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Growth behaviour of census towns in Kolkata metropolitan region, West Bengal, India

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Abstract

The Indian sub-continent shares a long history of urbanization which is characterized by spatial and temporal discontinuities. In the post-independence period, large cities grew disproportionately at the cost of small and medium towns which either remained stagnant or declined. Industries are mainly concentrated in the large cities and this has created problems at both ends of the urban system- the mega cities are often overcrowded leading to haphazard expansion representing a crisis of asymmetry in the urban system. An important aspect of urbanization in the recent times relates to a sudden increase in the in the number of small towns in different parts of India ushering a sure shift in the urbanization process. Often referred to as 'in situ urbanization' West Bengal is witnessing this change more vigorously than most other parts of India. The present paper investigates the spatial structure of the distribution of the census towns in West Bengal with special reference to Kolkata Metropolitan Region (KMR) during 2001-2011 decade. The paper identifies the future potential pockets of urban growth in the peripheral areas of Kolkata. Notable reversal has been identified in the direction of urban growth in West Bengal and also in the KMR.

Keywords: *Census towns; reversal growth momentum; space saturation; spatial distribution pattern.*

Introduction

The present urban system in most parts of the world is characterized by a swath of development in a few kilometers of every metropolitan city, giving the urban centre an appearance of an island of development in an ocean of deprivation. This is true of India as well as that of West Bengal. Economic development during the last fifty years in India is characterized by spatial lopsidedness (Gucchait, 2005), concentrated at the centre of large cities leaving an adverse effect on the growth of medium and small towns (Dikshit, 1997) engendering economic inequality across regions. Accelerated rural urban migration and growing concentration of economic activities in a few large cities have resulted in overcrowding, congestion and inadequacy of infrastructural facilities. This lopsidedness is getting further accentuated as more than 60 percent of the urban population is concentrated in class-I cities as per 2001 Census (Sahasranaman, 2012). There is a general consensus that decentralization of the services to the periphery of the cities is necessary to integrate socio economic development for making an efficient system for sustainable urban future (Jha, 2006). Dispersal of cities is possible when the small nodes at the periphery of the big cities are well connected with major cities both physically and functionally. According to 2011 Census, urbanization has increased faster than

expected. For the first time, absolute increase in urban population is higher than that of the rural population which has huge implication in providing infrastructure and other civic amenities in urban areas (Bhagat, 2011). The natural increase, net rural urban composition and rural to urban migration are all essential factors in urban growth. 'In-situ' urbanization where rural settlements and its population transform themselves into urban or quasi urban ones without geographic relocation of the residents too has been an important force in the urbanization process (Zhu, Qi, Shao, & He, 2007).

Urbanization in India can be broadly divided into two distinct phases, i.e. 1951-1991 and 1991-2011. The 1st phase of Indian urbanization (1951-1991) has largely been propelled by rural to urban migration during the post partition period. The census of 1971 recorded an influx of population especially to the metropolitian cities in Eastern India. Emergence of new commercial cities enhanced the metropolitization process which signifies the growth of cities with one lakh population and above in India. This process is essentially a product of centralization of administrative or commercial forces. This period witnessed the stagnation and even decline of small towns (Ramachandran, 1989). The second phase (1991-2001) in India has witnessed development of small towns and big cities leading to uneven urban structure. In India the level of urbanization slowed down considerably from 25.72 percent in 1991-2001 decade to 23.34 percent in 1981-91. But in the last 10 years (2001-2011) urbanization in India appears to exhibit a spatial shift to metropolitan fringe areas which is certainly a new development. West Bengal during 1991-2011 decades has experienced this new turn with a phenomenal increase in the level of urbanization propelled by massive increase in the number of census towns. The magnitude of this growth has more than a marginal effect in the evaluation of demographic and urbanization pattern in Kolkata Metropolitan Region (KMR). Kolkata (previously Calcutta), the capital city of West Bengal and its immediate surrounding area (Kolkata Metropolitian Area) act as an urban magnet to pull huge population. Kolkata Metropolitian Area (KMA) had a population of 10.8 million in 1991. Only Mumbai had more population than this. During 1951-1991, Kolkata conurbation expanded requiring planned intervention. The present study is an attempt to probe the spatial extension in urbanization and variation of census towns in the 21st century in KMR to measure its growth behaviour. The present work unfolds elements of *subaltern urbanization* in KMR which refers to the growth of settlement agglomerations that are independent and autonomous in their interaction with the other settlements (Denis, Mukhopadhyay, & Zerah, 2012)

Study Area

Kolkata Metropolitan Region (KMR) has been selected for the present study. The latitudinal extension of the study area (Kolkata Metropolitan Region) is 87°07′ E to 88°98′ E and 21°48′ N to 23°21′ N (Figure 1a and 1b). This area is spread over a number of districts namely, Kolkata, Haora, Hugli, North 24 Parganas, South 24 Parganas, ten blocks of Nadia, fifteen blocks of Bardhhaman, eight blocks of Purba Medinipur and nine blocks of Paschim Medinipur. According to the 2011 census, the total area of KMR is 23677 km^2 which includes 8 Districts; 87 Blocks; 73 Municipalities; and 468 census towns (now 467) (Table 1). The region includes the entire district of Haora, Hugli, South 24 Parganas,

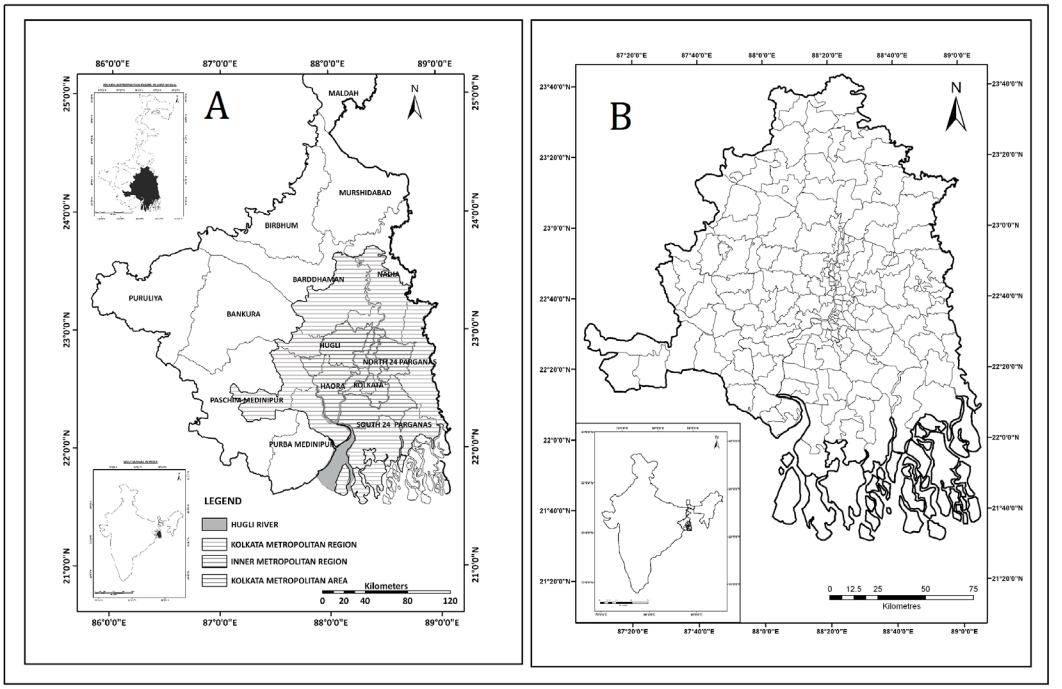

Fig. 1: Location of the study area; (A) KMR in West Bengal (B) Kolkata Metropolitan Region

Source: Vision 2020 (KMDA Report); 2005, after identifying the Blocks and districts by Researcher)

Table 1: Kolkata metropolitan region: administrative units

Administrative Units	Administrative Units
District	8
Block	87
Municipal Corporation	03
Municipalities	73
*Census Towns	468 (467) *

*N.B: *Joka has been excluded for its inclusion within Kolkata Municipal Corporation in 2012.*
Source: Compiled by the Researcher

North 24 Parganas in West Bengal and some parts of the district of Bardhhaman, Paschim Medinipur, Purba Medinipur and Nadia.

Data and methods

The present study is mainly based on the secondary data collected from Census of India 1991, 2001 and 2011; Statistical Handbook 2011; CMDA reports etc. The CMDA (Calcutta Metropolitan Development Authority) reports have been used to delimit the study area. The boundary of KMR has been determined by identifying the respective districts and blocks. The report of Directorate of Animal Resources and Animal Health, Government of West Bengal, 2001 and the

Google Earth Image, as on 16.3.2017 have also been used to find out the precise location of census towns in the study area. Census towns have been extracted from Google Earth Image as point data which has been transferred as Keyhole Markup Language (KML file) to GIS platform for making vector data to obtain the appropriate location of it. All the identified census towns and study area which were geo coded with Universal Transverse Mercator Projection (UTM) spheroid and datum WGS-84, Zone North 45, were assembled in Arc GIS software (9.3 versions). In order to examine the spatial spread of census towns in West Bengal, choropleth maps have been prepared using proportion of census towns (2001and 2011 separately) in each district except Kolkata city which has been excluded as it is fully included under municipal administration. The spatial data of census towns have also been used to generate the map for the same separately for 2001 and 2011 to show its growth pattern and also direction of dispersion in KMR (including inner KMR and KMA).

Result and discussion

A centre as a settlement node tends to multiply and grow. It serves to be both a 'container' and also a 'Magnet' (Jha, 2006). Urban areas in India are broadly classified into three types: statutory towns, census towns and out-growth. Statutory towns are commonly known as Municipal units which have administrative bodies like town panchayat, cantonment board etc. Census towns are complete settlement units that are classified as urban areas by the Registrar General of India as part of the census operations if they cross the threshold of three specific urban characteristics like population size with 5000, population density 400 person/square kilometer and at least 75 per cent of male workforce in non-firm sectors. The census towns are administered by rural administrative bodies like Gram Panchayat (GPs) in West Bengal (Pradhan, 2012) and are referred to as unrecognized towns because they are not capable of providing services at the level of urban local bodies (ULBs) due to lack of allotment of government funds as they are governed by the GPs. Urban out-growths are viable unit such as a village or a hamlet and clearly identifiable in terms of its boundaries and location like university campus, port area etc. Well planned development of these cities can help disperse rural migrant population and prevent overcrowding in metropolitan cities (Sahasranaman, 2012). In order to execute the plan of development of the census towns for sustainable future, it is imperative to know the present spatial pattern of the census towns. The 2011 Census highlighted the rapid growth in the number of these non-recognized towns which though contributed more than one third of the urban population growth in India during 2001-2011. These newly emerged census towns have added 7.4 per cent in 2001 to 14.4 percent in 2011 (Roy and Pradhan, 2018) to the total urban population. The present study highlights the spatial characteristics of census towns in West Bengal and its contribution in urban growth of KMR to underscore its importance in urban planning.

Growth of Census towns in West Bengal

West Bengal has the highest number of census towns among all the Indian states where urbanization has taken a new direction by increasing the number of census towns at the periphery of the big core cities in the first decade of the 21st century. The rate of urbanization in the existing towns as well as the growth of new census towns have changed remarkably in the last 10 years (Figure 2A and 2B). Presently (i.e. 2011), West Bengal has 787 census towns but in 2001, the total

Table 2: Inter district variation in distribution of census towns in West Bengal 2001-2011

Name of The Districts	Census Towns 2001 (%)	Census Towns 2011 (%)	Decadal Growth Rate (%)
Uttar Dinajpur	1.5	0.5	33.33
Hugli	14	8.13	128.57
Jalpaiguri	6.53	4.44	169.23
Haora	25.12	17.15	170
Puruliya	4.5	3.18	177.78
Murshidabad	11	8.25	195.45
Kochbihar	2.01	1.52	200
North 24 Parganas	9.5	9.9	310.53
Nadia	7	8	350
Purba Medinipur	2.01	2.54	400
Dakshin Dinajpur	0	0.5	400
Paschim Medinipur	1	1.39	450
Darjeeling	2.01	2.92	475
South 24 Parganas	7	13.98	685.71
Bankura	1	1.14	800
Malda	1.5	3.43	800
Bardhhaman	3.5	11.18	1157.14
Birbhum	0.5	1.78	1300

Source: Census of India, 2011

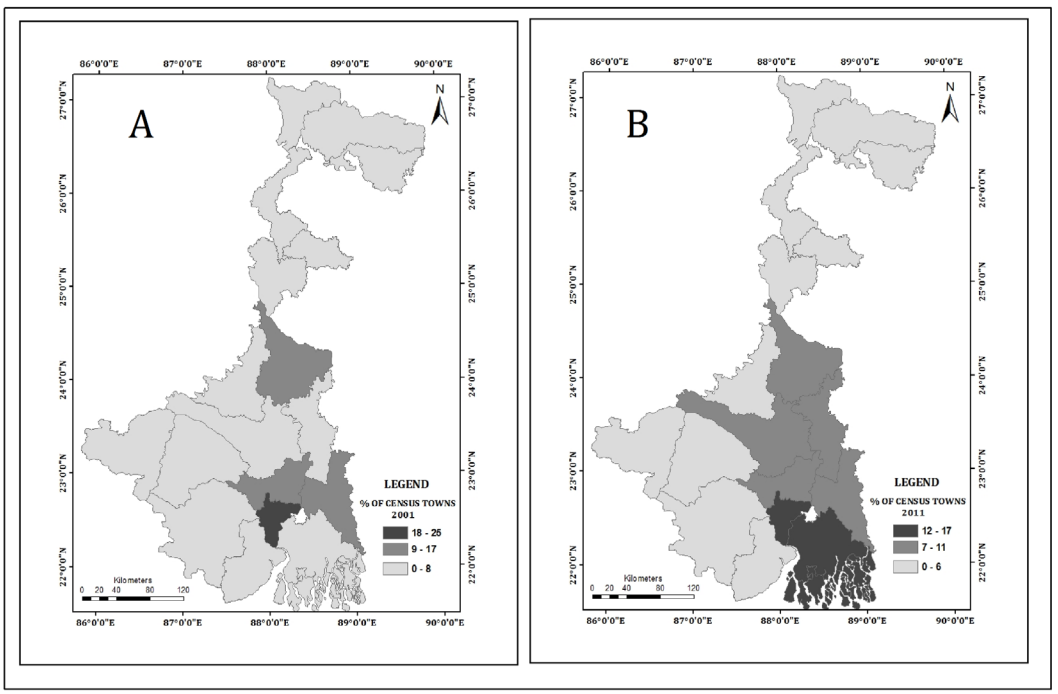

Fig. 2: Distribution of census towns in West Bengal. (A) 2001 (B) 2011

number of census towns was 199 and only 148 in 1991. Thus, increasing number of census towns has contributed significantly to an urban growth rate of 29.54 per cent during 2001-2011 in sharp contrast with 3.44 per cent during 1991-2001 (Table 3). The state also has the highest urban population density which is 6789 person/square kilometer (Samanta, 2011).

The urbanization pattern of West Bengal has always been characterized by top bottom orientation of development where large cities attract more services, functions and investments and it disseminated to the medium and small towns. But in West Bengal, this pattern is mainly restricted to Kolkata and its immediate urbanized districts in KMA. But a remarkable change has been found in the urbanization pattern of West Bengal during 2001-2011. Table 3 indicates high decadal growth rate of census towns and also proportion of urban population in this period in all the districts of West Bengal. However, figure 2A and 2B reveal that concentration of the census towns shifts from the urbanized pockets of KMA to the north east direction of the state especially in 2011. Districts in North Bengal such as Jalpaiguri, Uttar Dinajpur, Dakshin Dinajpur, Darjeeling, Kochbihar have fewer census towns in both the years. On the other hand, the peripheral districts like Barddhaman, Nadia, South 24 parganas have experienced high growth in the number of census towns in 2011 except the most urbanized districts like Haora, Hugli and North Parganas. The number of census towns in these traditionally urbanized districts remained by and large unaltered in both the years with some exceptions in 2011. This is a sure indication of a transformation of the urbanization pattern in the state taking a reverse direction. Table 2 shows a remarkable growth rate of census towns with the exception of Uttar Dinajpur. The increase in the number of census town is particularly significant in Barddhaman and Birbhum as well as in South 24 Parganas, Malda and Bankura. The most outstanding feature of this growth pattern is that the districts farther away from Kolkata have experienced relatively high growth rate compared to the highly urbanized districts like North 24 parganas, Hugli, Haora which are in close spatial proximity to Kolkata. It is not difficult to conjecture that improved modern transportation seems to have played an important role in the dispersal of census towns in the peripheral areas of Kolkata as the new census towns are primarily concentrated along the transport lines (Fig 4C). It is now pertinent to explore why the census towns are growing disproportionately around Kolkata.

Growth of Census Towns in KMR

The period 1991-2001 in West Bengal is witness to increased population pressure on Kolkata and its immediate surrounding area. With increasing importance, a town or a city grows dynamically and gradually becomes the most important centre to attract huge

Table 3: Decadal overview of urban characteristics in West Bengal

Year	% Urban Pop	Census Towns	Growth Rate (%)	% to Urban Pop. KMA	Statutory Towns
1991	27.48	148		58.92	
2001	27.97	199*	3.44*	58.88	126
2011	31.87	787*	29.54*	48.44	127

*Source : Census of India, 2011; * Calculated by Researcher, 2016*

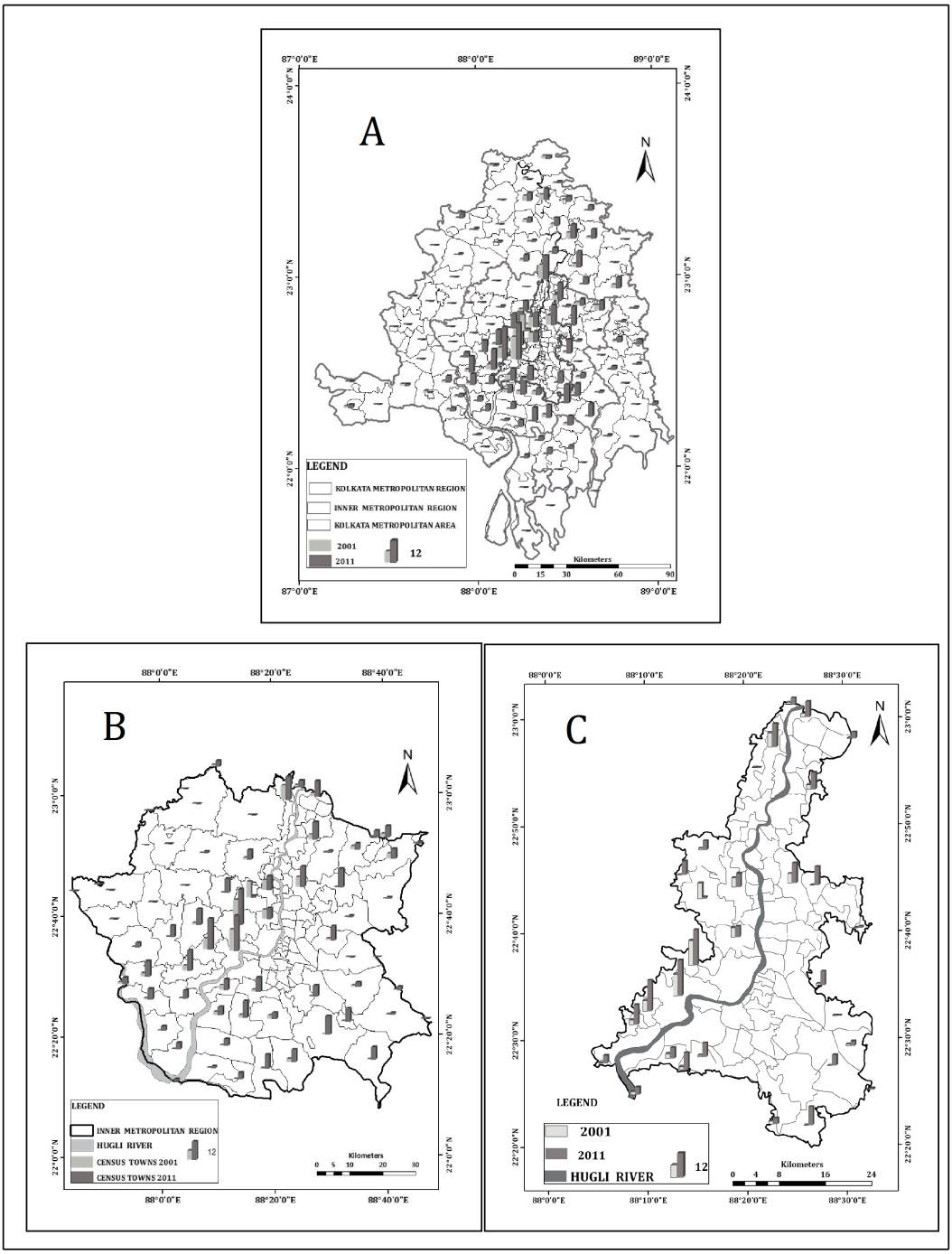

Fig. 3: Temporal changes of Census Towns- 2001 and 2011, A: KMR; B: Inner KMR, C: KMA.

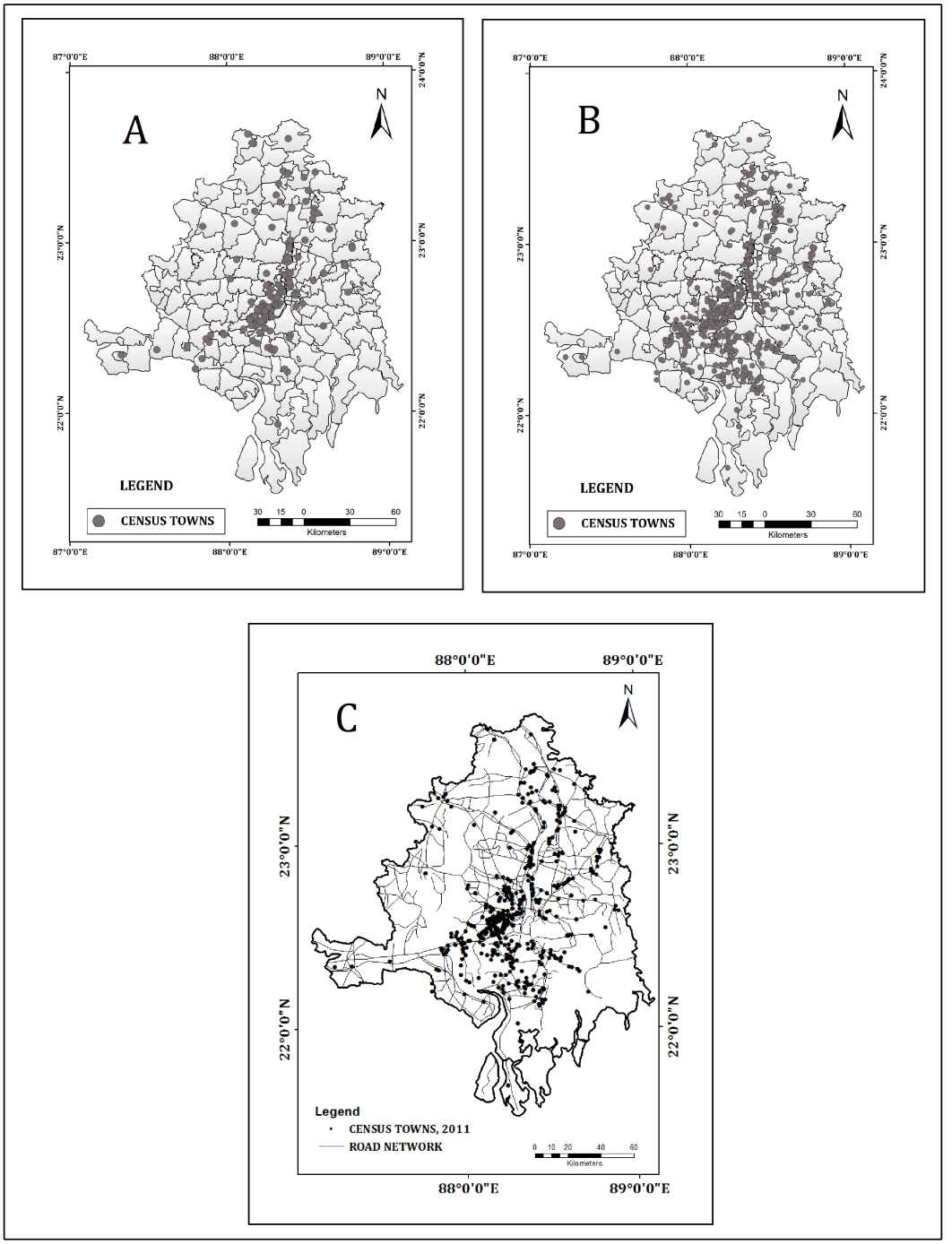

Fig. 4: Spatial distribution of census towns in KMR; (A) 2001 (B) 2011 (C) growth of Census Towns along the road connectivity

mass of population. At the juvenile stage of the development of towns as stated by Taylor, it is observed that towns are simultaneously subjected to both centripetal and centrifugal forces (Mandal, 2000). The city of Kolkata experiences centripetal forces while the fringe belt grows due largely to the operation of centrifugal forces (Kundu, 1986). The 2001 census of the KMA clearly reflects an increased population pressure and the increased multiplicity of census towns in the periphery of Kolkata during 2011. The proportion of the state's urban population in KMA has sharply declined from 58.88 percent in 2001 to 48.44 percent in 2011 in correspondence with the emergence of many medium and small towns as evident from decreasing urban population of class I towns from 81.77 per cent in 1991 to 75 per cent in 2001 (Table 3). Although KMA consists of a majority of municipalities (39 out of 73 in KMR) and also accounts for maximum share of urban population but the rate of urban growth has increased in the districts lying outside of KMA boundary. Out of the 787 census towns in West Bengal only 195 (25%) are located within KMA and the remaining 75 percent of new census towns are now distributed in districts with overwhelming agricultural economy (Samanta, 2011).

In this sense, Kolkata and its immediate surrounding areas can be considered as the magnetic pool attracting huge population and services. The KMR has nearly 60 per cent of census towns of the state and the remaining 40 per cent distributed in rest of the state. In KMR, Kolkata is the 'nodal point' that can rarely keep pace with its increasing population. Thus, under this situation, growth of census towns should be promoted as sub-centers in the periphery of Kolkata to check this expansion which may promote urban sustainability.

Changing Pattern of the growth of Census Towns in KMR

Substantial increase in the number of census towns in Kolkata's periphery is clearly indicative of a process of decentralization of urban development unfolding in more recent years. During 1991-2001, districts more proximate to the city of Kolkata had greater number of census towns. Table 4 clearly reveals a pattern of asymmetrical distribution in the spatial packing of the semi urban units i.e. the census towns. For a better understanding of the relative change in the census towns, the analysis has been carried out separately for the KMR classified into two spatial units, namely the inner KMR and the KMA.

Table 4: KMR: % age of urban population in census towns to the district population, 2011

Districts	Total Population	Urban Population	Census Towns	% Share of Census Towns
Hugli	5519145	2128499	64	18.01
Haora	4850029	3074144	135	45.26
North 24 Parganas	10009781	5732162	78	14.28
South 24 Parganas	8161961	2087773	110	13.46
Nadia	5167600	1438873	63	19.10
Paschim Medinipur	5913457	722686	11	5.75
Purba Medinipur	5095875	592714	20	5.24
Bardhhaman	7717563	3078299	88	5.21

Source: Calculated by the Researcher, 2016, Based on the data of Census of India, 2011

Figure 3A, 3B; 3C show the growth in the number of census towns in each district of the KMR, the inner KMR and in KMA respectively for the year 2001 and 2011. It appears that highly urbanized districts around Kolkata like Haora, North 24 Parganas, and Hugli have experienced accelerated growth rate of census towns in both the years and majority of the urban population is still concentrated in these districts. On the other hand, the growth of census towns in the peripheral districts like Burdwan, Nadia, Paschim Medinipur, Purba Medinipur in KMR is also significantly high. Although the growth rate of census towns in peripheral districts was comparatively low in 2001 but it began to increase rapidly by the year 2011. This sudden growth of new census towns in the peripheral districts indicates the changing nature of urbanization pattern in the KMR.

Figures 4A and 4B reveal a clear directional shift in the growth of new census towns during 2001-2011 in southwest and northwest direction from Kolkata along major arterial roads. Figure 4C confirms the positive correlation between road connectivity in the growth of new census towns in KMR. The maps reflect the process of nucleation and diffusion engendered by space saturation and unavailability of services in Kolkata and its immediate surrounding areas. The spatial extent of urbanization around Kolkata is already quite high stretching about 80 km along both the banks of the Hugli River. A huge number of new census towns have emerged during the 2001-11 decade which has accelerated the rate of urbanization in the KMR. The Census of 2011 shows a clear divergence in the urbanization process in the form of accelerated suburbanization.

Urban growth is stimulated by accelerated flow of population. West Bengal receives sizeable immigrants leading to the growth of urban centres in the KMR. The pattern of urbanization in KMR is linear largely dictated by major communications routes of the Hugli River as well as the road and rail connectivity. On the left bank of the Hugli River, the Eastern Metropolitan Bypass (EM Bypass) and the low-lying areas to the east practically define the existing urban area between Kalyani and Barrackpur of North 24 Parganas. Development of urban areas can also be found along the Kona Expressway and the Durgapur Expressway on the right bank of the same River. Overall large metropolitan centres are generally situated near the areas of major communications intersections (Chatterjee, 1991). The analysis also reveals that the degree of primacy has promoted most unbalanced urban structure in the KMR as found by Chatterjee (1991) Banerjee (1990) and Chakraborty (1990) in their respective studies. The more recent reversal in the urbanization pattern during 2001-2011 appears to have been largely determined by a change in connectivity mode during 1980's from River to Road. Indeed river played a significant role in the growth and development of Kolkata as a primate city from the very beginning. But the recent shift from river to roads as the primary means of connectivity has been a major force in the recent mushrooming of new census towns mainly along the road intersections in KMR (Fig 4C).

Conclusions

It may be concluded that until 2001 the urbanization in Kolkata was primarily influenced by the Hugli River in the most urbanized pockets of KMA. The pattern is

undergoing substantial modification in the first decade of the present century in response to changes in transport mode, especially road connectivity. Emergence of a large number of census towns associated with improved communication lines has been an important driver of the recent diffusion of the urbanization process both in the state and in the KMR. This changing pattern is more polycentric where each census town acts as an independent node for its development. This newly emerging pattern has its own dynamics calling attention to an integrated plan for rural urban development to promote decentralized development replacing the earlier emphasis on particular areas. In this context the opinion of Jairam Ramesh, then Union Minister of Rural Development appears significant when he said: 'our policies have been either for rural or for urban areas, we lack an approach to such *Tri-Sanku* (middle world) areas' (Pradhan, 2013, p.50). The conventional approach needs correction to focus on this new development of 'subaltern' urbanization that has potential for greater spatial integration of the two.

References

Bandopadhyay, A. K. (1991). Traffic and Transportation Situation in Calcutta: Pattern of its growth and outlook for the future. In B. Dasgupta, M. Bhattacharya, D. K. Basu, M. Chatterjee, & T. K. Banerjee (Ed.),Calcutta's Urban Future: Agonies from the past and Prospects for the Future (pp. 319-344). Kolkata: Government of West Bengal.

Banerjee, B. (1990). Future of Calcutta Metropolis looking for a new Regional Balance. In J. Racine (Ed.), *Calcutta 1981 : The city, its crisis and the debate on urban planning and devlopment* (pp. 351-370). Kolkata: Concept Publication.

Bhagat, R. B. (2011). Emerging pattern of urbanization in India. *Economic and Political Weekly,46*(34), 10-12. Retrieved from http://www.epw.in/journal/2011/34/commentary/emerging-pattern-urbanisation--india.html.

Chakraborty, S. C. (1990). The growth of Calcutta in the Twentieth Century. In S. Chaudhury (Ed.), *Calcutta : The Living City;Vol II,The Present and The Future* (pp. 1-14). Kolkata: Oxford University Press.

Chatterjee, M. (1991). Settelement Pattern the Calcutta Metropolitan Area- A Futuristics Vision. In B. Dasgupata, M. Bhattachariya, D. K. Basu, M. Chatterjje, & T. K. Banerjee (Ed.), Calcutta's Urban Future (pp. 177-206). Kolkata: Government of West Bengal.

Denis, E., Mukhopadhyay, P., & Zerah, M. H. (2012). Subaltern urbanization in India. *Economic and Political Weekly, 47*(30) 52-62. Retrieved from http://www.researchgate.net/publication/232273029_Subaltern_Urbanization_in_India.html.

Dikshit, K. (1997). The large and medium cities in India: The former as problem areas and the latter as growth centres of future. In J. Diddee (Ed.), Indian Medium Towns: An appraisal of their role as growth centres (pp. 27-47). New Delhi: Rawat Publications.

Government of India. Census of India.(2001). Retrieved from www.censusindia.gov.in: http://www.censusindia.gov.in/2011common/census_data_2001.html

Government of India. Census of India.(2011). Retrieved from www.censusindia.gov.in: http://www.censusindia.gov.in/2011census/hlo/pca/PCA_pdf/PCA-CRC-1900.pdf

Government of West Bengal. Kolkata Metropolitan Development Authority. (April,2005). Vision 2025: Final Draft. Kolkata.

Guchhait, S (2005). *Population Explosion in West Bengal: An Enquiry into some aspects of its geographical Reality*, (Doctoral Thesis). The University of Burdwan, Burdwan,West Bengal.

Jha, D. V. (2006). Small Towns and Regional Development. New Delhi: Rajesh Publication.

Kundu, S. (1986). *Urban Agglomeration and their role in the urban Development of West Bengal(India)* (Doctoral Thesis) North Bengal.

Mandal, R. B. (2000). *Urban Geography: a Textbook*. New Delhi: Cencept Publishing Company.

Pradhan, K. C. (2012). Unacknowledged urbanzation : The New census towns of India. In E.Denis & M.H.Zerah (Ed.), Subaltern Urbanisation in India: An Introduction to the Dynamics of Ordinary Towns (pp.39-66), New Delhi: Springer, Retrieve from https://doi.org/10.1007/978-81-322-3616-0.

Pradhan, K. C. (2013). Unacknowledged urbanization: New census towns of India. *Economic and Political Weekly ;48* (36), 43-48.

Ramachandran, R. (1989). *Urbanization and Urban System in India*. New Delhi: Oxford University Press.

Roy, S. N., & Pradhan, K. C. (2018). Predicting the future of census towns. *Economic and Political Weekly ; 53* (49), 70-79.

Sahasranaman, A. (2012). Financing the development of small and medium cities. *Economic and Political Weekly, 47* (24), 59-66.

Samanta, G. (2011). In between rural and urban: Challenges for governance of non-recognised urban territories in West Bengal. *Geo Spatial Issues*, August 2013, 44-56.

Zhu, Y., Qi, X., Shao, H., & He, K. (2009). The evolution of in situ urbanization and quasi urban population and their planning and environmental implications in China: Case studies from Quanzhou Municipality. In de Sherbiniin Alex; A. Rahman, A. Barbieri, J.C. Fotso, and Y. Zhu (ed.), *Urban population environment dynamics in the developing world: case study and lesson learned.* (pp.213-245) Paris: CICRED Retrieved from http://www.ciesin.columbia.edu/repository/pern/papers/urban_pde_zhu_etal.pdf

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