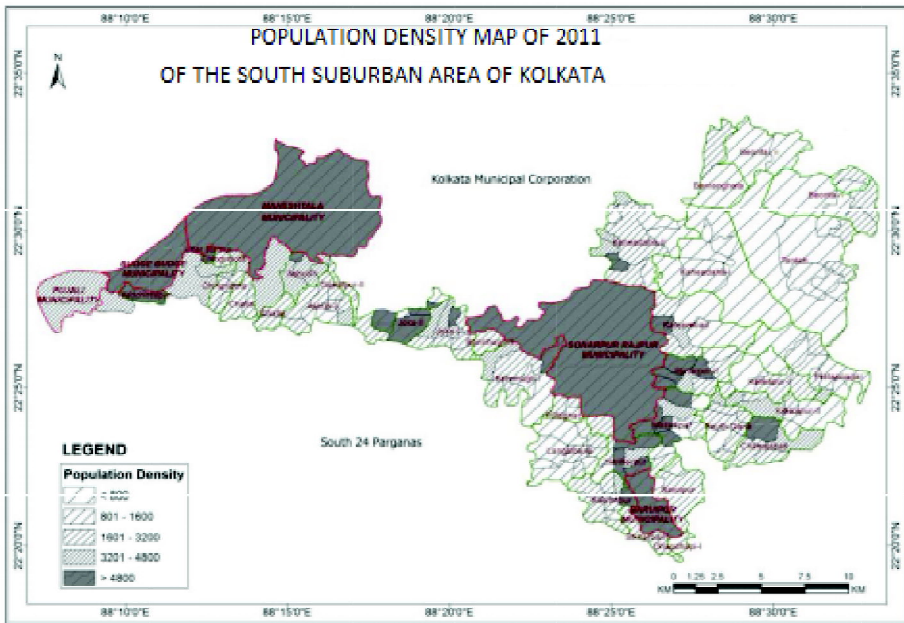
Figure -6

Budge I and ThakurpukurMaheshtala blocks; Baruipur and Sonarpur blocks were having less population density. Population density rises over time and in 2001, the density of population was 3201 in the area. [Figure –6] Except Pujali, all other municipalities i.e. Sonarpur Rajpur and Baruipur municipalities came under the high population density zone of more than 4800 people per sq km area. when all the rural pockets in the Bhangar I and Bhangar II blocks show less than 80 people per sq km area, only two pockets i.e. Joka and Nischintapur out growths show high population density as like as the municipalities. The areas in ThakurpukurMaheshtala block, Sonarpur and Baruipur block came under higher population density zone in 2001 than 1991. Density of population again increased to in 2011. [Figure – 7] There is a high variation of density of population between the constituent units, population density in 2011 reveals that the high density of population is seen at the western part of the study area which is due to the high concentration of the population with the expansion of the Kolkata Metropolitan Area at its western part than the eastern part which grew later. Census towns and out growths have possess high density in 2011. Thus most important feature of the population growth and distribution is that it is not evenly distributed rather its concentration is in some pockets which creates extra burden to the natural resources to the places.

### **Sex Ratio**

Sex ratio defined as the number of females per 1000 males is an important indicator of demographic changes which has a direct bearing with the population growth, working population, age-sex distribution, fertility and other population. Overall the male and female population variation is low in the study area. In 2011 the variation was low, where 869804 males and 838158 females are there. Spatial distribution of male and female in the area also witnessing low gender variation. The pattern of child population in the area shows less variation in terms of gender inequality, all the constituent units shows less variation in the distribution as well in the male female variation in child population at the age of 06 it proves that the area has no gender biasness.<sup>11</sup>

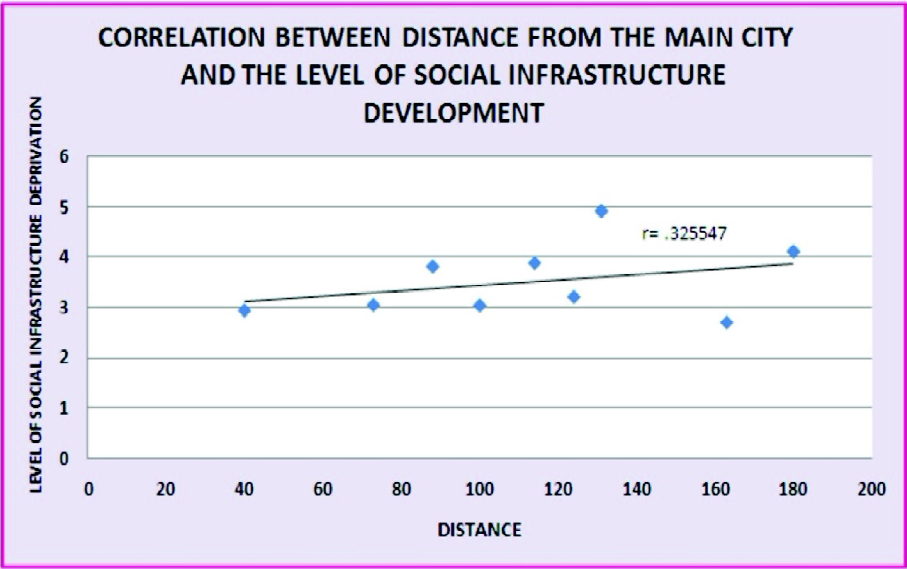
Thus it is revealed that in the study area the effect of suburbanization has changed its nature of land and aspiration level by its increasing communication level to the main city but failed to fulfill its demand to the desired norms. To identify the level of non availability of basic services some basic services like health which also includes water supply, sanitation, drainage systems; education and cultural services has been assessed with the help of infrastructure deprivation index. The index reveals that most of the areas mainly therural units are lacking in basic services due to non availability. [Table- 1]The municipalities are prime locations for surrounding rural areas which are under urban character but the municipalities themselves are not self sufficient due to over congestion and depends on city core



Source: Census of India, 2011

**Figure- 7**

for better services. Contradictory boundaries limit service providers but can not stop people to avail the services. Areas nearer to the city are urban in character and expecting facilities to the standard of a megacity and solely depends on it and the areas far away from the city though urban in nature but not getting the facilities to the desired level, a correlation has been done to show this result. With increasing distance from the main city the rate of infrastructure development decreases, it is proved with the  $r$  value 0.3258 and thus there is a positive relation between more distance and more deprivation of basic infrastructure. [Figure - 8] The areas where population growth rate is high lacking in social infrastructure services that is proved with the  $r$  value 0.1274. so there is a positive relation between population growth rate and level of deprivation. [Figure - 9] So they commute to the main city and pressurizing on the infrastructure, again population from far rural areas are depending upon these suburbs which are not self depended. Physical infrastructures like road, railway are not only facing the challenges of over crowding but the social infrastructures like education, health services are at the threat to this unplanned and congested situation and need to recover urgently. Where physical infrastructures need long gestation period to fulfill the demand but social infrastructure services may be constructed soon if concerned to the demand with quality services.



Source: Field survey 2017- 2018.

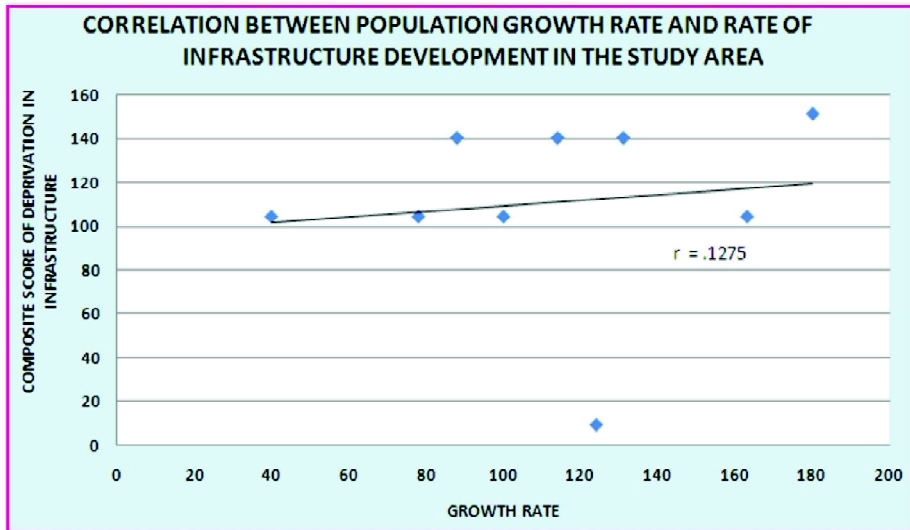
**Figure- 8**

The projection of population shows that there is a continuous increase in the total population size in all the constituent units but at slower rate (Table- 2). The census towns and out growths will experience high population increase than the municipalities and rural areas. Rajpur Sonarpur municipality which has highest population will have highest population in 2031 followed by Maheshtala municipality,

**Table – 1 : Infrastructure Deprivation Index**

| LEVEL OF DEPRIVATION | AREAS                                                                                                                                                                                                                                                       |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HIGH DEPRIVATION     | Balarpur, Muragacha, Nichintapur [OG], South Garia, Hariharpur, Baruipur, Kalyanpur, Sikharbali I, Dhap Dhapi I, Ashuti I, Ashuti II, Kheadaha I, Kheadaha II, Kamerabad, Bonhughli I, Sonarpur II, Bonhughli II, Protapnagar, Kalikapur I, Joka II, Joka I |
| MEDIUM DEPRIVATION   | Maheshtala [M], Pujali [M], Sonarpur Rajpur [M], Uttar Raipur [CT], Chotokalikapur [CT], Joka, Mallickpur, Tardah, Bamanghata, Uttar Raipur, Chingripota, Langalberia, Beonta I, Beonta II                                                                  |
| LOW DEPRIVATION      | Budge Budge [M], Nischintapur,                                                                                                                                                                                                                              |

Source: Computed by author



*Source: Field survey 2017- 2018*

**Figure- 9**

Budge Budge, Baruipur municipality. The census towns will show less increase of population in future but the population will be double in 2031 in the out growths. The situation for the rural areas is better where in 2031 will experience steady increase. So where with present population pressure the areas are not getting the proper services, in near future with more change in nature of environment and requirements it will be challenging situation for the service providers as well to the recipients which will pose threat to the area while the problems laid its foundation since its formation.

### **Conclusion**

The south suburban area of Kolkata is changing rapidly and as in direct vicinity to the proper city experiencing high population pressure with varying constituent units. The growth is not continuous rather patchy development of municipalities, census towns and urban like rural areas with transitional boundaries has created a challenge for the development of the area. The areas in transition with dual characteristics suffering more in terms of getting basic services. Disproportionate growth of population in the area can be checked by decentralized growth strategy. The areas like out growths and census towns are the future growth areas where planned distribution of population and settlement can be monitored to overcome the problem of lack of services. The available vacant land which is relatively high in comparison to other areas should be developed in phased manner. Some areas must be grown in priority basis like areas around Sonarpur, Baruipur

**Table – 2 : Population Projection in the South Suburban Area of Kolkata**

| Constituent Units       | Present Population | Projected Population |        |
|-------------------------|--------------------|----------------------|--------|
|                         | 2011               | 2021                 | 2031   |
| Budge-Budge(M)          | 76837              | 81000                | 82000  |
| Maheshtala(M)           | 448317             | 552000               | 590000 |
| Pujali(M)               | 37047              | 42000                | 44000  |
| Baruipur(M)             | 53128              | 67000                | 72000  |
| Rajpur-Sonarpur(M)      | 424368             | 635000               | 710000 |
| Census towns            | 53320              | 65000                | 74000  |
| Out growths             | 15655              | 28000                | 33000  |
| Thakurpukur- Maheshtala | 113821             | 183000               | 199000 |
| Budge-Budge-I           | 22334              | 63000                | 66000  |
| Sonarpur                | 219135             | 265000               | 289000 |
| Baruipur                | 173049             | 225000               | 247000 |
| Bhangar-I               | 28751              | 30000                | 32000  |
| Bhangar-II              | 44197              | 55000                | 59000  |

*Source: Census of India, 2011, Calculated by author.*

and at Pujali municipality where still existing vacant land can be mapped and grown in planned way for future population. The increase of population in 2031 will urge for the change of the status of the constituent units and thus the services must be provided at the desired level to cope with the population. There is a huge gap exists in the area as well there is a huge need to be fulfilled to achieve the desired norms. So steps must be taken to provide impetus to grow another areas and to provide basic services to all the administrative units to reduce the dependency on the municipalities and on proper city core.

## References

- Bengal Chamber of Commerce (1971) *West Bengal An Analytical Study*, Oxford and IBH Publishing Company, Calcutta, pp. 64.
- Bose, A. (1980) *India's Urbanization 1901-2000*, Tata McGraw Hill Publishing Company Ltd, New Delhi , pp. 12.
- Census of India (1961-2011) *Provisional Population Totals*, New Delhi.
- Government of India (2011) *Report on Indian Urban Infrastructure and Services*, The High Powered Expert Committee (HPEC) for Estimating

the Investment Requirements for Urban Infrastructure Services, Ministry of Urban Development, March, PP. XXIII.

Government of West Bengal (1990) *A Perspective Plan For Calcutta:2011*, State Planning Board Development and Planning Department, November, pp. 8-13.

Government of India (1951) *District Census Handbook, South 24 Parganas*, pp. ciii-civ.

Government of West Bengal (1990) *A Perspective Plan for Calcutta: 2011*, State Planning Board Development and Planning Department, November, pp. 8-13.

Government of West Bengal (1990) *Plan for Metropolitan Development (1990-2015)*, CMDA Report no:228 August, pp.15

Government of West Bengal (1995) *Direction of Future Development of Calcutta Howrah Metropolis*, Howrah, West Bengal, Volume II, Department of Architecture Town and Regional Planning and Indian Society for Technical Education, B.E.College Chapter, April 21, pp.19

Government of West Bengal, Official Website of South 24 Pargana District, retrieved on 16.3 2016, retrieved from: <http://s24pgs.gov.in/s24p/#>.

Government of West Bengal, *Population Profile of Kolkata Metropolitan Area 2001*, Kolkata Metropolitan Development Authority.

Gowda, et. al.(1997) *Infrastructure Development for Economic Growth*, Deep and Deep publications, pp.316.

Sengupta, S. (1988) *Residential Pattern of Suburbs*, Concept publishing company, Ahmadabad, pp. 35. Ibid, pp. 36.