
Urbanisation and Growth of Slum Population in West Bengal: An Analysis with Spatial Technique

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Abstract

Cities and towns expand as a result of urbanisation, which is a process brought on by industrialization and economic growth. The paper's goal is to investigate the situation regarding West Bengal's rapid urbanisation and population expansion in slum areas. India's urbanisation movement has resulted in slums blending into the metropolitan landscape. One of the key factors contributing to the expansion of slums in India is rural-urban migration. 1.21 billion people call India home, with 31.30 per cent of them living in cities. Of this urban population, however, 61.8 million people, or 21.68 per cent, resided in slums. To assess the data, the population of the city and the slums has been compiled per district using a variety of secondary sources. The article comes to the conclusion that all districts are seeing an increase in the rate of Urbanisation, which has resulted in an increase in the population of slums.

KEYWORDS: urbanisation, slum, growth of slum, west Bengal, population

INTRODUCTION

Urbanisation is a process that results in the expansion of cities and towns as a result of economic growth and industrialisation. It also causes changes in specialisation, labour division, and human behaviour that are unique to urban areas. Slums have several definitions around the world; however they vary from nation to nation and depend on the government. By 2050, it is anticipated that 64 per cent of Africa and Asia and 86 per cent of the developed world would have urbanised populations (The Economist, 2012). Notably, the UN has also recently predicted that cities will absorb almost all of the increase in global population between 2017 and 2030, adding about 1.1 billion new urban residents over that time (Barney 2015: 4-7). The process of Urbanisation is not primarily driven by migration but rather by the demographic explosion brought on by natural growth. Urbanisation and slums are complimentary to each other, with the rising rate of Urbanisation the rate of slum also increases. One report disclosed by Urban Land Policy of United Nation, defines a slum as, "building, group of buildings or area classified by over-crowding, insanitary conditions, deteriorations or absence of facilities or amenities which because of such conditions or any of them, poses risk for the health, safety or morals of its inhabitants or the community". Indian Government defines a slum as "any predominantly residential

area, where the dwellings by reasons of dilapidation, over-crowding, faulty arrangement of design of buildings, narrowness or faulty arrangement of streets, lack of ventilation, light or sanitation facilities, inadequate of open places and community facilities or any combination of these factors are detrimental to safety, health or morals". According to NSSO slum is "a slum is a compact settlement of at least 20 household with a collection of poorly built tenements, mostly of temporary nature, crowded together usually with inadequate sanitary and drinking water facilities in unhygienic condition". The urban population growth in India climbed slightly to 28 per cent between 2001-2011. In 2011, 65 million people lived in urban slums worldwide, up from 52 million in 2001. That indicates an increase of slum dwellers in India of 25 per cent over the course of a decade.

LITERATURE REVIEW

There are several causes of urbanisation. Urbanisation is influenced by a number of factors, including industrialisation, the quick growth of cities and towns, accessibility to health care, etc. Many researches has been done on urbanisation in India, but very few researches are there on state wise urbanization. One research had been done on the trend of urbanization in the state of Jharkhand (Harshwardhan, Tripathi; 67-78). It has been found that Slum growth and urbanisation rates had increased significantly since Bihar's split from it in 2000. According to the report, there were only 11 metropolitan centres in 2001 that were home to slum dwellers, but by 2011 there were 31 of them. A 23.68 per cent increase in slum residents is recorded, compared to a 32 per cent increase in urban residents. Another research has been found which depicts the comparative analysis of urbanization between two states Maharastra and West Bengal (Shriyan; 890-904). From the analysis it has been found that growth rate of urbanization is higher in Maharastra than in West Bengal. One research shows West Bengal's geographical structure of urbanisation, which has seen significant change this century and is becoming more varied in character to break free from metropolitan domination. In the 20th century, the state's urban-industrial agglomerations of Kolkata and Durgapur-Asansol accounted for a large portion of the general pattern of urbanisation. With the emergence of new urban expansion in what can be described as "subaltern" regions far from metropolitan supremacy, this trend has begun to change as of the turn of the century (Samanta, 2012).

METHODOLOGY AND DATABASE

The present study is mainly based on secondary data, collected from the census of India from 2001 and 2011. Other various reports and data on slum has been used to studied and to present the real scenario. MS-Excel and QGIS software is used to analysis and present the data. The collected data have been analysed by using MS-

EXCEL and QGIS has been used for preparing the map to present the comparative analysis of the variables.

OBJECTIVES

The main objectives of this paper is to:

- To show the current trend and pattern of Urbanisation in Westbengal.
- To analyse the relation between growth of urban population and slum population.

URBANISATION IN WEST BENGAL

In the early 17th century, during the British Colonial era, West Bengal began to urbanise. During the British era, Kolkata, formerly known as Calcutta, was the capital of India. It developed as a port city and a commercial hub, which sped up industrialisation. There has been a consistent increase in the urban population of cities across the state since the British era.

Table 1- Urbanisation in West Bengal in 1901-2011

Census Year	Total Number of Towns	Total Urban Population	Urban Population (per cent)	Decennial Growth (per cent)	Urban Population Growth of India (Exponential)
1901	78	2,066,550	12		
1911	81	2,349,608	13	14	0.03
1921	89	2,517,874	14	7	0.79
1931	94	2,895,867	15	15	1.75
1941	105	4,740,222	20	64	2.77
1951	120	6,281,642	24	33	3.47
1961	184	8,540,842	24	36	2.34
1971	223	10,967,033	25	28	3.24
1981	291	14,446,721	26	32	3.79
1991	382	18,707,601	27	29	3.09
2001	375	22,427,251	28	20	2.75
2011	909	29,134,060	32	30	2.76

Source: Census of India, P- Provisional.

LEVEL OF URBANISATION IN WEST BENGAL

Table 2, demonstrates the urban population growth and the tempo of Urbanisation. Nearly all the districts of West Bengal demonstrate a growing level of Urbanisation. The level of Urbanisation shows the total number of urban population to the total population. Districts with high urban population growth rate compared to the rest because of industrialisation and investment in infrastructure, yet the majority of this occurred in and around big cities as well as future industrial hubs. It's high migration from rural to urban areas and from cities to cities are the main causes of urban population expansion. We have calculated the growth rate of population living in urban areas in the year 2001 and 2011 and also measured tempo of the Urbanisation between these periods.

For calculating the tempo of the Urbanisation, we have used the following formulae:

$TA = 1/n (PU^{t+n} - PU^t)$, where TA is the tempo of the Urbanisation, n= Number of years, PU= Per cent urban at the years t and t+n.

And for measuring the tempo of the Urbanisation in exponential terms we have used

$TR_e = 1/n \ln(PU^{t+n} / PU^t) \times 100$, where e is the exponential.

Table 2: Urban Population Growth (per cent) and Tempo of Urbanisation (per cent)

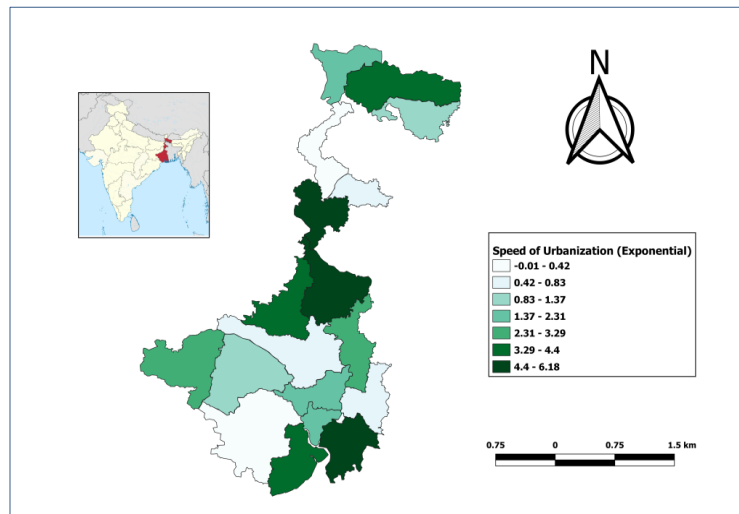
District	per cent of Urban Population in 2001	per cent of urban population in 2011	Growth of Urbanisation (per cent) 2001-2011	Tempo of Urbanisation (per cent) 2001-2011	Tempo of Urbanisation (Expo) 2001-2011
Bakura	7.37	8.34	0.97	0.10	1.230
Bardhaman	36.94	39.89	2.95	0.29	0.767
Birbhum	8.57	12.83	4.27	0.43	4.037
Kolkata	100	100	0	0	0
Darjeeling	32.34	39.42	7.07	0.71	1.979
Howrah	50.36	63.38	13.02	1.3	2.300
Hooghli	33.47	38.57	5.10	0.51	1.419
Jalpaiguri	17.84	27.38	9.54	0.95	4.283
Cooch Bihar	9.1	10.27	1.17	0.12	1.207
Malda	7.32	13.58	6.3	0.63	6.179
Purba Medinipur	8.29	11.63	3.34	0.33	3.386
Paschim Medinipur	11.9	12.22	0.32	0.03	0.266
Murshidabad	12.49	19.72	7.23	0.72	4.568
Nadia	21.27	27.85	6.57	0.66	2.693
North 24 Parganas	54.3	57.27	2.96	0.30	0.531
Purulia	10.07	12.74	2.67	0.28	2.352
South 24 Parganas	15.73	25.58	9.85	0.99	4.862
Uttar Dinajpur	12.06	12.05	-0.01	-0.001	-0.011
Dakshin Dinajpur	13.1	14.1	0.99	0.10	0.733

Source: Census of India, 2001 and 2011.

In 2001 level of Urbanisation in North 24 Parganas was the second-highest, followed by Howrah (50.36 per cent), Bardhaman (36.94), and Hooghli (33.47per cent) according to data gathered by the Indian census of 2001. Howrah saw the biggest growth in the urban population in 2011 (except for Kolkata, where it was 100per cent), with a growth rate of 63.38 per cent. North 24 Parganas came in second with a growth rate of 57.27 per cent, while Bardhaman came in third with a growth rate of 39.89 per cent. Between these 10 years of 2001-2011, the rate of growth of urban population was highest for Howrah which was 13 per cent, followed by South 24 Pargans (9.85per cent). Only exception has been observed for Uttar Dinajpur district, where growth of urban population was decreased by 0.01 per cent. It was 32.34 per cent for Darjeeling and 17.84 per cent for Jalpaiguri, respectively, for the growth rate of the urban

population in the districts located in the northern half of the state. In the years 2001 to 2011, urban population growth rate of Darjeeling and Jalpaiguri has been increased dramatically; in Darjeeling, it increased by 7.67per cent to 39.42per cent and in Jalpaiguri the growth was from 10per cent to 27.38per cent, respectively. Howrah (1.3), South 24 parganas (0.99), Jalpaiguri (0.95), and Murshidabad (0.72) were the areas with the fastest rate of urbanisation between 2001 and 2011.

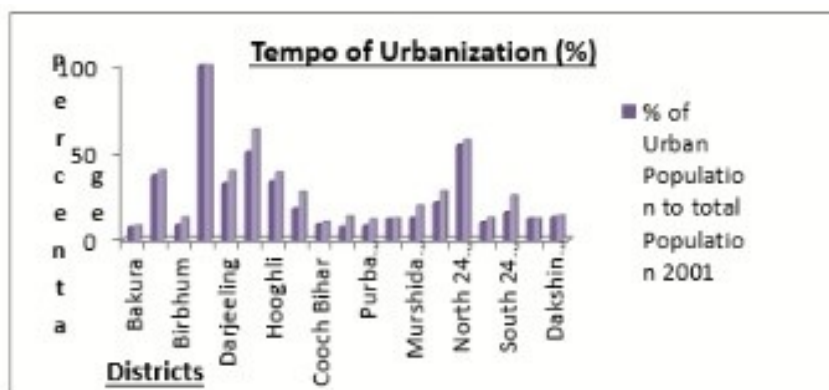
Fig – 1
Speed of Urbanization in West Bengal 2001-2011



Source: Census 2001 and 2011

Figure 1, shows the district wise tempo of exponential level of Urbanisation in the period of 2001 to 2011 in West Bengal. Kolkata, the capital of West Bengal and a major city of the state, saw the highest increase in the number of people living in cities which is 100 per cent in both 2001 and 2011 according to the census. The main industrial areas of the state are Howrah, Bardhaman, Purba and Paschim Medinipur. Industrial growth in this districts are also very high so the level of Urbanisation.

Fig – 2

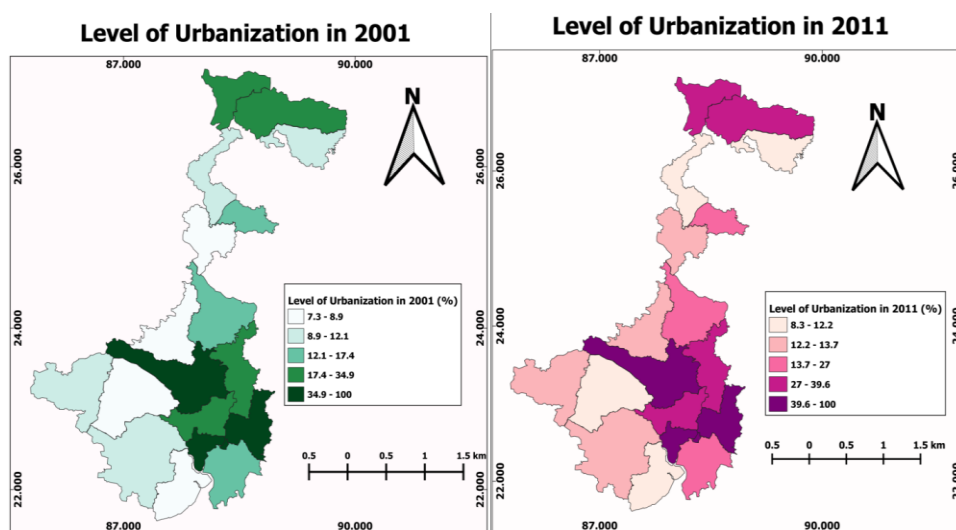


Source: District Census Handbook 2001 and 2011

From the figure 2, it is clearly visible that per centage of urban population to total population i.e. level of Urbanisation is higher in all the districts in 2011 compare to 2001, except Kolkata. Figure 2, shows the level of Urbanisation in 2001 and 2011, and from the histogram chart it is clearly visible that speed of Urbanisation is higher in the year 2011 than the year 2001. In terms of the decade-by-decade growth of the urban population, Uttar Dinajpur is the only district that has very little negative growth. One noteworthy finding from the data is that, in 2011, the same districts had double-digit rise in the per centage of urban population to total population, which was just a single-digit increase in 2001. It demonstrates just how quickly urbanisation is expanding throughout West Bengal.

Figure 3, shows the spatial analysis of level of Urbanisation (per centage of urban population to total population) in the year 2001 and 2011. Data on the level of urbanisation is categorised in five different categories with the help of QGIS technique. Since Kolkata is the state's capital, there are more workers in both the major and marginal categories than in other towns, which contributed to a higher rate of growth in the proportion of the urban population to the overall population (100 per cent).

Fig – 3



Source: District Census Handbook 2001 and 2011

GROWTH OF SLUM POPULATION AT DISTRICT LEVEL

The growth of urban population is increasing continuously in this 21st century. With the growing Urbanisation the slum areas also increases at a very fast rate. The slum areas are mainly grows in the cities due to migration in the main industrial centre of the state. Industrial centres provide better job opportunities and better livelihood for the workers which further leads to rising migration and slum in these areas. Total

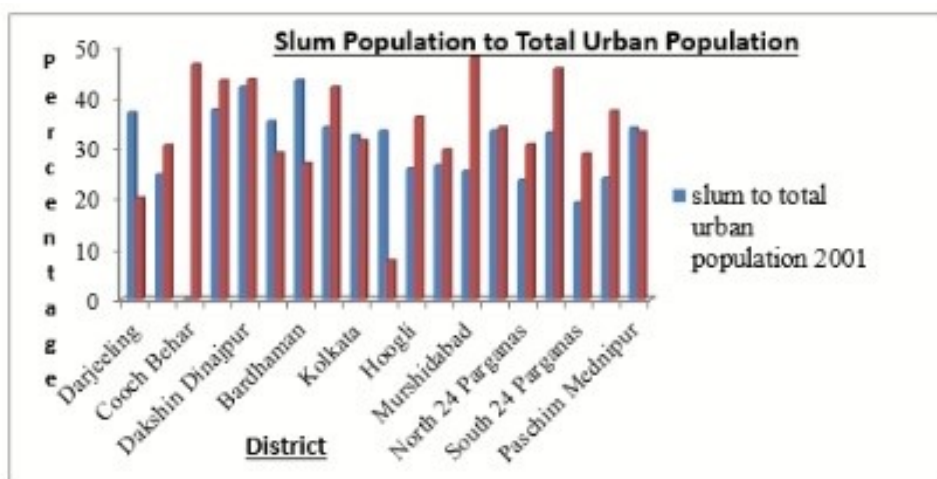
number of slum population was 4.66 million in 2001 and increased to 6.4 millions in 2011. Number of slum reporting towns was 89 in 2001 and increased to 122 in 2011. Proportion of slum household to urban households was 21.9 per cent in 2011.

Table 3: Slum Population in West Bengal in 2001 and 2011

Districts	Total Slum Population 2001	Slum Population to Total Urban Population 2001 (per cent)	Total Slum Population 2011	Slum Population to Total Urban Population 2011 (per cent)
Darjeeling	247766	36.88	111614	20.09
Jalpaiguri	48362	24.60	116581	30.46
Cooch Behar	NIL	NIL	27724	46.47
Uttar Dinajpur	99549	37.48	125989	43.22
Dakshin Dinajpur	82442	41.88	90857	43.37
Bankura	67000	35.13	67816	28.95
Bardhaman	861363	43.25	451263	26.90
Birbhum	52717	34.00	104591	41.86
Kolkata	1485309	32.48	1409721	31.35
Howrah	492218	33.17	83000	7.71
Hoogli	350888	25.78	421340	36.02
Malda	16636	26.42	60729	29.55
Murshidabad	158897	25.32	267309	47.76
Nadia	263130	33.24	245778	34.08
North 24 Parganas	910602	23.58	1187895	30.62
Purulia	50523	32.89	64014	45.53
South 24 Parganas	175463	19.08	292838	28.79
Purba Mednipur	76390	23.93	166123	37.21
Paschim Mednipur	182735	33.86	186403	33.00

Source: District Census Handbook.

Fig – 4



Source: District Census Handbook 2001 and 2011

The main industrial area of the states is Asansol, Howrah, Hooghli, Kharagpur. According to the census 2001, total number of slum population was highest in Kolkata which was more than 14 lakh, followed by North 24 Parganas (9.2 Lakh) and Bardhaman (8.6 lakh). Based on 2011 Census, Kolkata has the largest overall population of slum dwellers at over 14 lakh, followed by North 24 Parganas (11.87 lakh) and Bardhaman (4.5 lakh). Slum population in Kolkata decreases from 14.85 lakhs in 2001 to 14.09 lakhs in 2011.

As per the data of census 2001, the growth of slum population was highest in Bardhaman where 43.25 per cent peoples were living in slums followed by Dakshin Dinajpur (41per cent), Uttar Dinajpur (37per cent), Darjeeling (36per cent), Bankura (34per cent). In 2001 most of the southern districts of the state were already experienced the Urbanisation so the growth of slum compared to northern districts of the state were much slower. According to the data of census 2011, the growth of slum was highest in Murshidabad with 47 per cent rise in slum population and the decadal growth was 22 per cent, followed by Cooch Behar (46per cent), Purulia (45per cent), Dakshin Dinajpur (43per cent), Birbhum (41per cent). In terms of decadal growth, the growth rate of slums in was highest Cooch Behar (46per cent) because there were no towns as per the data of census 2001, followed by Murshidabad, Purulia, Purba Medinipur, Hoogli where the double digits growth of slums had been observed.

Few districts have also been witnessed negative growth of slums, Darjeeling (-16per cent), Howrah (-25per cent) and Bardhaman (-16per cent). The main reason behind negative growth is availability of lower job opportunity; unhealthy condition for living in the slums or they are trying to move to the proper areas of the town. There are still some towns where the growth of slum have not been counted in 2011, but it was calculated in the 2001 census like, Asansol of Bardhaman, Uluberia and Belly corporation of Howrah, Habra and Taki of North 24 Pargana.

Table 4: Growth of Urban Population and Slum Population 2001-2011

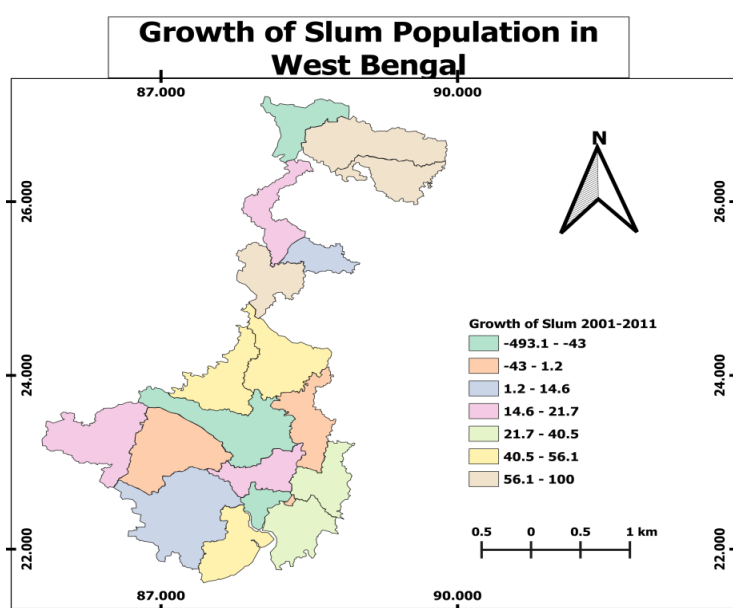
District	Growth of Urban Population 2001-2011 (per cent)	Growth of Slum Population 2001-2011 (per cent)
Darjeeling	28.51	-121.94
Jalpaiguri	42.77	58.52
Cooch Behar	22.05	100
Uttar Dinajpur	18.71	20.99
Dakshin Dinajpur	16.69	9.26
Bankura	21.52	1.02
Bardhaman	17.26	-90.88
Birbhum	42.5	49.6
Kolkata	-1.69	-5.36
Howrah	30	-493.06
Hoogli	20.7	16.72
Malda	55.51	72.61

Murshidabad	47.69	40.56
Nadia	31.92	-7.06
North 24 Parganas	15.37	23.34
Purulia	31.58	21.08
South 24 Parganas	47.97	40.08
Purba Mednipur	38.23	54.01
Paschim Mednipur	14.51	1.97

Source: District Census Handbook.

Table 5, shows the growth of urban and slum population in the period of 2001-2011. From the data it has been found that growth of urban population was highest in the district of Malda where it was 55.5 per cent, followed by South 24 Parganas (48 per cent), Murshidabad (47.69 per cent). The capital city of the state only experienced negative decadal growth (-1.69 per cent) in urban population. In terms of growth of slum population Malda also ranked top with 72 per cent, then Jalpaiguri with 58.5 per cent and Purba Medinipur with 54 per cent. Fig.5 shows the decadal growth of slum population in West Bengal in the period of 2001-2011. 5 districts of the state have experienced a negative growth in slum population according to the data collected from the district hand book and remaining 14 states have positive growth in the slum population. From the table and the map it is quite clear that growth of urban population and growth of slum population has a positive relation in West Bengal. Negative growth of slum population has been seen in the district of Darjeeling (-121 per cent), Howrah (-493 per cent), Bardhaman (-90 per cent).

Fig – 5



Source: District Census Handbook 2001-2011.

CONCLUSIONS

According to the aforementioned study, there is a direct correlation between the rate of urbanisation and the rate of slum population expansion. 89 slum towns were identified in 2001; 122 were reported in 2011. This demonstrates that as the state's municipalities grow, so do the populations living in slum areas. In the districts of Cooch Behar, Murshidabad, Purulia, and Dakshin Dinajpur, the per centage of slum dwellers to the overall urban population was high. In the districts of Jalpaiguri, Malda, Murshidabad, and Purba Medinipur, there has been a significant increase in the population of slum areas. However, the statistics also show that decadal growth of slums declined in a few districts due to a lesser frequency of rural-urban migration.

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