# Changing Scenerio of Urbanisation Pattern in West Bengal, India: A Case Study of Haora District

Susmita Bhowmick[1]
Dr. Lakshmi Sivaramakrishnan [2]
[1] Junior Research Fellow, UGC, The Department of Geography, The University of Burdwan
[2] Associate Professor, The Department of Geography, Jadavpur University

## Article Info

## Abstract

*An important aspect of urbanization in the world is the uneven pattern of development and distribution of small towns and big cities within a system. In every urban system there are a number of large cities and a large number of small towns but the fact is that the large cities hold a larger proportion of population as compared with the smaller towns in respect to their space. This is very true in case of Indian urban system also. West Bengal is one of the most populous states in India which is no exception to this regard. The process of urbanization in the different parts of West Bengal shows a changing expression in the 21ˢᵗ century. The sudden reversal of demographic and also urbanization pattern in West Bengal indicates a flicker of 'in situ urbanization' which is no doubt very weak in India but it is important for urban sustainability .A visual investigation of the Census of India 2011 confirms the tremendous increase in the number of invisible towns (commonly known as census towns or non statutory towns) in India where West Bengal registered the highest number of census towns. Moreover, in West Bengal the district of Haora has the highest number of non statutory towns which indicates the changing phase of urbanization pattern. This actually helps to widen the view point of the geographers to establish the fact of decentralization although it is in initial phase of execution. So, the present investigation tries to unfold the changing nature of urbanization pattern with the identification of the existing urban structure and also to highlight the spatial distribution of 'unrecognized towns' in the district.*

## Introduction

A geographer's primary interest in a study is to focus on the inter-relationships between the people and their habitat which comprises the territory of the city and also analyze its structural characteristics. According to the locational approaches geographers are generally concerned about the question of a place is located in a particular place and what is its co ordinate address in map. However, in recent times many geographers are becoming aware of the empirical regularities in the size and spacing of towns and cities. Generally, the city does not follow the haphazard pattern of growth, rather a continuous spatial and statistical pattern (Ramachandran, 1989) which has been visualized in the present pattern of urbanization in India and also in West Bengal. Actually, cities grow initially but after a certain time it starts to get congested and crowded which results in the deconcentration of the population into the adjoining areas. It can be visually investigated from the Census of India, 2011 that the trend of urbanization is gradually changing from its traditional form. West Bengal presently follows the sudden 'U' turn of urbanization pattern from the last decade which confirms that the monocentred urban system has started to transform into the multicentred urban system (Bhagat, 2004). West Bengal is one of the most important states where this reality can be experienced in Haora district in relation to Kolkata Metropolis and in its influenced area. In the present investigation the spatial and temporal aspect of urbanization pattern of Haora district has been dealt with. However, the increasing pressures of population in the different pockets of the urban landscape of West Bengal have attained a space saturation which gradually exerts a changing force and this leads to the sub urbanization process..

## Objectives

The objective of this paper is concerned with the changing spatial and temporal pattern of urbanization

over the last decade. The present investigation critically unfolds the reality of changing faces of urban centres by identifying its spatial expression.

## Study Area

The area under study is the Haora district of West Bengal (earlier Howrah) which lies to the west bank of the river Hooghly. The name of the district Howrah may have been derived from *hawor* which means a vast swamp. Geomorphologically, this area is formed by the process of sedimentation by the Hooghly Bhagirathi river system whose main branch flows along the eastern part of the district, named as Hooghly River (Census of India, 1961). This district lies between the latitude 2212′ N and 2248′ N and 8750′E and 8823′ E. This is a triangular tract of the country which has two sub divisions, named Haora and Uluberia, two municipalities, namely Bally and Uluberia and one big corporation i.e. Haora Municipal Corporation (H.M.C) which is considered the heartland of the district.

The district of Haora is an important centre of industry and a centre of rapid growth in West Bengal. The present is dependent on the past: so let us take a look at the history of the district. From the beginning, Haora was a low and marshy land which was covered with dense forest. It was certainly inhabited by the people as this place is important for its situation along the western bank of the Hugli River. Actually, Haora existed as an important trade centre even before 500 years. The city of Haora started to increase its importance with the arrival of British Company who used this river as a source of development (KMDA, 2025). The 1971 Bengal partition also has added an extra energy in the growth of population of the district. In Haora, urbanization during the last decades had been phenomenal, as it has been responsible for the population explosion over here. To take an account from the year of 1901 till 1991 the increasing trend of population has remained same and its spatial agglomeration has also not changed. The north eastern part of the district along the Hugli River can be treated as the magnetic field as it bears positive growth rate with high population density and this is chiefly due to great industrialization along the bank of Hugly river. Haora forms one of the most densely populated districts with a density of 3306 per sq km in 2011. It acquires $9^{th}$ rank in sharing population with respect to the total population of West Bengal and with respect to population density Haora ranked $2^{nd}$ after Kolkata in the state. Presently, the census towns of Haora contribute 57% of urban population to the total urban population of the district which has increased from only 38 percent in 2001.The extreme density of population was observed even in the first Indian census 1872. So, this situation denotes that Haora is one of the most crowded districts of the state as well as of the country where, 63.4% of the total population are living in the urban area at present. Actually rapid rate of rural urban migration is an added

cause for the concentration of population in the large cities. That is why over the time, the increasing population makes these large cities very packed which help them to lose its carrying capacity because of the space saturation.

In 2001, Haora Municipal Corporation had already crossed its mark of one million (KMDA, 2005). For this specific reason, recent decades have experienced the population spilling from the urban core to its periphery. There is a tendency of the residents to flee from the most urbanized part of the district towards the other blocks (mainly rural part) which shows that a new chapter is commencing. This process ultimately influences the sub urban growth and this statement can be proved by the visual, quantitative and qualitative interpretation of the urban structure of the concerned district. The increasing number of census towns (not having urban administration) from 51 in 2001 to 135 in 2011 is an addition that denotes the deconcentration of population from the urban core to the periphery (Fig.2).

## Database and Methodology

For analyzing the overall growth pattern at macro as well as at micro level in the studied district, the block wise census data has been taken into consideration .Data related to temporal change of population, changing spatial concentration of census towns have been taken from the District Census Handbook, Census of India for several years (starting from 1961 to 2011) to unfold the reality of urban growth and its dynamic nature. Block level maps have been obtained from the District Census Handbook 1961.It should be pointed out here that prior to 1981, Haora district did not have the intra district divisions or blocks like Amta I- Amta II, Bagnan I- Bagnan II, Uluberia I- Uluberia II and Shyampur I- Shyampur II. Here, the blocks are used as units according to the requirement of the data analysis. To maintain the parity in the analysis, Haora Municipal Corporation (H.M.C) and other two municipalities (Uliberia and Bally) have been taken into consideration but they are treated as an exceptional urban unit.

For the same purpose, the changes in the area of the blocks in the different census year have also been taken into consideration because many mouzas (smallest rural administrative unit) have been reclassified and declassified with the blocks, some are merged with the municipality and some are not. They have been brought under lens to maintain the parity. These reclassified and declassified related data have been obtained from the relevant Census report of 1961-2011. A block level map of the Haora district has been georeferenced in the software, Arc GIS 9.3. A polygon layer has been built to vectorise all the blocks of the district and also line layers have been built to vectorise the rivers and roads. Point layers have been prepared to vectorise the urban centres which have been derived from the Google Earth in KML file format after identifying their locations over there.

### Result and Discussion

#### a) Spatial Pattern of Urbanization

Each and every person has his/her own individual right to live in a place, rural or urban according to their choice .But rapid migration of a large number of people can change the physical size and shape of a settlement (Ramachandran, 1989). The whole world, especially the developing world has experienced this phenomenon and India is one of them.  Especially in the last decade with the whole India, West Bengal has also experienced the changing expression of urbanization pattern. The visual map of West Bengal has come out in 2011 with a mirror reflection of sudden change of urbanization pattern where Haora, an industrialized district is one of them.

The increasing population in the urban, semi urban areas enhanced the urbanization process which is characterized by the growth of 'transitional towns' (commonly named as Census Town) in the district. This pattern shows that due to the dominancy of non agricultural activities among these towns, they are yet not considered as a municipal unit and for that only they are neglected in granting funds for development (Bhagat, 2002; Pradhan, 2013; Samanta, 2014) although they have potential for future development. The Register General of India has defined the criterion for identifying the census towns which are as follows—

1) Population size should be more than 5000.
2) Population density should be 400 persons/ sq.km.
3) At least 75 % male main workers should be engaged in non-farm activities.

It should be mentioned here that some planners think these criteria are nothing but incomplete criteria as these strongly follow the gender bias and the dichotomous factors in defining the urbanization in India ( Bhagat , 2002). In the mentioned district, some blocks are growing faster maintaining the above criteria due its locational advantage and also due to availability of the urban services. Point to be mentioned here is that in our country city attracts the trade and not the other way round (Bhagat, 2002). This makes the urbanized part of the district more crowded which is not equally distributed in every pocket of the district. From the last decade the increasing number of census towns in Haora developed due to over flow of population growth in the urban core of the district.

The block wise increasing level of census towns which is systematically represented in Fig.2 indicates the slow process of municipalisation in West Bengal. The temporal variation of block wise distribution of the census towns is also presented in Table 1. On the other side, Fig. 3a and 3b reflect the growth of census towns of the Haora district. This particular behavior shows that blocks like Domjur, Panchla, Sankrail, Jagatballavpur, Bagnan I and Uluberia I have experienced a sudden increase in number of non statutory towns in 2011 than the other urbanized blocks like Bally Jagachha, Uluberia II. Actually, this is an outcome from the previous discussion that the north eastern corner of the district is more industrialized and urbanized. This corner continues to grow and will ultimately lead to saturation which will result in an overspill of the population. This has also been reflected in the previous discussion. The most noticeable thing is that in the last decades, urbanization has increased faster than expected (Bhagat, 2002).

Spatiality of the urbanization pattern can be measured by two major ways: nucleation and diffusion. Nucleation indicates the concentration of population within a specific area whereas diffusion says the spreading effects from a certain point. The simple representation of the distributional pattern of census towns where Fig 3a basically indicates the nucleation pattern of urban growth which is concentrated mainly along the north eastern part of the study area and on the other side, Fig.3b leads to the presence of new form of urbanization (in situ urbanization) which is developed along the developed transport network system in the district. So, it can be understood from this that physical linkages are playing a crucial role to rejuvenate the areas away from the urban core of the district. The whole display (Fig 3a and 3b) is showing that once almost all the blocks (except Udaynarayanpur) were rural but they have experienced the changing attitude of its traditional form. It should be considered here that the increasing trend of census towns in the different pockets of the district is the indication of spatio temporal diffusion of the urbanization from the urban core to its periphery which is considered as the prenatal stage of the development of the secondary nodes for urban sustainability. Some blocks at the eastern part of the district like Domjur, Panchla, Sankrail, Uluberia II, Jagatballavpur have changed remarkably. So, this particular nature (diffusion after nucleation) reflects the possibilities of the presence of new nodes which can be treated as secondary node in a complete urban system of Haora. Since, the city and its surrounding areas grow in an unplanned way, there are no such projected expectations. However, it is important to find out the direction of this growth as this is important for the sake of the urban future. Fig.4 clearly indicates the direction of the growth of census towns which is shifted from the eastern boundary to the north western part and the western part. It basically indicates a natural tendency of concentration of population over there. With the developed connectivity, the saturated condition of Kolkata Metropolis is an added cause of this sub urban growth which actually leads the extension of urbanization away from the urban core of the district.

### B) Temporal Pattern of Urban Growth

The investigation on spatial variation of urbanization initially explores the concentration and dispersion of urbanization. But this part is very important because it explains the distribution of urban population in block

level of the Haora district. This section seeks to explore in detail the locational tendency of urban growth and also tries to address the growth of the individual blocks with respect to time. The blocks like Domjur, Sankrail, Panchla, Jagatballavepur, Bagnan I and Bagnan II and Uluberia II were the only blocks in 2001 holding the urban identity with the urbanized block of Bally Jagachha and Haora Municipal Corporation for having a certain percentage of urban population under the influence of adjacent metropolis of Kolkata .But in 2011 the whole pattern has changed and it portrays that the number of urbanized blocks have increased. In the last decade almost every block except Udaynarayanpur have experienced this positive growth and it throws the light on the east west primacy contrast of the district (Fig.5). Fig.5 reveals also that the urban population growth has not been confined along the eastern part rather it indicates the growing nature of urban population beyond the traditional urban heartland.

In order to further verify the changing urbanization pattern, contribution to the urban population by the census towns of the respective blocks have been reported in Table 3. It can be interpreted from this table that in the last decades the most urbanized blocks are losing their contribution in urban population growth than those blocks which are semi urbanized in nature. So, it is important to explicitly recognize that the blocks with the proximity of the large cities (Bally Jagachha, Sankrail) are declining in their capacity due to saturation and the blocks away from the large cities ( Panchala, Jagatballavpur, Amta I, Bagnan I, Uluberia I and Uluberia II) are gradually showing their potentialities through increasing contribution of a certain percentage of urban population. On the other side, Fig.6a and 6b are displaying the spatial distribution of urban centres according to their population size. The first point is to emerge from the Fig.6a is that a simple urban primacy prevails at the eastern part on the district whereas Fig. 6b portrays the unexpected increase of census towns which confirms the dispersed attitude of urban growth from the eastern part to the south eastern part of the district. Although patterning is not entirely clear but it shows a clear cut distinction between the eastern part (urbanized part) and the western part (semi urbanized part and rural part). Actually, many factors (economic and non economic) are responsible to the emergence of this strong E-W contrast (East-West) (Yan, 1990). Although the urbanization process has started to diffuse but still the backwash effect of Kolkata is so intense that it influences the concentration of the urban centres. For that reason the urban centres are mostly concentrated along the Hugli River. Additionally, as Haora Municipal Corporation (H.M.C), considered the twin city of Kolkata, is still controlling the whole urbanization process of the district with strong intensity. Thus, these clearly indicate the clustered pattern of growth which confirms the impression of Kolkata Metropolis.

## c) Spatial Development of Urban Hierarchy

This section has investigated the spatial variations in the concentration of the urbanization by measuring the level of it to unfold the situation of urban primacy in the Haora district. This section actually seeks to explore the locational tendencies of the urban centres throughout the urban hierarchy which vary considerably between the belts of the district. To understand the level of urbanization and the contrast between the belts of the district, five tiers in the urban hierarchy have been analyzed (Yan, 1990). Here visually the locational pattern of the five strata suggests the clustering nature of the cities at the stratum I and II but it starts to weaken as one progresses from the apex of the hierarchy to its base (Fig, 7). It can be seen that large cities are concentrated along the eastern part of the district which has suddenly discontinued from the stratum of III to stratum of VI.

At the stratum I large cities like HMC, Bally municipality have contributed 55.49%; Bankra itself at the stratum II contributed only 2.08%; 10 cities of stratum III have contributed 8.43%; 33 cities of stratum IV share only 14.39%; 79 cities of stratum V and 14 cities of VI have contributed 17.47 and 2.14% respectively of urban population to the total urban population of the district (Table - 2). Thus, it can be said from the above discussion that the population with less than 50000 are widely and evenly distributed over the area than the large cities which are mainly concentrated surrounding the Kolkata metropolis at the eastern belt of the district. It should be remembered that in Haora, 136 cities (96 % cities of the total cities) are in the more dispersed category which are portraying the deconcentration of urban population in the last decades. It indicates the initial phase of in situ urbanization which is a phenomenon of transformation of the rural units to the urban or semi urban ones without much geographical relocation (Zhu, 2007).

Now, from the above analysis some questions may arise about the spatial urban distribution. Are the areas adjacent to the nearest larger cities transformed rapidly into the urban units or are they evenly distributed over the district evenly? (Pradhan, 2013). Actually, experience says that in most of the developing countries the growth of the large metropolitan centres has often produced backwash effect which totally drains the rural hinterlands. Thus, there should be the evenly distributed points so that they can easily provide the basic needs and daily consumption products to its surrounding areas for their living properly (Rondinelli, 1983).In this regard it can be said that if one village becomes a potential point for giving the basic services to its surrounding villages then it becomes a point of growth and development for its own and also for its surrounding areas and this can be happened without the proximity of the large centres (Pradhan, 2013).

A visual inspection of the Fig 7 gives an impression that a number of census towns are developed under the influence of large cities but many of them are also dispersed in nature. It should be mentioned here that the main concentration has been found in the block of Domjur, Panchla and Sankrail which can be considered as the potential blocks as they are showing the increasing tendency in population density as well as urban growth, especially in the last decade. So, it can be inferred from the above analysis that the differential growth of rural and urban units and a massive transformation of the large villages into the census towns indicates an ins itu form of urbanization rather the urbanization through the rural urban migration (Pradhan, 2013; Zhu et al, 2007) and Haora is the replica of this phenomenon where a large number of census towns are also situated which are presently growing away from the major urban centres. Therefore, a deconcentrated, integrated system of cities provides a potential access to the market and comprises a balanced pattern of urbanization for the sustainable cities (Rondinelli, 1983).

### Conclusion

Throughout the whole inquiry from the different angles of this study, following methods were applied here to understand the whole scenario of the urban characteristics of the Haora district. The spatial pattern of urban centres has been identified to know about the present urban structure of the Haora district. GIS techniques have been applied to investigate the spatial pattern of urbanization with its directional change. From this analysis it is identified that the pattern of city location is strongly biased towards east and the scale of this bias is very prominent between them. The spatial dimension of urbanization as measured in terms of urban primacy indicates that the most autonomous regions are situated along the eastern part of the district. Although the degree of primacy has declined after 20th century, with time urban centres and urban growth which was concentrated around a pivot area (Haora Municipal Corporation and Bally Jagachha block) in the district that has started to relocate in its peripheral blocks. Some factors are responsible for this biasness and they are transportation factors, psychological factors etc. It can be added that the analysis at a certain stratum show a clustering pattern and somehow this pattern is less extreme than elsewhere. Actually, the eastern part of the district seems to be saturated moreover it is decaying as it located near to Kolkata which is considered as the growth pole of the West Bengal. The tendency of metropolitan residents to move away from central cities also indicates the initial phase of in situ urbanization within the district boundary. In the district, this peripheral growth of census towns actually would help to identify the sub centres which may help to uphold the whole district for its sustainable future along with the Kolkata Metropolitan Area. So, as a concluding remark it can be said that the heterogeneous form of the urbanization is slowly being transformed into the homogenous form. A huge number of emerging census towns during the last decade contributes significantly to the speeding up of the urbanization rate of the district. So, large number of transitional towns have developed within the immediate radius of influence of the large cities and also developed away from them. Hence, these cities should be taken under lens for their development as their potential is important enough for the future of the cities.

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Table - 1: Temporal Growth of Census Towns between 2001 and 2011

| Blocks | Census Towns (2001) | Census Towns (2011) | Blocks | Census Towns (2001) | Census Towns (2011) |
|---|---|---|---|---|---|
| Bally Jagachha | 6 | 7 | Amta I | 0 | 7 |
| Domjur | 16 | 23 | Bagnan I | 2 | 10 |
| Sankaril | 14 | 23 | Uluberia I | 4 | 13 |
| Panchla | 7 | 20 | Uluberia II | 0 | 5 |
| Jagatballavpur | 1 | 10 | Bagnan II | 1 | 7 |
| Udaynarayanpur | 0 | 0 | Shyampur II | 0 | 3 |
| Amta II | 0 | 3 | Shyampur I | 0 | 4 |
| | | | Bagnan I | 2 | 10 |
| Total = | | | | 51 | 135 |

*Source: Compiled by the Authors from the District Census Handbook, 2001-2011*

Table - 2: Urban Hierarchy based on Population Size

| Class | Size | Cities | Total No. | Urban Population | % |
|---|---|---|---|---|---|
| I | 100000 and above | Bally(CT), Bally (M), Haora (M.CORP), Uluberia (M), | 4 | 1076065 | 55.49 |
| II | 50000 -99999 | Bankra | 1 | 63957 | 2.08 |
| III | 20000 -49999 | Nibra,Kalara,Chakrapara,Dhulagari, Dhuliya, Podara,Sankrail,Sarenga, Jujarsaha, Panchla, | 10 | 259167 | 8.43 |
| IV | 10000- 19999 | Basantapur, Amta, Dakshin Santoshpur, Patihal, Domjur, Dakshin Jhapardaha, Salap,Akurhati,Kesabpur,Mahiari,Jagadis hpur,Chamrail,Argari,Jhorhat,Masila,Ram chandrapur,Panchpara,Manikpur,Raghud ebbati,Deulpur,Subharaha,Beldubi,Bikihak ola,BanHarispur,Kantaberia,Tehatta,Basu debpur, Khalisani, Brindabanpur,Paschim Bainan,Bagnan,Chak Srikrishna (OG) | 33 | 442282 | 14.39 |
| V | 5000 - 9999 | Paschim Gazipur, Paschim Kalna, Kanpur, Deora, Chandrapur, Bhandar Gachha, Udang, Jagatballavpur, Bankul, Mansinhapur, Anantabati, Ekabbarpur, Uttar Jhapardaha, Dafarpur, Rudrapur, Khantora, Bhandardaha, Makardaha, Kantlia, Tentuikali, Bipranoapara, Begari, Oadipur, Natibpur, Baniara, Jaypur Bil, Eksara, Khalia, Mirjapur, Andul, Kendua, Nabghara, Hatgachha, Banupur, Sankrilijala,Osmanpur, Ula, Nalpur, Kuldanga, Khasjalalsi, Kusadanga, Gangadharpur, Malikbagan, Jaynagar,Jalakendua,Paniara,Gabberia,D hunki,PaschimPanchla,Sahapur,Banibanj agadishpur,Raghudebpur, Santoshpur, Ghosalchak, Balarampota, Uttar Pirpur, Baniban, Chandipur, Kaijuri, Alipukur, Dhulasimla, Hirapur, Deulgram, Kalyanpur, Khajutti,  Bangalpur, Khalor, Naupala,Barunda,Kulitapara,Mugkalyan, Halyan,Shyampur,Dingakhola,Jallabad, Naul, Shashati, Dihimandalghat, | 79 | 536918 | 17.47 |
| VI | < 5000 | Ghoraberia , Kamalpur, Bargachhia, Chang Ghurali, Baluhati, Kamranga, Gondalpara, Mahisrekha, Karia, Chandrapur, Khadinan, Kanaipur, Batul, Radhapur, | 14 | 65755 | 2.14 |

*Source: Calculated by the Authors based on the data of District Census Handbook, 2011*

Table – 3: Contribution of Census Towns to the Urban Population Growth, Howrah, 2001 – 11

| Blocks | Urban Population 2001 | Contribution (%) | Urban Population 2011 | Contribution (%) |
|---|---|---|---|---|
| Bally Jagachha | 149948 | 22 | 200204 | 13.63 |
| Domjur | 212108 | 31 | 303078 | 20.64 |
| Sankrail | 194353 | 29 | 295633 | 20.13 |
| Panchla | 67936 | 10 | 208843 | 14.22 |
| Jagatballavpur | 5401 | 1 | 71243 | 4.85 |
| Udaynarayanpur ** | - | - | - | - |
| Amta II * | - | - | 15834 | 1.07 |
| Amta I * | - | - | 62025 | 4.22 |
| Bagnan I | 17439 | 3 | 81384 | 5.54 |
| Uluberia II | 27103 | 4 | 110806 | 7.54 |
| Uluberia I * | - | - | 30611 | 2.08 |
| Bagnan II | 7129 | 1 | 45372 | 3.08 |
| Shyampur II * | - | - | 20689 | 1.40 |
| Shyampur I * | - | - | 22629 | 1.54 |

*Source: Calculated by the Authors based on the data of District Census Handbook, 2001-2011*

*(Note: ** The block is not urban unit in both the census year, * the blocks were rural in 2001 but become urban in 2011)*
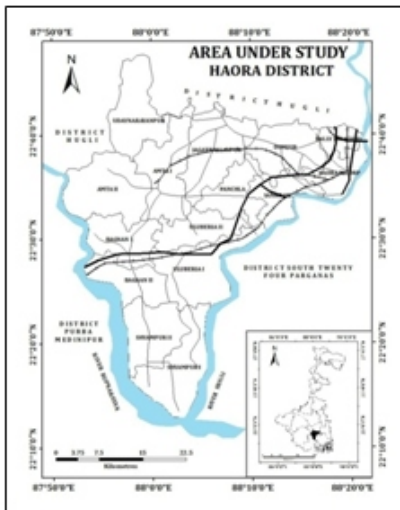


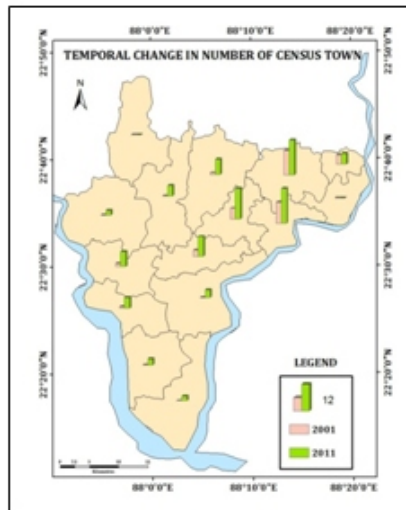Fig. 1: The Administrative Set up of Haora District



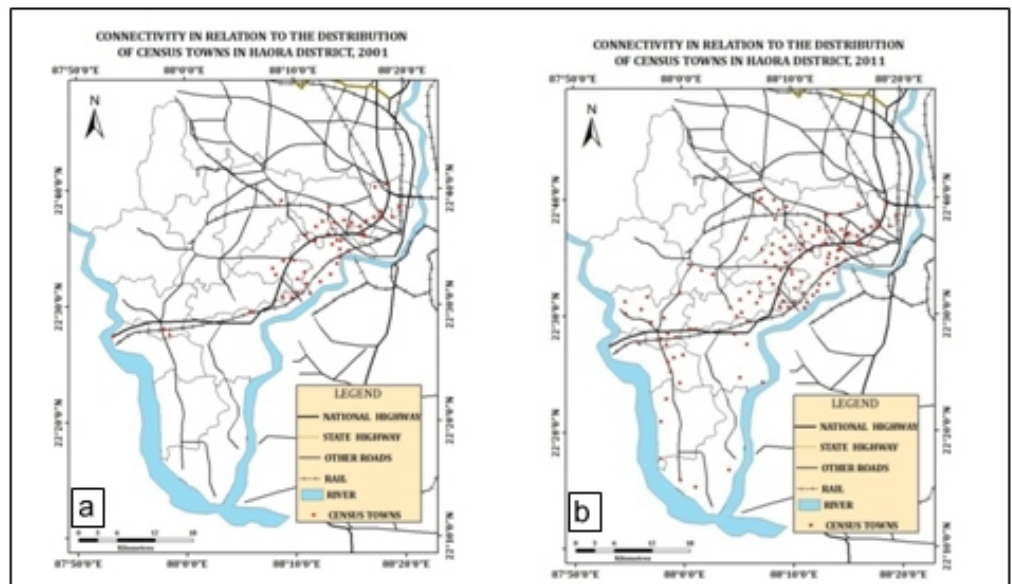Fig. 2: Block Level Changing Pattern of Census Towns



Fig: 3a and 3b, Temporal Change of the Distribution of Census Towns
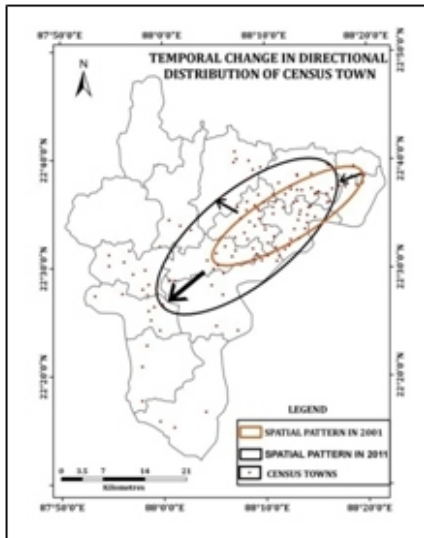
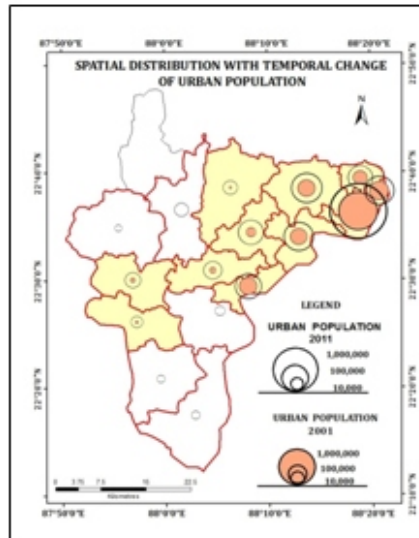Fig. 4: The Direction of Shifting of Urban Centres



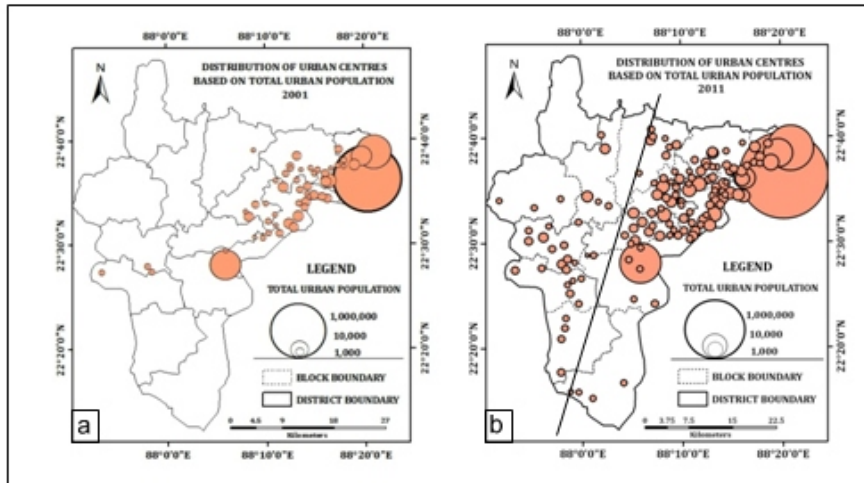Fig. 5: Spatial and Temporal Change of Urban Growth



Fig .6a and 6b: Distribution of Urban Centres, Based on Total Urban Population

Susmita Bhowmick
Junior Research Fellow, UGC
Department of Geography
University of Burdwan
Email: susmitabhowmick19@gmail.com

Dr. Lakshmi Sivaramakrishnan
Associate Professor
Department of Geography
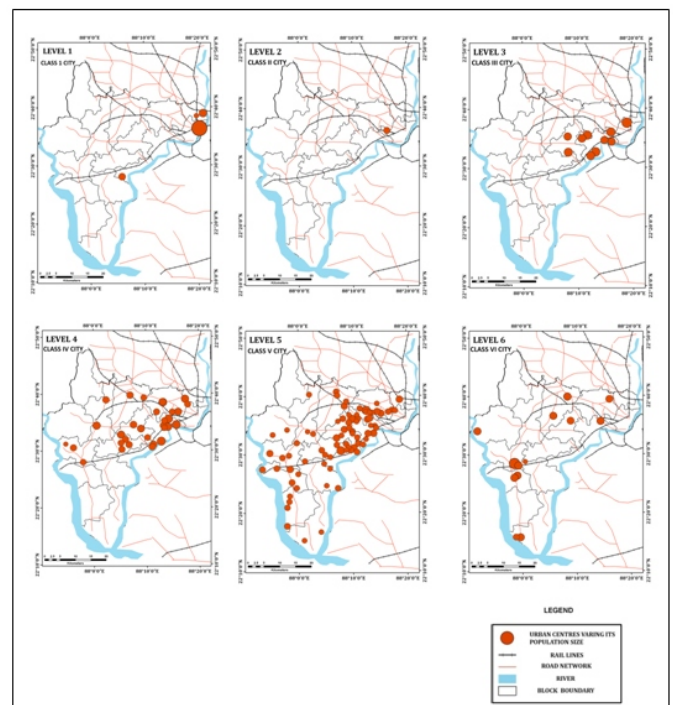Jadavpur University
Email: lakshmi.bu@gmail.com

Fig. 7: Distribution of Towns at different Levels in the Urban Hierarchy