



Effect of Urban Sprawl on Human Habitation in Urban Fringe and Peri-Urban Areas in Kolkata Metropolitan Area

Sourav Sen



Abstract

Urban sprawl outside large cities expands the city itself and brings the demand for extending infrastructure and services towards adjacent municipal and panchayat areas. It also affects the housing condition of peri urban areas including local land market. The paper tries to analyze the urban sprawl in terms of increase of demand and prices of real estate properties and rising incapability of affording proper housing in smaller towns at the outskirts of Kolkata, leading to fresh slum conditions, in the peri-urban areas. It also tries to mark some strategies to ensure planned expansion of urban areas.

1. INTRODUCTION

At present, population of Kolkata Metropolitan Area is growing at a very fast rate, creating sprawl effect of human habitation in the adjacent rural land. Demand for land within the fringe areas especially in small and peri-urban centres of the KMA is growing. As more and more people are choosing to live in areas adjacent to the main city core, land value is increasing and rising beyond affordable limits of local people. This situation is explained through a study on floor area affordability of people in Madhyamgram - Barasat area and in different regions of the KMA. An analysis of BPL population in slum areas and non-slum areas in the KMA have also been done, and it is found that there is possibility of existence of more BPL population outside the existing slum areas. Government initiatives of providing affordable shelter to slum dwellers may leave a large percentage of urban poor, and they will be forced to live in slum like conditions. Present demand and supply scenario of housing is such that there would be natural tendency of creation of new slum areas i.e. habitation in degraded environmental conditions, in small towns and peri urban areas because even MIG population would also find hard to afford proper shelter at market prices. Planning strategies for combating urban sprawl in peri urban areas are thus prerequisite before framing any housing policy and program.

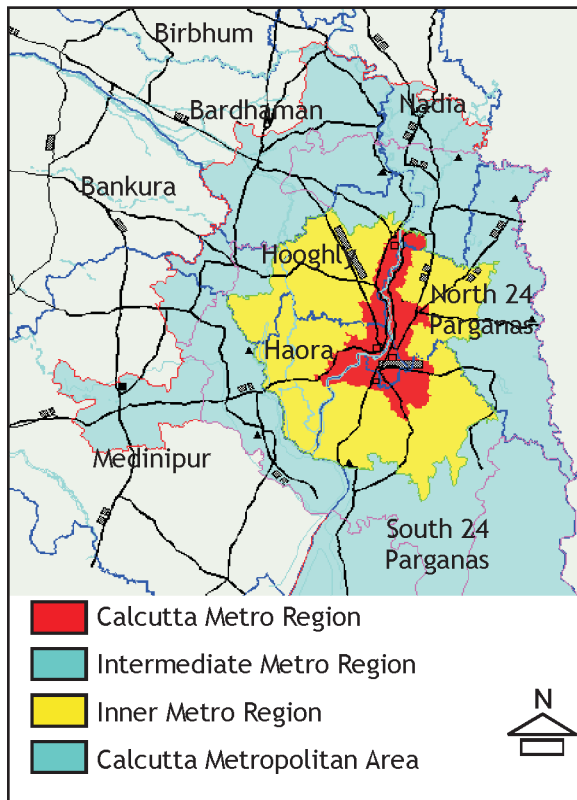
2. REGIONAL PERSPECTIVE OF EXPANSION OF KOLKATA METROPOLITAN AREA

The periphery of Kolkata Metropolitan Area has been expanding for the last three decades. In 1991, the area KMA was 1,350 sq km housing 12.5 million population. Most recently in 2007 that area has increased to 1,886.67 sq km and population has exceeded 15.5 million. It has been visualized that population of KMA would increase to 22.04 million and approximately 5.80 million population is going to

Sourav Sen, is an Assistant Planner, in Kolkata Metropolitan Development Authority, Kolkata, and done his post graduate studies in Town and Regional Planning from Bengal Engineering College. Email: sen.sourav74@yahoo.com



Fig. 1: Perspective Plan of CMA - 2025



settle either in municipalities and non-municipal areas within the KMA or outside it in 2025.

Only that part of the north eastern KMA along with the contiguous areas lying outside the CMD situated between Barasat and Barrackpore of Amdanga Police Station and that between Salt Lake and Barasat through Madhyamgram has tremendous potential to be developed very rapidly.

Comparative increase of population in different Municipalities within the KMA from 1981 to 1991 shows that in that decade Bidhannagar, North Dum Dum, Khardaha and Madhyamgram have increased at a greater pace. Within 1991 to 2001 population of Dum Dum, North Dum Dum, Khardaha, Madhyamgram and Rajarhat Gopalpur have increased at very high pace.

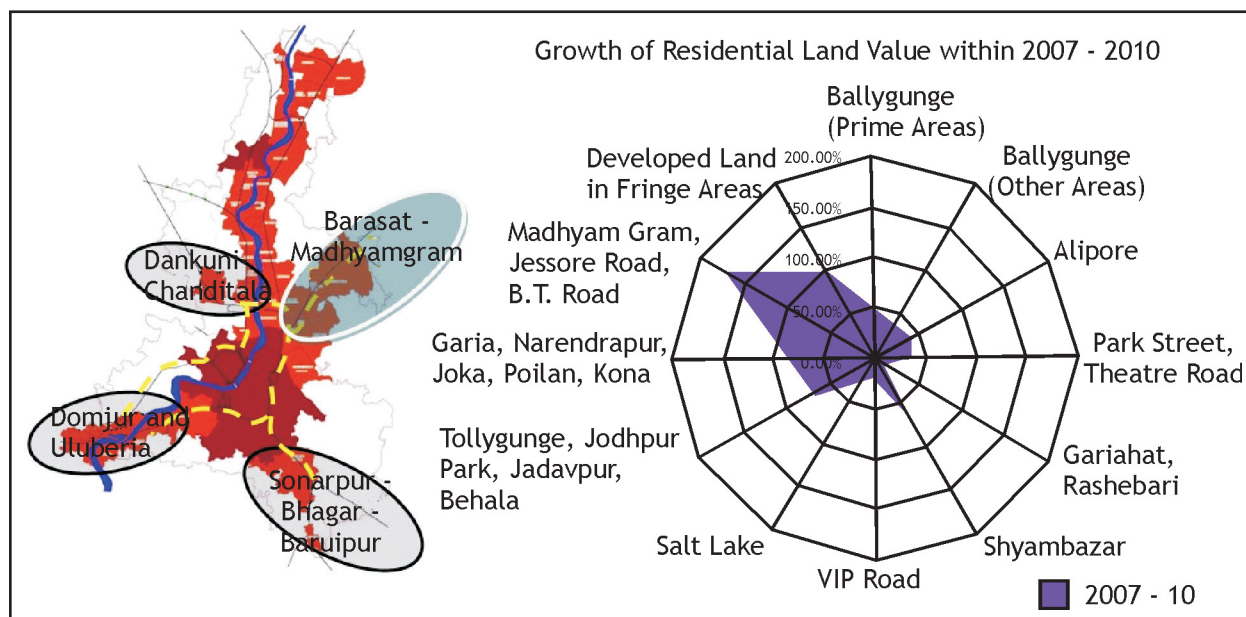
Analyzing population growth rate in North 24 Parganas district, Barasat Municipality (growth rate is 125.5 percent) is just behind Dum Dum Municipality (147.3 percent), signifying the direction of expansion of the metropolitan area outwards in north east direction.

Vision 2025 has estimated that annual requirement of houses to ensure shelter for total projected population within Kolkata Metropolitan Area is 90,000 per year. Vision 2025 have further explained that the ratio of share of involvement of the public sector, private sector and joint sector in combating housing shortage within the KMA is 18:80:2. The ratio shows that private sector is the major contributor of meeting housing shortage within the KMA.

3. DIRECTION OF URBAN SPRAWL

Requirement of additional houses have increased the demand of land within the core city and outskirts of Kolkata. Increasing land value trend shows the demand of residential land increased over time. Major residential areas in and around Kolkata city are Ballygunge (prime areas), Ballygunge (other areas), Alipore, Park Street, Theatre Road, Gariahat, Rashbehari, Shyambazar, VIP Road, Salt Lake, Tollygunge, Jodhpur Park, Jadavpur, Behala, Garia, Narendrapur, Joka, Poilan, Kona, Madhyam Gram, Jessore Road, B.T. Road, Developable land in fringe areas. A survey by NK Realtors, a real estate company in 2010 showed that land value has significantly increased in Madhyamgram, Jessore Road, and B.T.Road in north eastern fringes as well as Narendrapur Baruipur area in southern fringes of Kolkata city. This implies the direction of expansion of most active residential markets in and around Kolkata city towards the eastern banks of river Hooghly.

Fig. 2: Growth of Residential Land Value within 2007-2010



3.1 Floor Area Affordability of Barasat - Madhyamgram Area

Madhyamgram Municipality is one of the most potential urban centres that is taking the pressure of urban population growth within Kolkata Metropolitan Area. Urban household survey in 2006 by SUDA showed that total BPL population in Madhyamgram is 14.27 percent. A socioeconomic survey in 2006 showed that percentage of population having average family income below Rs. 5,000 per month is 68 percent in Madhyamgram and 90 percent in Barasat Municipality. These Families have the investment capacity 10 percent maximum for shelter from their family budget. It indicates that they are either ready to live in a rented accommodation within maximum Rs. 500 month rent or may look for a suitable loan around Rs. 50,000 to Rs. 100,000 with prevailing rate of interest that is repayable within maximum 20 years. These families can afford maximum 50 sq ft at the prevailing real estate rates for flats which is within 1,700 to 2,000 per sq ft floor area, which is not a practical space to live in. At the time of preparing Draft Development Plan in 2006, 77 percent of the population considered themselves within economically vulnerable sections of the society in this region. Where 70 percent to 75 percent families cannot own more than 50 sq ft or rent more than 100 sq ft residential accommodation. This means that a huge percentage of households would be forced to live in slums or in degraded living conditions.

3.2 Floor Area Affordability of different Regions of KMA

According to Socio-Economic survey Report of CMDA, 1996-1997, approximately 33 percent of the households within the KMC live in their own houses while 58 percent and 63 percent of the households in other municipal areas and in non-municipal urban areas live in their own houses. In rural areas of KMA, 96 percent of the households have their own houses. In KMC, half the population i.e. nearly



51 percent of the households live in rented houses and more than 16 percent of the families live in informal settlements, categorized as 'others'.

Comparing residential floor area per person it is found that approximately 45 percent and 52 percent of the households have to adapt themselves to less than 5 sqm floor area per person in Howrah and Kolkata Municipal Corporation area which is eventually the core of the KMA. It may be stated here that 4.67 sq mt per person is necessary personal space required for each person according to Edward T Hall's personal reaction bubbles (1966). Overall in the KMA 41 percent of these families live in congested environment and with lower privacy levels. On the other hand approximately 30 percent families in total KMA enjoy floor area more than 9.3 sq mt i.e. 100 sq ft per person. This situation signifies sharp contrast of affordability and of living conditions within KMA. For obvious reasons, for example, cost of living, land value, cost of construction, etc., compels these families to live in degraded conditions in core cities and lesser in other municipal and non-municipal towns. In rural areas the disparity is less where 81 percent of

Table 1: House Ownership Pattern

Types of Possession	KMC%		HMC (%)		CMU (%)		NMU (%)		Rural (%)		KMC(%)	
	Household	Persons	Households	Persons	Households	Persons	Households	Persons	Households	Persons	Households	Persons
Owned	32.7	39.0	44.3	50.3	58.0	64.2	62.9	69.7	95.9	96.8	49.6	55.9
Rented	50.9	51.2	47.5	44.7	29.9	26.1	25.1	20.4	3.7	2.8	37.7	25.5
Others	16.4	9.8	8.2	5.0	12.1	9.7	12.0	9.9	0.4	0.4	12.7	8.6
Total	100	100	100	100	100	100	100	100	100	100	100	100

Source: Vision 2025

Table 2: Floor Area Affordability

Floor Area per Person (Sqm / Person)	% of Household Residing in Different Area					
	KMC	HMC	OMU	NMU	Rural	KMA
2.76	32.50	27.80	18.00	17.30	3.50	23.50
3.1 - 5.0	19.40	17.80	17.70	15.40	15.90	18.10
4.69 - 6.44	8.50	8.50	9.60	8.20	14.10	9.30
6.53 - 9.2	13.50	15.60	18.50	12.50	23.40	
9.29 - 18.45	18.00	22.70	26.40	28.00	29.70	23.20
18.49 - 27.6	5.00	5.80	6.70	10.60	9.90	6.50
27.69 - 46.0	1.70	1.20	2.20	6.00	2.90	2.30
46.09 -	0.80	0.40	0.60	1.60	0.30	0.70
Not Reported	0.60	0.20	0.40	0.40	0.30	0.40
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Vision 2025



the families have their members satisfied with equal or more than the optimum personal space.

A sharp contrast in terms of number of rooms per family could also be seen in the core city i.e. KMC and HMC. 40 to 50 percent of the families live in one room accommodation while 8 to 10 percent population lives in accommodation having more than five rooms.

4. SLUM AND NON SLUM POPULATION WITHIN KMA AND KOLKATA CITY

Table 3 shows that percentage BPL population in urban areas of KMA is very much equal to the percentage of slum population in KMA area. It signifies that urban poverty may be equated with increasing concentration of urban population in slum areas. These slums represent the highest concentrations of poor people within worst shelter and environmental conditions. But at the same time it could also be seen that the municipalities like Khardaha, Barrackpore, Pujali, Madhyamgram, Gayespur, Rajpur-Sonarapur, North Dum Dum, Maheshtala, Baidyabati, and Naihati have greater percentage of BPL population than slum population. Similar situation may be observed in South Dum Dum, Barasat, Rajarhat-Gopalpur municipalities.

Incidentally most of these areas are first growing urban areas undergoing rapid urbanization and sharp increase of demands in property market. Sharp inequality of wealth and assets with predominance of urban poverty irrespective of slum and non-slum could be seen throughout the Kolkata region.

A recent study based on the analysis of NSSO data also concluded that contrary to popular perception, not all slum dwellers are poor and non-slum residents are not always better off than slum residents. The study also suggested that the poorest non-slum residents are worse off than the poorest slum dwellers. National Family Health Survey (2005-2006) revealed that in Kolkata ratio of poor population in slum and non-slum is 3:2. While 50 percent of the poor families live in houses having one sleeping room for five or more persons, a similar situation exists for 41 percent of slum dwellers and 15 percent of non-slum dwellers in Kolkata. More than 10 percent of the households in Kolkata are forced to share one room for seven occupants. Irrespective of the existence of urban poor, whether it is in slum or non-slum, people live with poor supply of drinking water, poor sanitation facilities, and degraded environmental conditions.

4.1 Government Initiatives in Housing for the Urban Poor

The Eleventh Five Year Plan has estimated that 97 percent of the housing shortage is shortage of EWS and LIG housing, and thus 'affordable housing' is recommended for them. A High Level Task Force is constituted by the Ministry of Housing and Urban Poverty Alleviation and attempted to fix a definition of affordable housing for a country as large and diverse as India, using the concept of 'one-size-fits-all' is counter-productive. Table 4 explains the parameters for affordable housing considering size of households as five members.

Some of other suggestions contained in this report for resolving the housing shortages are upward revision in the FSI, improving land records system


Table 3: Slum Population Statistics of ULBs within KMA

Sl. No.	Name of the Urban Local Bodies	Percentage of BPL	Percentage of Slum Population	Population increase	Rank in Percentage of BPL	Rank in Percentage of Slum Population	Rank in Population increase	BPL population outside slum
1	Khardah	58.00	20.91	31.57%	1	20	18	37.09
2	Barrackpore	29.00	3.09	1.24%	16	38	40	25.91
3	Pujali	46.00	20.15	14.67%	4	21	27	25.85
4	Madhyamgram	29.00	3.20	45.45%	13	37	12	25.80
5	Gayespur	50.00	25.96	5.50%	2	16	36	24.04
6	Rajpur-Sonarpur	28.00	5.00	46.63%	18	36	10	23.00
7	North Dum Dum	22.00	1.21	46.72%	29	39	9	20.79
8	Maheshtala	33.00	12.44	34.73%	10	28	16	20.56
9	Baidyabati	19.00	0.00	20.15%	35	41	23	19.00
10	Naihati	28.00	9.25	62.34%	17	34	6	18.75
11	Hooghly-Chinsurah	29.00	10.53	5.73%	15	32	35	18.47
12	Howrah M.C.	30.00	11.72	6.13%	11	29	34	18.28
13	South Dum Dum	42.00	24.88	68.44%	7	17	3	17.12
14	Baruipur	27.00	10.14	19.40%	23	33	24	16.86
15	Bansberia	34.00	17.45	10.30%	9	24	30	16.55
16	Halisahar	29.00	16.05	9.17%	14	26	31	12.95
17	Konnagar	28.00	15.27	16.09%	19	27	26	12.73
18	Kamarhati	13.00	1.16	17.78%	40	40	25	11.84
19	Barasat	26.00	16.85	115.29%	24	25	2	9.15
20	North Barrackpore	19.00	11.15	22.78%	34	31	22	7.85
21	Rajarliat-Gopalpur	16.00	9.13	67.29%	36	35	5	6.87
22	Budge Budge	41.00	34.15	3.45%	8	7	38	6.85
23	New Barrackpore	25.00	19.01	30.39%	27	22	19	5.99
24	Kanchrapara	16.00	11.28	13.01%	37	30	28	4.72
25	Bhatpara	26.00	24.34	39.87%	26	18	15	1.66
26	Uttarpara-Kotrung	27.00	26.63	48.32%	22	14	7	0.37
27	Kolkata M.C.	30.00	32.55	4.11%	12	9	37	-2.55
28	Bally	15.00	26.79	41.80%	38	13	14	-11.79
29	Uluberia	44.00	59.11	30.24%	6	3	20	-15.11
30	Chandannagar M.C.	12.00	26.45	34.71%	41	15	17	-14.45
31	Bhadreswar	22.00	53.41	46.18%	30	4	11	-31.41
32	Chamdani	47.00	73.22	2.14%	3	2	39	-26.22
33	Serampur	26.00	30.93	44.46%	25	10	13	-4.93
34	Rishra	22.00	47.26	9.10%	31	6	32	-25.26
35	Garulia	28.00	33.56	-5.70%	20	8	41	-5.56
36	Titagarh	25.00	78.96	8.86%	28	1	33	-53.96
37	Panihati	21.00	26.85	26.23%	32	12	21	-5.85
38	Baranagar	21.00	22.34	11.47%	33	19	29	-1.34
39	Dum Dum	13.00	18.38	147.35%	39	23	1	-5.38
40	Bidhannagar	27.00	29.30	67.77%	21	11	4	-2.30
41	Kalyani	44.00	48.09	47.47%	5	5	8	-4.09

Source: Authors computation from data available from website - Municipal Affairs Department, GoWB, and Quick Slum Survey of CMU (column ix: assuming 100% population in slums are within BPL)



including land transactions, ensuring security of tenure, increasing JNNURM funds for affordable housing including provisioning of housing to the poor urban households directly, strengthening shelter funds through additional cess on central government taxes and reservation of a part of funds raised through land transactions by State Housing Boards, reduction of stamp duty and registration fee, provisioning tax incentives for private developers and HFIs for developing affordable housing, etc.

Two major programs that are directed to improve the housing condition and quality of life of the Urban Poor are DFID funded KUSP and central government funded JNNURM. Kolkata Urban Services for the poor (KUSP) aimed at sustainable improved well-being of the urban poor, improvement of the slum infrastructure, as well as supported social and economic development program for the urban poor and vulnerable sections inclusive of slum as well as non-slum families. Jawaharlal Nehru National Urban Renewal Mission (JNNURM) includes improvement of basic services as well as slum housing.

Table 4: Parameters of Affordable Housing

	EWS / LIG	MIG
Size	300 - 600 sq ft carpet area	Not exceeding 1200 sq ft carpet area
Cost	Not exceeding 4 times household gross annual income	Not exceeding 5 times household gross annual income
EMI / Rent	Not exceeding 30% gross monthly income	Not exceeding 40% of gross monthly income

Source: Report on Trend and Progress of Housing in India

These two programs are implemented by urban local bodies within KMA, JNNURM is monitored by Urban Development Department and KUSP is monitored by Municipal Affairs Department, Government of West Bengal. Slum projects are supposed to be identified by the ULBs from a common priority list of projects within newly prepared Draft Development Plans by the ULBs, but as the financial sanctions for the identified projects for different programs are taken from different departments, there remains every risk of multiple investments in same or duplicate projects.

The UPA Government has also formulated housing scheme called 'Rajiv Awaas Yojana', which will allow in situ development of slums in urban areas. Apart from that housing finance facilities are offered by other government bodies such as NHB, NABARD, HUDCO, etc. for EWS, LIG and MIG categories. State government also promotes different housing projects with joint venture companies in PPP mode where certain percentage of floor area developed for EWS and LIG is cross subsidized most needy.

4.2 New Slum Creation Mechanisms in New Urban Areas and Urban Fringes

Households that seemed to be affluent in rural areas i.e. middle income groups find difficult to afford modern houses in rapidly urbanizing and dynamic formal housing markets. Middle income groups tend to occupy old houses that are left by high income households who have already moved to new and modern housing units. Affluent slum dwellers try to come to old dwelling units of MIG households in less desirable areas. Table 5 shows that floor area affordability of different income groups never coincides with the prescription of the Task Force.



Table 5: Computing Floor Area Affordability

Family Income (in Rs. Per month)	Income Group	Saving capacity (EMI/Rent) - % of monthly income	Floor area affordability (maximum)
Below 5000	EWS	30%	70 sq ft
5000-10000	LIG	30%	140 sq ft
10000-30000	MIG	40%	500 sq ft

Source: Authors Computation

People with lower affordability would continue to live in slum like conditions in areas where the residential market is growing at very high pace. It is well understood at present that only slum development programs cannot improve the city scape. Some slums might be improved through formalization of tenure status and improving living conditions, but fresh slums are going to develop in other areas housing the urban poor who were outside the existing slum areas. New families those

who are migrant from other areas, decide to reside nearer to the workplace, but not having sufficient affordability, start to live in low value, low lying agricultural land in an unplanned condition creating new slum areas. In this respect slums are not static entities.

Land within urban fringes is the area of attraction for private developers, who consider that topography of the surrounding countryside is not an impediment to the expansion of the city. Property prices shoot high as the real estate market gets active within it, and shelter affordability of the people in urban fringes starts to get challenged.

Kolkata Metropolitan Area is expanding in semi urban and rural areas located at the outskirts as additional population is trying to accommodate themselves nearer to their work places. Housing in these areas is mostly inferior in nature and mostly rented. Disparity to afford a proper shelter is higher nearer to the core city, and it gets lessened in rural areas. People in general depend mostly on the initiatives of the private developers to get access to shelter. But housing market is controlled and distorted by the real estate companies, which makes access to proper shelter harder. Growth of slums is a market response to the demand for housing amongst low income households as existence of slums demonstrates that the private informal sector is able to devise housing solutions for even the lowest income groups. Large percentage of the poor in cities live outside slums, and hence health and other interventions that target only slum areas miss out on a large number of urban poor living outside slum areas.

5. CONCLUSIONS

Region within and adjacent to metropolitan cities may have agricultural and orchard land, but rise in land values, high rate of land transactions, and high rate of land conversions indicates great interest of land developers. This has to be immediately identified as region ready for real estate development. These lands have to be considered as urban land immediately before some unplanned urban land use is imposed within its rural character. Plan for new settlement areas have to be prepared specifying best and suitable use of those lands in future supported by planned infrastructure development and service layout with development control regulations promoting desired direction of development.



Areas of intervention for public sector, private (real estate) sector and joint sector in these new settlement areas have to be specified as a part of control regulations and management. Government has to focus on public housing projects through joint sector companies in these peri-urban areas by which there would be certain level of control on distribution of housing instead of a housing process that is purely market driven. Prevention of creation of new slums in the urban periphery is a critical issue apart from multiple investments in existing slum areas.

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