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Preface

Housing is a unique commodity in the sense it is a consumption good and investment good at the same time. The demand for housing basically depends on the demographic and economic changes in a region, whereas supply-side determinants are the price of inputs, supply and price of land and legal framework of the area. Availability of housing finance affects both the sides. Once upon a time, construction of individual houses for residence was the norm. But it is being gradually replaced by housing developers of different size. In a developing country like India, the state has to play a big role, sometimes as direct provider, sometimes as the facilitator.

Kolkata Metropolitan Area (KMA), one of the most densely populated regions of the country, has been a housing-deficient area in the post-independence period. This is mainly due to the massive refugee influx in the post-partition period. The rental market became stagnant because of the Rent Control Act imposed in the fifties of last century. The scenario began to change in the eighties with the easy availability of housing loans and the emergence of a formal real estate market.

This paper is an attempt to relook the housing market in a changed economic and political scenario.

Joy Karmakar studied housing in the context of his doctoral dissertation of the planed townships of West Bengal.

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1. Introduction

With the growing urban population in Indian 'housing for all' will be a major challenge in the next few decades. It is estimated that by 2041 India's 50 percent population will live in urban areas[1]. Since the process of urbanization in India is characterized by lopsided with top heavy form[2]. So this urbanization trend is going to have fundamental impact on the political, economical and social situations of the country. Among the significant issues in India's urbanization, affordable housing for all will be crucial one. There will be different challenges of urban housing which include shortage, overcrowding, ownership of housing, available stock of houses etc. Therefore there is a need to provide safe, secure and affordable housing for the urban people for the growth and development of the country and to create a more inclusive society.

Census 2011 figures reveal that the housing stock has increased from 24.9 crore in 2001 to 33.1 crore in 2011, indicating a growth of 33 per cent. However, housing shortage is posing a challenge, since there is a mismatch between the people for whom the houses are being built and those who need them. As per the estimated housing shortage for 2012-17, urban areas have about 95% shortage in economically weaker sections and lower income group categories[3]. Following table 1 shows the shortage of urban housing across the different economic sections of the society.

Table: 1 Estimated Urban Housing Shortage in India 2012-2017

Category	Shortage in Million	Percentage
Economically Weaker Sections (EWS)*	10.55	56.18
Lower Income Group (LIG)*	7.41	39.44

[1] Government of India (2007): National urban housing and habitat policy 2007, Ministry of Housing and Urban Poverty Alleviation, New Delhi.

[2] In 2001, 68.7% of the total urban population was living in Class I cities (defined as cities having a population of over 100,000). The shares of medium and small towns in the total population stood at 21.9 % and 9.4% respectively. In 2011 the concentration of urban population increases and 70 % of the total urban population was living in the Class I cities in India[2]. However it is worthwhile to mention that the growth in population in the three Mega Cities i.e. Mumbai, Delhi and Kolkata has slowed down considerably during the last decade.

[3] Government of India (2014): Report on Trend and Progress of Housing in India, National Housing Bank, Delhi

Middle Income Group (MIG)	0.82	4.38
Total	18.78	100

Source: Urban Housing Shortage (2012-17) Report of the Ministry of Housing & Urban Poverty Alleviation to estimate the Urban Housing Shortage for the 12th Five Year (2012-17)

Note: *The Ministry of Housing and Urban Poverty Alleviation (MoHUPA) vide their letter dated November 14, 2012 has advised that the income ceilings for Economically Weaker Sections (EWS) and Low Income Groups (LIG) have been revised as follows: (i) For Economically Weaker Sections (EWS) : - ` 1,00,000/- as household income per annum (ii) For Low Income Groups (LIG) : - ` 1,00,001/- to ` 2,00,000/- as household income per annum

It is evident from table 1 that shortage of houses in urban areas is maximum among the EWS followed by Lower income groups. Apart from shortage of houses significant segments of the housing stock was characterized by congestion and obsolescence. Congestion is particularly acute in inner city slums and peripheral slums. The congestion factor contributes to 12.67 million of households and need for fresh housing contributes to 16.29 Million units[4]. In fact, recent report on the affordable housing[5] 2022 by KPMG suggests that urban housing is to account for about 85 to 90 percent of the total investments and the focus should be on affordable urban houses, which is 70 percent of the total urban housing requirement[6]. Following table 2 shows the estimates of affordable urban housing.

Table: 2 Estimates of Affordable Urban Housing

	Slum Areas Million	Non Slum Areas Million	Total
Need for fresh housing units	10.61	5.68	16.29
Incremental housing to address congestion	4.78	7.89	12.27
Provision of infrastructure for new housing units	10.61	5.68	10.61
Up gradation of infrastructure in existing slums	10.85	0	10.85

Source: Report on trend and progress on housing in India, 2012

[4] Government of India (2012): Report on Trend and Progress of Housing in India, National Housing Bank, Delhi

[5] Affordable housing refers to housing units that are affordable by that section of society whose income is below the median household income. Though different countries have different definitions for affordable housing, but it is largely the same, i.e. affordable housing should address the housing needs of the lower or middle income households.

[6] Bansal, N. (2014): Decoding Housing for all by 2022: India's Commitment to inclusive, sustainable and affordable development, KPMG, NAREDECO.

It is apparent from table 2 that both slum and non slum areas need huge investment to create affordable houses and eradicate houseless and over congestion in urban areas.

With this background of urban housing in India this paper have try to address the following questions on focusing on Kolkata Metropolitan Area (KMA).

1. The main objective of the paper is to understand the housing situations which include shortage and congestion and quality of houses in the urban local bodies of the KMA.
2. To understand the spatial pattern of housing growth in KMA
3. To trace how the housing problem have evolved over the period of time in KMA.
4. Lastly to evaluate the changing policy and practices of housing.

Kolkata Metropolitan Area encompasses a total area of 1886.67 km². The metropolitan area lies under the control of 41 municipalities. The boundaries of the urban area are expanded to 72 cities and 527 towns and villages. According to 2011 census in KMC (Kolkata Municipal Corporation) area total slum household is 285558 and they are living in 277333 resident houses so there is shortage of 8225 houses in slum areas only. This is a very crude example of housing shortage in the slums of third world megacities like Kolkata.

The paper is organised as follows: after the introductory section, the second section deals with database and methodology followed by a section on different methodologies of housing study. The fourth section is on the role of state, the fifth section is about revisiting the housing situation in Kolkata Metropolitan Area and the sixth section is on the determinants of housing scenario in KMA.

2.1 Database and Methodology

Data on houses has been collected mainly from the Census of India between 2001 and 2011 to calculate the housing shortage, congestion and growth of the Kolkata Metropolitan Area. Moreover data has been collected from National Housing Bank, magic bricks and various others sources.

Kolkata Metropolitan Area encompasses total area of 1886.67sq Km. the metropolitan area lies under the control of 41 municipalities and number of *gram panchayats*. For analysis purpose only 41 municipalities and corporations have been taken into considerations.

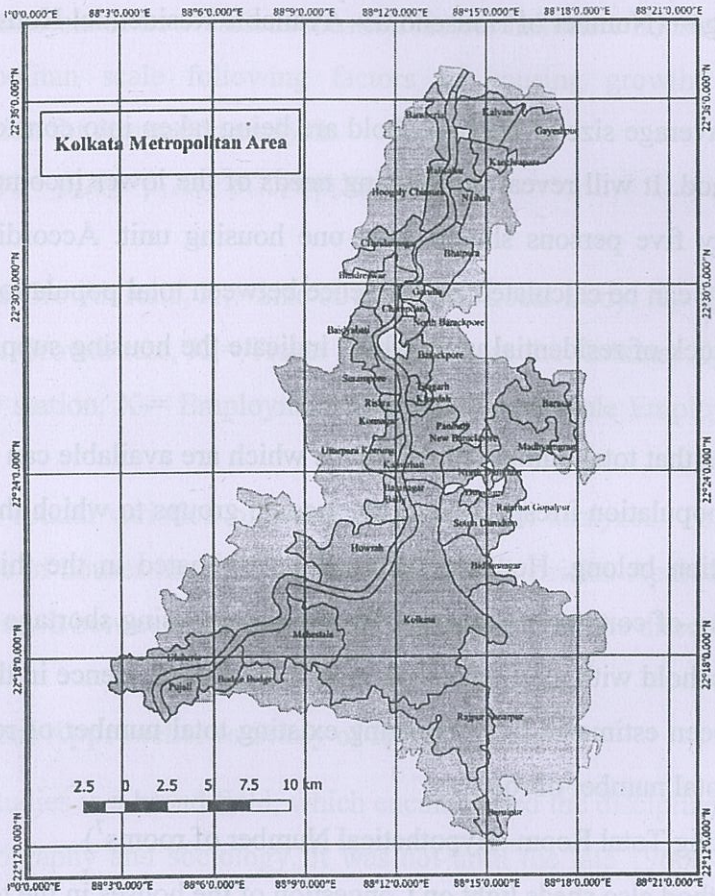

Fig 1 Kolkata Metropolitan Area

2.1.1 Methods of Housing Shortage Calculations

Ghosh (1992) has pointed out that there are some difficulties in measuring the extent of housing shortage in Calcutta Metropolitan District (CMD) by demand supply gap. Demand for housing can be measured in terms of the demand for rental housing in an area. However price of the commodity and consumer income are the two most important determinant of house demand. Since dichotomy exists in employment pattern in which small minority of high skilled and well paid group coexist with unskilled low paid group so it is difficult to estimate demand of house. Instead of demand, housing has been recognized as need for every household by the scholars.

It is believed that every household is in need of a house and therefore have to be provided with one. According to this criteria housing shortage can be calculated by estimating the

differences between number of households and the available stock of residential dwellings in the area.

Housing shortage= (Number of Households- Available Residential House)

In the second method average size of the household are being taken into consideration as it ignores the first method. It will reveal the housing needs of the lower income brackets. So it can be said every five persons should have one housing unit. According to this criteria housing shortage can be calculated as difference between total populations divided by five and available stock of residential units which indicate the housing supply (Ghosh, 1992).

Second method assumes that total number of dwellings which are available can be equally distributed among the population irrespective of the income groups to which the different sections of the population belong. Housing need can be estimated in the third method taking into consideration of congestion concept. To calculate housing shortage it is being assumed that each household with married couple need three rooms. Hence in this method housing shortage has been estimated by subtracting existing total number of room in the towns to hypothetical total number of rooms.

(Existing Total Room- Hypothetical Number of rooms[7])

Therefore this third method also sheds light on Congestion of the houses in the towns.

2.1.2 Housing Growth Factor

Understanding housing growth is important to planners and policy makers because housing growth has many impacts on natural resources. Previous studies of housing growth examine structural models of housing demand and supply (Blackley, 1999; Follain, 1979; Poterba, 1984) residential building permits used to examine fluctuations of housing stock (Chan, 1999; Hancock and Wilcox, 1997). These studies mostly examined the residential development at the national level. Fewer studies have examined residential building at the state or local level.

The studies of the regional housing stock focused on influences of population, income, and other economic variables on changes in housing stock they did not examine whether changes in the housing stock were related to changes in demographic characteristics and spatial attributes. Many of the factors that affect housing growth are spatially explicit. It is

[7]Hypothetical rooms have been calculated by multiplying 3 with number of households. The assumption is that each household with married couple need at least 3 rooms.

frequently said of eal estate that what matters most is location. A significant advantage of a spatially explicit model is that it can readily incorporate substantial spatial detail, allowing analysis of how various location factors influence housing growth. For our study at metropolitan scale following factors of housing growth have been taken into consideration for regression analysis.

$Yi= \alpha+ \beta_1X_1+ \beta_2X_2+ \beta_1X_1+ \beta_1X_1+ \beta_1X_1+ \beta_1X_1+\varepsilon$

Y_1= House Growth Rate, X_1 =Size of the Urban Local Body, X_2= Population Density, X_3= Population Growth rate, X_4= Travel Distance from the Kolkata, X_5=Rail way junction, X_6 = Railway station, X_7= Employment Density, X_8= Female Employment Density, ε=Error term

Moreover, spatial variation of house price has been analyzed. To do that 5 years (2011-2015) price of houses have been taken from Magic Bricks. Apart from this, a relationship has been drawn between distance (from City centre to all the direction) and house price.

3.1 Different Approaches to Study of Housing

Housing studies is a broad field, which encompassed the disciplines of political economy, radical geography and sociology. It was not until the late 1960s when housing receives much attention from academic social scientists. Literature has expanded widely and diversified, establishing housing with a specialised status in economics, sociology, politics, and geography and in related subjects. There are different approaches and competing perspectives that influence the traditions in housing research. Towards the end of 1970 Bassets and Short (1980) identified the following four streams of approaches.

Ecological approach emerged in early 1920s focused on spatial pattern of residential structure. Burgess was one of the advocates of this approach. Neo classical approach have stressed on idea of utility maximization, consumer choice. Institutional approach deals with housing constraints, conflicts etc. However, most influential approach in 1960s and 1970s was Marxism. In class conflict theory of Marxism, housing is regarded as one of the necessary means by which labour power is reproduced and therefore it is central to the basic capitalist contradiction of accumulation versus reproduction[8]. In capitalist production system housing cannot profitably be provided for the whole population at

[8]Jones, T & Cater, J (2005) Asian ethnicity, home ownership and social reproduction, in P. Jackson (Eds.), *Race and Racism: Essays in Social Geography*, London: Unwin Hyman

acceptable standards of quality (Harvey[9], 1973) and this was marked in capitalism by Marxist as 'nurturing the germ of its own downfall in the form of its dis-satisfied working class. Despite this contradiction the predicted overthrow of capital has failed to materialize because of the increasing interventions of the Capitalist state, which has taken on widening responsibilities for the provision of improved housing and other consumption items in line with workers' rising expectations (Castells 1977[10], Taylor & Hadfield 1982). Traditionally scholars identified state involvement in the housing market as reformist (Dunleavy[11], 1980). On the contrary Marxist theory stresses that state intervention is ultimately designed to benefit Capital not Labour. It begins with 'the fundamental observation that the State in capitalist society serves the interests of the capitalist class' (Taylor & Hadfield, 1982)[12]

Now, taking the above mentioned Marxian perspective in this paper I will explain in the next sub section that how after the independence, state directly intervenes in improving the housing situation particularly in large metropolitan areas and later deregulates the housing market to benefit the 'capital'.

4.1 Transformations of Urban Housing Policies and Intervention of the State

Housing policy in India was social in nature in the early post independence phase. It was, though unwritten, leaning towards strong state control, and direct government involvement in housing construction. Institutional growth and legislative proliferation accelerate this line of thinking further. Parastatal bodies were created all in different states and direct government funding increased. Debt-trap, defaults on collections and inadequacies in the performance of the Institutions change the face of policy in the early 1990's.[13] When India became Independent Rehabilitation became a major concern and thus, housing received a lot of political attention.

Government of India had given a high degree of importance to the housing sector. India's first Prime Minister, Pandit Jawaharlal Nehru stated that every one of his countrymen should have a two roomed house. Housing did receive importance in as much as over a

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[9] Harvey, D. (1973) *Social justice and the city* . London: Arnold

[10] Castells, M. (1977) *The urban question: a Marxist approach* . London: Arnold

[11] Dunleavy, P. (1979) The urban bases of political alignment. *British Journal of Political Science* 9, 409–43.

[12] Taylor, P.J. & H.Hadfield (1982) Housing and the state: a case study and structuralist interpretation. In *Conflict, politics and the urban scene,* K.R.Cox & R.J.Johnston (eds). London: Longman.

[13] Rao, N.S.P. (2004) Transformation of Housing Policy in India - the Trend Towards Market Mechanisms , available at www.housingauthority.gov.hk/hdw/ihc/pdf/rhk.pdf, access on July 7th 2015

third of the total allocation of the First Five Year Plan went into the housing sector.[14] Rehabilitation colonies were set up across the country, mainly in the west and eastern part of the country as these areas have affected by partition. These rehabilitation colonies were planned residential areas with properly laid out roads, parks, community facilities, etc. It was also during this time that new towns and 'model towns' were developed. The migration of people from various rural areas into the big cities in search of jobs had led to a growing housing shortage in these big cities. Following housing scheme was enacted in the early years of Independence. The First Five Year Plan (1951-56) consequently allocated around 34 percent of the total investment in the economy towards the housing sector alone (Sahu, Zachariah, & Baksi, 2009)

Table: 3 Various Housing Programme of Government of India

Name of the Programme	Year of Launch
Integrated Subsidized Housing Scheme for Industrial Workers and EWS	1952
Low Income Group Housing Scheme	1954
Subsidized Housing Scheme for Plantation Workers	1956
Slum Clearance and Improvement Scheme	1956
Middle Income Group Housing Scheme	1959
Rental Housing Scheme for State Government Employees	1959
Land Acquisition and Development Scheme	`1959

Source: Rao, 2004

This was the period when housing is being developed for the industrial workers and later the housing programme meant for the middle income group. To built house needs land and during this period large amounts of vacant land (mainly rural or peri urban area) were acquired by state for housing development. affordability was recognized as crucial problem and to address it the government using large subsidies to 'reduce' the cost of housing, using direct price controls such as the Rent Control Act or extending loans on soft terms (Wadhwa, 1998).

In these early years of independence the government formed state housing boards, the Ministry of Works, Housing and Supply (now the Ministry of Housing and Urban Poverty Alleviation (MoHUPA)), the Central Public Works Department (CPWD), the National

[14]Rao, N.S.P. (2004) Transformation of Housing Policy in India - the Trend Towards Market Mechanisms , available at www.housingauthority.gov.hk/hdw/ihc/pdf/rhk.pdf, access on July 7th 2015

Building Organisation (NBO) and the Town & Country Planning Organisation. In keeping with the emphasis on reducing the cost side of housing, the role of the NBO was to formulate low-cost housing designs and recommend ways to reduce costs through choice of building materials and cutting down on wasteful use of labour.

In 1970 with the formation of the development authorities as well as recognition of metropolitan identity came into existence. In 1971 a conference organized by housing and urban development ministry in Delhi and they determined that an authority should be set up for the coordination of plans and projects. With this, a major shift of functional domain occurred from the municipalities to parastatals as well as the government department. This in turn decreases the role of corporations (Sivaramakrishna, 2015). A series of government measures in the post-independence period had led to an increase in government control on the housing market and constraints on supply in an ever increasing demand scenario. Some of these government controls in the housing sector are as follows:

- Creation of development authorities and housing boards as the major housing providers was initially good but later, due to their very slow progress on account of a variety of reasons, led to the emergence of various popular forms of housing provision which were not entirely legal.

- Cooperative sector had initially been encouraged (with incentives such as stamp duty exemptions, etc), the movement did not take off as envisaged

- Introduction of the Urban Land (Ceiling and Regulation) Act in the year 1976 as a central legislation all over India had created many barrier in the private land owners putting their lands into the housing market

- Prolonged continuance of the Rent Control Acts in various states led to many problems such as disputes, non-eviction of tenants, dilapidation of housing stock, locking up of property in prime areas of the city from redevelopment, loss of revenue on account of inability to increase property tax and scarcity in the rental market on account of people not willing to let out properties on rent for fear of non-eviction.

During 1970s and 1980s government realizes that it cannot serve all the sections of society and hence started focusing only on weaker sections. Self-provisioning housing activities were encouraged to limited support from the government for other sections.

Moreover, government realized that slum clearance is not going to solve the problem of housing in the city; the Fourth Plan categorically mentioned that "slum clearance often lead to creation of new slums". Hence the government started focussing on low cost schemes like Environmental Improvement Scheme of Urban Slums (1972) and Sites and Services Scheme (1980) to tackle the problem of slum proliferation. To make "controlled and well-directed growth" of the housing sector, the government created a national level Housing and Urban Development Corporation (HUDCO) in 1970. At its inception, HUDCO was formed as an institution which will work as the government's nodal agency in promoting "sustainable habitat development to enhance the quality of life".

It was during this phase (late 1980s) that transformation of policies had started in India. The government was involved in the process of liberalizing the economy, which was also visible in its housing policies. The Seventh Plan advised the government that "Government's role in the field of urban housing has per force to be promotional. The major effort will have to come from the private sector, Government's role will have to be restricted to the improvement of slums, direct provision of housing to the weaker sections of the society and encouragement and support of housing finance institutions…" Even the responsibilities of slum improvement and weaker section housing were being tried to be pushed towards lower tiers of governments (Hingorani, 2011).

Number housing schemes introduced for poorer section and these programmes were designed by the centre but required matching funds from state and local level governments and are supposed to be implemented by ULBs (these are better known as Centrally Sponsored Schemes). Urban Basic Services Scheme (1986, later renamed as Urban Basic Services for Poor in 1991), *Nehru Rozgar Yojna's* Scheme of Housing and Shelter Up gradation (1990) and National Slum Development Programme (1996) are some of the example of such programme. This was major departure from earlier programme of housing where it was designed by the centre but now with the clause of matching fund requirements from State or Local governments. Moreover, the Central Government's focus changed from providing housing physically on ground to facilitating the financing activities for housing. The Seventh Plan admitted that "The most crucial need for housing development… is to establish a proper and diversified institutional structure for housing

finance…" To serve this purpose, the National Housing Bank (NHB) was created in 1987. Parallel to the creation of NHB, commercial banks and other Housing Finance Institutions were directed by the government to participate on a larger scale in housing finance activities. It resulted in easy availability of housing finances for private sector with cheap interest rates. Private builders took advantage of this opportunity and started taking up housing activities in an unprecedented manner. At the same time, government-sponsored housing agencies like HUDCO and various other state-level housing boards were pushed to compete with private players for funds from the open market, without any shield of government's support. These agencies were mostly serving the poorer sections of society, which had a limited repayment capacity and hence were not able to compete with private developers. As a result, these agencies started losing their ground in housing market, very rapidly.

The National Urban Housing and Habitat Policy issued by the Government of India in 2007 and it recognize that public sector resources solely cannot meet high demand of housing. It proposed for the involvement of multiple stakeholders and seeks to promote public private partnerships to meet this demand.

Some of the steps outlined in the National Urban Housing and Habitat Policy include:

i. A Secondary Mortgage Market should be promoted by the Reserve Bank of India (RBI)/National Housing Bank (NHB). This will enhance transparency and flexibility in the housing market.
ii. Residential Mortgage Based Securitization (RMBS) need to be nurtured through NHB, Scheduled Banks and Housing Finance Corporation (HFCs).
iii. A Model Rent Act should be prepared by the Government of India to promote rental housing on the principle that rent of a housing unit should be fixed by mutual agreement between the landlord and the tenant for a stipulated lease period prior to which, the tenant will not be allowed to be evicted and after the expiry of the said lease period, the tenant will not be permitted to continue in the said housing unit.
iv. The feasibility of a National Shelter Fund to be set up under the control of the National Housing Bank for providing subsidy support to EWS/LIG housing would

be examined in consultation with Ministry of Finance. The NHB will act as a refinance institution for the housing sector.

v. Efforts should be made to encourage Foreign Direct Investment (FDI) from International institutions, Non Resident Indians (NRIs) and Persons of Indian Origin (PIOs) in the housing and infrastructure sector in consultation with the Ministry of Finance and RBI.

Subsequently, central government introduced housing schemes (Valmiki Ambedkar Awas Yojna in 2001, which was later merged with BSUP under JNNURM in 2005 and then in Rajiv Awas Yojna in 2013) which should be implemented through Public Private Partnership (PPP) basis With a focus on facilitating private investment in this sector, government has allowed 100% FDI in housing sector and the latest budget (2014-15) has gone one step further in this direction by listing slum redevelopment as a CSR activity to attract more private funds.

Therefore from the above discussion it is absolutely clear that approaches to the housing policy formulation at the central level has been transformed over the years. State control over housing market has reduced with great extent and gradually the role of the private real estate companies have increased in regulating housing market.

5.1 Revisiting Housing Initiatives in Kolkata Metropolitan Area (KMA)

West Bengal is one of the highly urbanized states in Indian. 31.16 percentages of urban population lives in West Bengal and out of the total urban population almost 45 percent lives in the Kolkata Metropolitan Area (KMA). So exploring housing situation in urban local bodies in the KMA will be a significant task. To understand the housing situation this section will revisit the initiatives that were taken in the past and how it transformed in the recent years in KMA. To discuss the housing scenario of KMA two situations have been covered; firstly, housing situation in non slum area and secondly housing situation in slum areas.

In West Bengal BDP (Basic development Plan) was prepared by CMPO (Calcutta Metropolitan Planning Organization) for CMD (Calcutta Metropolitan District) in 1960 and where they pointed out the lack of shelter problem in the Kolkata Metropolitan District. The plan noted two aspects one is the overcrowding of the house which is the consequences of the migration and partition. It has been estimated that 77 percent of the

Kolkata families in 1957 had less than 40 square feet of living space per person.[15] Second is about the housing condition. The Largest share of the housing units was made of non-permanent material. What is worthwhile to mention is that the BDP proposes the Bi-Polar North south development of the Kolkata Metropolitan Area to accommodate growing population. On the Basis of this proposal few new township projects were taken to develop housing. Four kinds of shelters were prepared to handle the situation which includes high income, middle income and low income of housing and low income open plot development. The areas which were being chosen for middle and low income housing development include Kamarhati-North Dum Dum, Salt Lake, Sonarpur, south suburban area, Bansberia and Kalyani.[16] Salt Lake (Bidhannagar) and Kalyani is purely a planned township. This is the period when the State acquired the land for providing housing to the people of different economic sections. Though the various area development and investment plan mention the private investment is necessary for area development programme which include the improvement of quality of housing.

Parallel to middle and low income housing development, there was a programme for *bustee*[17] or slum improvement for Kolkata, Howrah and Bally. The slum improvement is focused on two types of areas; those in which clearance[18] and new construction are proposed and areas in which existing slums to be improved. The improvement programme had covered 5, 37,000 which were approximately 57 percent of the slum population of Kolkata and Howrah and almost 100 percent slum population of Bally.

Development Perspective and Investment Plan published in 1976 recommended new strategy of slum modernization programme[19] in KMA. They categorized the schemes of slum development into three types i) Improvement ii) Redevelopment iii) Relocation. Accordingly various schemes have taken. In 1990s it is being reported that Slum

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[15]Government of West Bengal (1966) Basic Development Plan for CMD 1966-1986, Calcutta Metropolitan Planning Organization

[16] Ibid

[17]A slum is defined in the Calcutta Municipal act in 1951, as an "area of land occupied by, or for the purpose of any collection of huts standing on a plot of lands not less than 10 cottahs (i.e. equivalent to one sixth of an acre) in area". A hut means "any building, no substantial part of which excluding the walls up to a height of 18 inches up to the floor, is constructed of masonry, steel, iron or other material.

[18] In 1950s slum clearance involved relocating dwellers to different site. This approach not only created hardship to the *bustee* dwellers but also became unacceptable to them from occupational point of view, because they live near their place of work.

[19]In Slum modernization scheme of 1960s and 1970s the dwellers were to be re-housed in four storied single room tenement and land released by the slum was utilized for remunerative purpose. This model did not run successfully because "apartment living" did not conform to the lifestyle of the slum dwellers who needed substantial open space in addition to the small covered area allotted to them.

Improvement pr gramme has covered 19.45 lakh of slum dwellers and 3 lakhs of residents in Refugee Colonies. It is remarkable that "Thika Tenancy Act 1949" is repealed by a new legislation Calcutta Thika Tenancy Act 1981[20]. As per this act the ownership of the *bustee* land distributed by the landlords to Thika tenants would vest in state. This was a change in ownership from private to public. This move opened up new horizon for *bustee* dwellers with respect to shelter development and improvement of other infrastructural facilities through direct public intervention.

The failure of slum clearance and relocation model of 1960s and early 1970s led to the introduction of "*Bustee* improvement Programme"[21] by Kolkata Metropolitan Development Authority (KMDA). It involves the all round improvement of infrastructure facilities. For the first time World Bank invested huge money for Kolkata's physical development. In 1973 the International Development Association (IDA) along with World Bank has agreed to provide soft loan for financial assistance against 44 schemes out of 100 ongoing schemes. Following table shows the investment of IDA for Bustee improvement programme.

Table: 4 Three Year Investment of IDA for Slum Improvement Programmes

	1978-1979	1979-1980	1980-1981
	IDA II	IDA II	IDA II
Bustee Improvement	2.30*	5.00*	5.83*

Source: S.K. Roy and Kalyan Roy, Planning for action – the CMDA's involvement edited volume of Jean Racine, Calcutta 1981, and pp 308

*in crores rupees

It was the beginning of slum transformation under global capitalism after the termination of colonial master's interference. Subsequently in late 1990s and thereafter again slum improvement programme was taken with the financial assistance of Asian Development Bank and World Bank under the scheme of Calcutta Environmental Management and Strategy Action Plan (CEMSAP) and Kolkata Environmental Improvement Project (KEIP). Government of West Bengal is responsible for the implementation of the project at the municipal level. These programmes have a component of slum improvement as well as rehabilitation.

[20] Calcutta Metropolitan Development Authority (1990) Plan for Metropolitan Development 1990-2015, Government of West Bengal.

[21] This programme often termed as sanitation model recognized the existing arrangement of huts, pathway's, streets etc. within the slum area along with traditional tenancy system, and seeks to improve basic infrastructural and environmental deficiency

In addition to the slum improvement programme, Kolkata Metropolitan Development Authority (KMDA) took up a programme for development of land suitable for housing across the different section of people. The following "composite township" project had developed by KMDA in late 1980s.

Table: 5 Housing Projects in KMA Proposed by KMDA

Project	Project Area in Hectares	Expected Population	Density
Baishnab Ghata-Patuli Township	120	40,000	183
East Calcutta Township	260	50,000	123
East Calcutta Extension (Nonadanga)	30	20,000	123
West Howrah Township	170	50,000	---
Bidhannagar	2023	2,75, 000	55

Source: Plan for Metropolitan Development 1990-2015

It is remarkable that in some of the above mentioned projects funded by World Bank. Development of new township was to paid special attention to 'site and services' for economically weaker Section and low income group people. In reality these townships occupied by middle class as well upper middle class ruling elite of the city. In 2000 onward there is some shifts regarding implementation of the slum improvement projects like KEIP[22]. Earlier such slum improvement project is implemented by government of West Bengal despite having municipal governance. Now such projects like KEIIP are being implemented by urban local bodies like KMC.

5.1.1 Role of West Bengal Housing Board (WBHB)

In 1972 West Bengal Housing Board was established with a mission to provide shelter for the people of West Bengal at a reasonable as well as an affordable price. It started to function in 1973. The Housing Board provided number of houses for different economic sections over the years and later private real estate companies also started to develop

[22] KEIP or Kolkata Environment Improvement Project was introduced in 2000 when ADB grant loan to Kolkata Municipal Corporation. The project has four components which include solid waste management, sewerage and drainage, canal rehabilitation and slum improvement. KMC is currently implementing the $400 million Kolkata Environmental Improvement Investment Program (KEIIP) financed by ADB.

affordable hous after 1990.The Housing Board developed following number of houses for different areas in West Bengal since its inception.

Table: 6 House Projects Developed by West Bengal Housing Board

	WBHB	
Area	**1974-1990**	**1990-2015**
Kolkata Municipal Corporation (KMC)	37.14	29.23
Kolkata Metropolitan Area (KMA)	48.57	40.00
Outside of KMA	14.29	18.46
New Town Kolkata Area (NKDA)	----	12.30
Total	100	100

Source: West Bengal Housing Board, Data Compiled by author, figures are in percentage

It becomes clear that West Bengal Housing Board gave priority to Kolkata Municipal Corporation and Kolkata Metropolitan Area before 1990 in developing affordable housing projects. Very few affordable housing projects developed in outside KMA. After 1990s there is a significant decrease of housing projects both in KMA and KMC. One of the important reasons behind such decline of housing projects is because of entry of the private real estate companies to the housing market. It is remarkable that outside KMA housing projects are mainly developed in few places which include Asansole, Durgapur, Siliguri and Haldia.

The housing board builds affordable houses which are grouped into four income categories namely high, middle and low income group and economically weaker section[23]. The following shows the distribution of different housing units produced by West Bengal Housing Board.

Table: 7 Housing Units by West Bengal Housing Development Board

	1974-1990	1991-2015

[23] Economically weaker section is those household whose income remain below 2000 per month. In case of low income group households, income remains below 5000 per month. Middle and High income group household are those whose income remains 5000 to 10000 and above 10000 respectively (Perspective Plan of KMA 2025).

Area	LIG & EWS	MIG	HIG	LIG & EWS	MIG	HIG
Kolkata Municipal Corporation (KMC)	27.73	30.41	41.86	14.17	18.59	67.24
Kolkata Metropolitan Area (KMA)	33.42	37.55	29.03	11.21	42.31	46.48
Outside of KMA	62.45	33.98	3.56	8.58	13.87	77.55
New Town Kolkata Area (NKDA)	----	----	----	32.38	27.30	40.32
Total Share	**35.01**	**34.75**	**30.24**	**14.93**	**29.76**	**55.31**

Source: Source: West Bengal Housing Board, Data Compiled by author, figures are in percentage

Note: HIG: Higher Income Group, MIG: Middle Income Group, LIG: Lower Income Group

The table 7 clearly shows that housing board produces greater number of LIG and MIG housing units in KMA and Outside KMA before 1990s. Share of the different housing units are close to each other before 1990s but later share of HIG projects increases. After 1990s West Bengal housing board reduces the production of LIG housing units across the different area especially in KMA as well as outside KMA.

Reduction of LIG and EWS housing units as well as MIG housing units by WBHB suggests that dominance real estate companies in housing market as well as the state's indirect role as finance provider through various public and private financial agencies instead of providing affordable housing. This is a major paradigm shifts in housing sector after 1990s.

6.1 Existing Housing Scenario of KMA

The prime objective of this section is to analyze the existing situation of housing in KMA. The different aspects of housing analyzed include shortage of housing, overcrowding, ownership and rental of housing etc.

Before analyzing the housing situation let us explain the demographic aspects of the KMA because it one of the important factor of housing growth in any area. It is remarkable that spatial distribution of population across the different urban local bodies is not homogeneous in KMA. Two important aspect of housing is the population density and

growth in an area. Both Density and growth of population supposed to have a positive relationship with housing growth. Close look on the population growth and density in the urban local bodies of KMA shows that population growth is not uniform as well as, not positive across the ULBs. Population growth is highest in Rajarhat Gopalpur municipal area while negative population growth is found in Bhatpara municipal area. It is remarkable that negative population growth found mainly in old industrial towns like Khardah, Titagarh, Bhadreswar etc. Appendix 1 shows the details of population growth and density across the ULBs.

Slum population is present in almost all the ULBs. Highest slum population found in Kolkata followed by Mahestala, Uluberia and Kamarhati etc. Lowest slum population found in Gayespur and Konnagar municipal area.

6.1.1 House Conditions

Existing stocks shows that almost 96 percent of the houses are used as residence. Out of these non slum residential houses, more than 9 percent houses are dilapidated in Uluberia and the figure is highest among the different ULBs of KMA. Halisahar and Barasat have also greater number of dilapidated non slum residential houses followed by Uluberia. Lowest number of dilapidated non slum residential houses is existed in Bidhannagar.

Existing stock of slum houses are also in dilapidated conditions. Barasat, Pujali and Uluberia are the first three ULBs where maximum number of dilapidated slum houses exists. It is significant to note that slum houses in Kolkata are good and livable compare to other ULBs. Appendix 2 depicts the details of housing stock condition in different ULBs in KMA.

6.1.2 Shortage of House

West Bengal has the second highest shortage of housing stock among the other states in India[24]. The technical report of ministry of Housing and Urban poverty alleviation further suggests that urban India has both high housing shortage as well as rapidly growing stock of vacant houses. Similar situation can be seen in the KMA. Housing shortage varies across the ULBs. KMC has only about 11 percent shortage of houses.

[24]Government of India (2011) Report on the technical group on urban housing shortage 2012-17, Ministry of Housing and Urban Poverty Alleviation

Table: 8 Housing Shortages in Urban Area of West Bengal

Area	First Method
Kolkata Municipal Corporation	11.83
Kolkata Metropolitan Area*	23.44
West Bengal (Urban)	64.72

Source: Census Data, 2011 table HH1 *Excluding KMC

Among the KMA municipality maximum housing shortage is found as per first method is in Mahestala, Haora, Bhatpara and Panihati municipality. While in the second method, maximum housing shortage is found in Bally, Baranagar, Barasat, Rajarhat Gopalpur, Uluberia, Naihati, and Sonarpur Rajpur. It is important to note that second method considers the household size as important criteria. Therefore it clearly reflects that the above mention municipalities' houses are congested. As per second method, housing surplus is found in Kolkata, Haora, Rajarhat Gopalpur, Rajpur Sonarpur, Barasat, DumDum, Halisahar, Champdani, North Barrackpore and Titagarh. It is worthwhile to note that low shortage of housing is found in slums of KMC is because of various programme was introduced to build new houses for slum dwellers which include the Kolkata Environmental Improvement Programme, Jawaharlal Nehru National Urban Renewal Mission etc. each has separate submission to provide house for urban poor.

6.1.3 Housing Ownership, Growth and its Factors

The housing market in India is influenced by both demand and supply side constraints. The main demand drivers of housing sector are growing middle class, income levels of the people, urbanization. The major supply side constraints include the lack of availability of land, finance at reasonable rate, infrastructure, legal and regulatory framework and the limitations of the private and other stakeholders to provide low income housing (GoI, 2012). Apart from high gestation period of housing projects, limited and expensive capital, spiralling land and construction cost, high fees and taxes, unfavourable development norms and low affordability by Economically Weaker Section (EWS) and Lower Income Group (LIG) households are bottlenecks restricting desired growth in housing stock in India with respect to housing demand (Bansal, 2014). In addition the poor economic condition of the rising urban population has made it almost impossible for the growth of housing demands. This has resulted in a huge bulk of the population being forced to reside in crowded, substandard, informal slums and squatter settlements lacking essential infrastructure and services (Boadi et al, 2005). There is a propensity to become a home

owner in the loca Indian culture. Even people in lower income group determined to buy home rather than rent one. Therefore higher number of home ownership can be seen in KMA. Ownerships of houses are more than 80 percents in few municipalities of KMA which include Kalyani, Kahardah, Chandannagar, Baidyabati and Uluberia. Ownership of houses is low in Titagarh, Bally and Rishra municipality. On the other hand rented house are more than 30 percent found in municipalities like Titagarh, Bhatpara, Kamarhati, Bhadreswar and Rishra. It is remarkable that these towns have number of jute mills and other factories and nearness to Kolkata that led to the higher number of rented house in these municipalities.

It is worthwhile to note that housing growth is important to planners and policy makers because housing growths has many impacts on natural resources. There are both push factors and pull factors for growth of housing. Push factors may include an increase in externalities like pollution or crime, changes in housing affordability, dissatisfaction with the current dwelling or changes in household structure (as a result of a birth, death or divorce for example). Pull factors often include things like access to good quality public services (like schools and health care facilities), employment, leisure and recreational opportunities or the fulfillment of housing aspirations (Sanchez & Dawkins 2001). In case of KMA both push factors and pull factors are not in unidirectional. Since Housing growth in an area indicates the higher attractiveness of a residential area so spatial direction of housing growth helps us to understand future areas of housing growth in a large metropolitan area. The following figure 2 shows the housing growth rate under different ULBs in KMA.

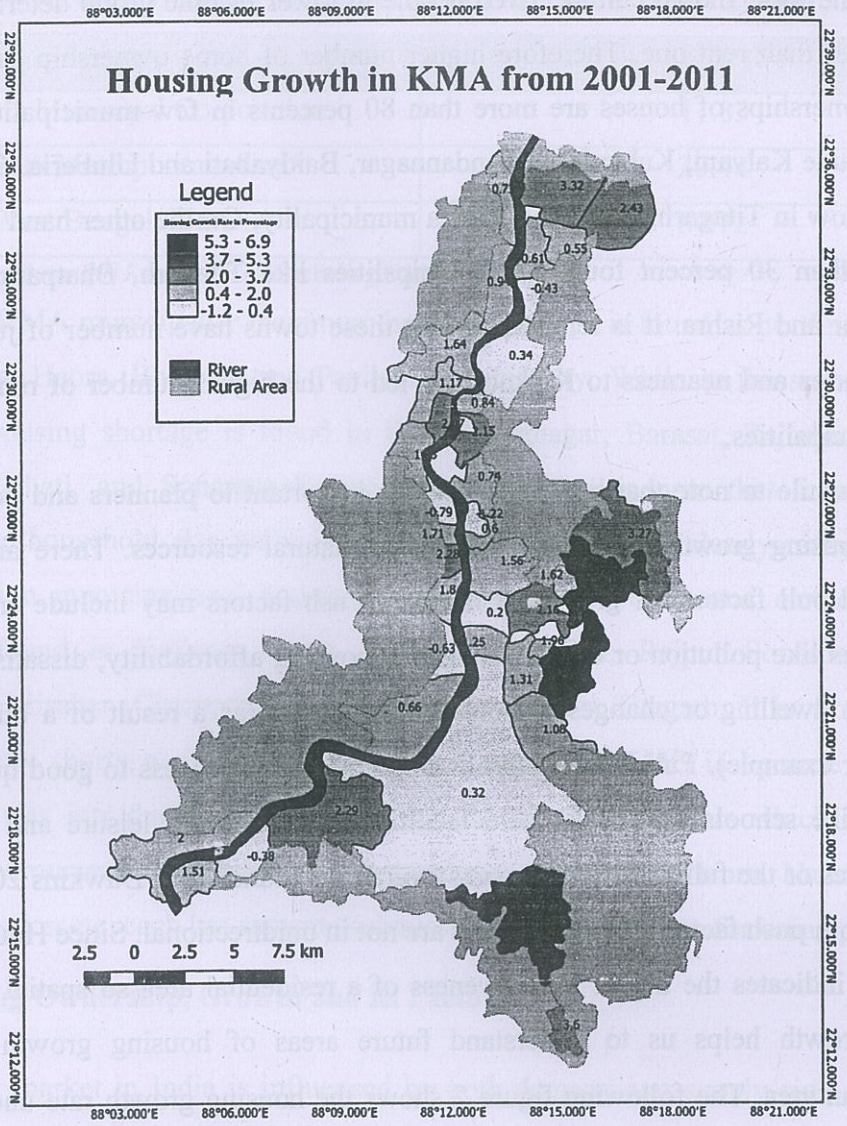

Fig 2

Housing growth map of 2001-2011 clearly shows that housing rates are particularly higher in Barasat, Madhyamgram, Rajarhat Gopalpur, Baranagar in the north east direction. While in southern part Maheshtala, Baruipur and Sonarpur housing growths are high. It is remarkable that housing growth rate is much lower in western bank municipalities. Apart from this higher housing growth rate is found in the extreme north of the KMA municipality i.e. Kalyani and Gayeshpur

Table: 9 Estimation of Housing Growth

Variables	Coefficient	Standard Error	t	p>t	95%
Size of ULB	0.60	0.26	2.28	0.02*	0.60
Density of Population	6.41	1.46	4.38	0.00**	6.41
Population Growth	0.26	0.05	4.46	0.00**	0.26
Distance from Kolkata	0.47	0.28	1.66	0.10	0.47
Railway Junction	-0.22	0.40	0.55	0.58	-0.22
Railway Station	-1.14	0.47	2.38	0.02*	-1.14
Employment Density	-7.90	1.78	4.43	0.00**	-7.90
Female Employment Density	1.97	0.78	2.52	0.01**	1.97
Constant	1.72	4.08	0.42	0.67	1.72
Model Summary					
Number of Observation	41				
F (8,32)	9.71				
Prob>F	0.00				
R Square (Adjusted R Square)	0.71 (0.65)				

Source: Computed by the author, *Significant at 0.05 level, ** Significant at 0.01 level

In order to see the relationship between housing growth and the selected variables ordinary least square was applied. Appendix 5 summarizes the descriptive statistics. The multiple regression model with 8 predictors produced R^2 0.71, F (8, 32) 9.71. The variation shown by the coefficient of the size of ULBs in the model has positive value of 0.60. This implies that a unit increase in size of ULBs will increase the housing growth there by 0.60 units. Similarly population growth and population density has the positive relationship with housing growth in KMA. Distance from Kolkata and presence of rail junction in an area do not have any significance with the housing growth. While it is remarkable that employment density has negative and significant relationship with housing growth. This implies that employed person do not buy the houses in the same area rather they are selling their houses and purchasing apartments in an area where there is high growth of

housing. This is because of the availability of land at higher price in those areas[25]. However it is noted in various reports that well timed monetary policy measure and softening the international commodity prices could lower the India's inflation rate significantly. Subsequently the real purchasing power of an average Indian is likely to get boost in an environment of high economic activity and low inflation rate (IBEF, 2012). Moreover there is positive and significant relationship exists between female employed person density and housing growth in an area. This implies that employed female persons have higher affordability[26]. Although urban female employment rate is very low compare to their male counterpart in KMA. But female employed person's affordability is comparatively higher.

6.1.4 Housing Price

What determine the house price? Various studies focused on the demand side factors including income, demographic variables, taxes and financing on the price. Classical urban housing market modeling shows that house prices vary inversely with distance or travel time to the CBD, holding other amenities constant. However, empirical evidence for the negative price gradient is inconsistent[27]. In this paper we also try to focus on the spatial variation of house price and relationship of price with distance in KMA. The following table 10 shows the spatial variation and fluctuation of house price in an around Kolkata.

Table 10 Spatial Variation and Fluctuation of House Price in Kolkata

Area	Location#	Mean	SD	CV
Kamalgazi	South East	2124.82	2295.35	108.02
Banshdroni	South West	1934.94	2059.62	106.44
Alipore	South	6851.38	7233.15	105.57
New Town	North East	2802.30	2964.51	105.78
Madhyam Gram	North	1466.47	1513.83	103.22

[25]India Brand Equity Foundation (2012) Affordable housing in India, Budding, Expanding and compelling Retrieved from https://www.ibef.org/download/Affordable-Housing-in-India-24072012.pdf

[26]Affordability is a nonspecific term, the meaning of which changes with the context being considered. As a result there is no fixed definition of affordable housing that can be applied uniform all over the world. The definition and scope of affordable housing varies country to country. In India KPMG and CREDAI have jointly developed the definition of affordable housing for tier I, II and III cities based on income level, size of dwelling unit and affordability.

[27] Bender, B. & Hwang H. S. (1985) Hedonic housing price indices and secondary employment centres. *Journal of Urban Economics*, 17(1), pp. 90-107

Lake Town	North East	2995.70	3084.70	102.97
Ballygunge	South	6483.96	6591.41	101.65
Garia	South	2040.34	2045.11	100.23
Airport	North East	1806.56	1810.90	100.24
Baguiati	North East	1851.62	1825.23	98.57
Belghoria	North	1906.00	1882.79	98.78
Dum Dum	North	2101.60	2037.26	96.93
BT Road	North	2223.53	2073.28	93.24
EM Bypass	East	3591.66	3374.90	93.96

House price	Coefficient	t	p value
Distance	-273.07	-4.07	0.001*
R square (Adjust R^2)	0.56 (0.52)	No of Observation	15

Source: Computed by author, Significant at 0.01 levels

Location direction with respect to central part (Dharmatala and its surroundings) of Kolkata

The above listed areas are in an around Kolkata. It become clear that price fluctuation is higher in areas of Kamalgazi, Bansdroni, New Town and Madhyamgram. On the other hand price remains constant in areas like DumDum, Belgharia and EM Bypass. Areas within the Kolkata Municipal Corporation like Ballygaunj and Aliporr has higher price variations while neighbor areas of KMC have minimum variation as depicted by standard deviation. Ordinary least square clearly shows that there is a significant and negative relationship between distance and house price in KMA, this implies that house price are more in Kolkata and its neighboring areas and it declines gradually towards north and south.

Conclusion

This discussion paper made an attempt to revisit the housing question in Kolkata Metropolitan Area (KMA) as well as try to assess the current scenario of housing. Among the many challenges of urbanization, housing for all will be the crucial issue for urban poor in near future especially in megacities like Kolkata. To confront the situation intervention of the state will have significant role. However it is evident that role of the state has changed over the years from house 'provider' to as 'facilitator'. In early years of

independence state focused was on to provide the houses to the urban poor especially refugees, migrants as well as labours. In case of KMA housing become major issue in policy documents since 1960s onward and thereafter number of housing programmes has been taken especially slum improvement programme. State intervention came in different forms which include formation of parastatal bodies to integrate with global capital through introduction of new policies. Like, the National Housing and Habitat Policy 1998 had given greater priority on the aspect of "Habitat" as a supplementary focus to housing. In KMA number of such projects is introduced to provide affordable housing. However spatial housing growth in KMA shows that there is tendency to develop houses more in south and south east as well as North east of KMA. This preference of area by developers also helps us to understand the future direction of the growth of the KMA. Finally this paper identifies the significant housing growth factors which include population growth, density, employment density and ULBs relative location. Moreover it identifies the areas of high price fluctuations as well as the tendency of declining price from city centre.

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Appendix 1

Population Growth and Density of Urban Local Bodies in KMA 2011

ULB	Density 2011	Density Change	Population Growth	ULB	Density 2011	Density Change	Population Growth
Bhatpara	2596	86	-1.36	Gayeshpur	618	121	0.71
Khardah	3098	176	-1.11	North Barrackpore	2535	449	0.73
Serampore	2542	-219	-0.80	Champdani	3695	636	0.77
New Barrackpur	1075	150	-0.76	Panihati	4151	562	0.82
Titagarh	7010	-979	-0.61	Uluberia	1520	253	0.92
Budge Budge	1971	-79	-0.57	Pujali	959	126	0.94
Halisahar	3623	209	-0.43	Rishra	3979	582	0.99
Bhadreswar	2729	286	-0.43	Baidyabati	4260	662	1.19
Kanchrapara	2807	147	-0.41	Bally	3737	-254	1.24
Bansberia	2571	176	-0.29	North DumDum	2298	409	1.32
Hugli-Chinsurah	2543	219	-0.23	Dum Dum	2736	449	1.33
Baranagar	8700	971	-0.22	Maheshtala	2373	443	1.63
Kolkata	5128	160	-0.18	Kalyani	860	215	1.76
Naihati	4183	-189	0.12	Barrackpore	2985	207	1.78
South DumDum	6329	738	0.27	Baruipur	1314	348	1.82
Chandannagar	2027	287	0.28	Barasat	1995	493	2.02
Kamarhati	5756	114	0.49	Rajpur Sonarpur	1936	524	2.60
Konnagar	4029	748	0.55	Madhyamgrm	2227	652	2.61
Uttarpara Kotrung	1946	297	0.58	Bidhannagar	3631	354	3.12
Garulia	2626	205	0.67	Rajarhat Gopalpur	3580	1464	4.82
Haora	4442	279	0.69	Dankuni	5350	---	----

Source: Census of India, Town Directory and Primary Census Abstract, 2011 and 2001

Appendix 2

Dilapidated Condition of Slum and Non Slum House Stock of KMA in 2011

ULBs	Non Slum House	Slum House	ULBs	Non Slum House	Slum House
Baidyabati	5.67	7.64	Kamarhati	3.79	4.44
Bally	2.60	4.29	Kanchrapara	4.72	6.71
Bansberia	4.02	5.83	Khardah	3.61	3.60
Baranagar	2.76	6.07	Kolkata	2.65	2.82
Barasat	7.22	14.20	Konnagar	NA	2.07
Barrackpore	3.18	6.72	Madhyamgram	4.36	4.63
Baruipur	NA	3.67	Maheshtala	5.35	6.57
Bhadreswar	5.51	6.85	Naihati	5.13	5.08
Bhatpara	3.99	5.75	New Barrackpore	NA	3.48
Bidhannagar	1.32	2.95	North Barrackpore	2.76	4.08
Budge Budge	NA	4.95	North DumDum	4.18	5.41
Champdani	2.70	2.41	Panihati	4.73	5.41
Chandannagar	6.25	11.90	Pujali	NA	9.83
Dankuni	NA	5.57	Rajarhat Gopalpur	3.53	4.35
Dum Dum	2.01	2.81	Rajpur Sonarpur	4.05	5.34
Garulia	NA	3.65	Rishra	2.10	2.05
Gayespur	NA	1.45	Serampore	3.40	4.64
Halisahar	8.15	9.65	South DumDum	2.20	3.32
Haora	3.81	9.05	Titagarh	2.50	2.48
Hugli-Chinsurah	5.02	6.06	Uluberia	9.65	9.82
Kalyani	5.02	7.19	Uttarpara Kotrung	2.70	3.45

Source: Census of India, 2011 Table H 2, Figures are in Percentage, NA: Data not Availabl

Appendix 3

Housing Shortage in KMA

ULBs	First Method	Second Method	ULBs	First Method	Second Method
Baidyabati	-814	3805	Kamarhati	-1678	-4947
Bally	-1253	-15775	Kanchrapara	-841	-1192
Bansberia	-859	1673	Khardah	-608	-959
Baranagar	-1802	11364	Madhyamgram	-1357	7324
Barasat	-1690	11664	Maheshtala	-4272	5905
Barrackpore	-1031	3258	Naihati	-1130	-11802
Bhadreswar	-555	1796	North Barrackpore	-622	3830
Bhatpara	-2081	3523	North DumDum	-1261	9708
Bidhannagar	-669	-3396	Panihati	-2292	3101
Champdani	-618	1278	Rajarhat Gopalpur	-2533	17301
Chandannagar	-1217	5997	Rajpur Sonarpur	-2458	19254
Kolkata	-25096	39748	Rishra	-527	1550
Dum Dum	-336	3384	Serampore	-953	-408
Halisahar	-681	4415	South DumDum	-2372	14956
Haora	-7600	7505	Titagarh	-407	-895
Hugli-Chinsurah	-1375	6745	Uluberia	-1473	1650
Kalyani	-959	3982	Uttarpara Kotrung	-577	8103

Source: Census of India, 2011, Table H 1, Note: Positive value represents surplus house stock and Negative value represents shortage

Appendix 3a

Congestion and Housing Shortage

ULBs	No Exclusive Room	Third Methods	ULBs	No Exclusive Room	Third Methods
Kalyani	1,074	-21028	Hugli-Chinsurah	1,468	-39,884
Halisahar	1,187	-40501	Champdani	754	-33,860
Kanchrapara	787	-28774	Baidyabati	1,738	-31,348
Naihati	1,441	-37844	Serampore	1,983	-40,510
Bhatpara	2,637	-110163	Rishra	1,323	-32,154
North Barrackpore	972	-31097	Uttarpara Kotrung	1,183	-33,731
Barrackpore	978	-32021	Bally	1,693	-48,582
Titagarh	1,156	-38884	Haora	7,434	-246,115
Khardah	552	-18055	Uluberia	744	-67,582
Panihati	3,242	-87731	Kolkata	41,575	-1,073,244
Barasat	1,907	-67056	Maheshtala	1,879	-123,988
Madhyamgram	1,048	-45779	Rajpur Sonarpur	1,500	-100,171
North DumDum	1,359	-59623	South DumDum	2,585	-80052
Kamarhati	4,035	-74040	Rajarhat Gopalpur	4,023	-103421
Baranagar	3,268	-65024	Bidhannagar	1,533	-19096
Dum Dum	930	-24152	Bansberia	868	-28947

Source: Census of India, 2011, Table H 1, Note: Positive value represents surplus house stock and Negative value represents shortage

Appendix 4

Housing Ownership Status and Growth in KMA 2011

ULBs	Ownership (%)	Rented (%)	Growth of Ownership
Kalyani	80.80	16.05	3.75
Halisahar	71.10	24.01	1.94
Kanchrapara	68.89	18.47	1.40
Naihati	71.39	23.38	1.04
Bhatpara	58.89	36.92	2.68
North Barrackpore	79.74	16.56	3.29
Barrackpore	69.97	26.82	2.18
Titagarh	30.04	58.23	4.02
Khardah	80.74	16.16	2.05
Panihati	76.73	20.52	2.64
Barasat	79.82	17.42	4.18
Madhyamgram	79.47	17.70	4.89
North DumDum	79.46	18.38	2.55
Kamarhati	64.40	32.33	2.00
Baranagar	69.79	25.82	3.56
Dum Dum	71.53	26.19	4.50
South DumDum	75.53	22.04	2.62
Rajarhat Gopalpur	69.17	29.31	7.63
Bidhannagar	62.67	31.12	1.94
Bansberia	70.47	26.38	2.84
Hugli-Chinsurah	82.37	13.63	1.97
Chandannagar	80.97	16.39	2.61
Bhadreswar	62.99	32.89	3.14
Champdani	48.81	41.34	4.20
Baidyabati	80.39	16.03	2.18
Serampore	70.49	26.55	0.69
Rishra	53.37	41.66	3.90
Uttarpara Kotrung	69.35	25.77	3.43
Bally	57.81	37.47	3.58
Haora	61.44	34.97	3.59
Uluberia	81.69	14.32	3.11
Kolkata	56.02	39.94	2.98
Maheshtala	77.48	20.64	3.60
Rajpur Sonarpur	79.08	19.32	4.49

Source: Census of India, 2011, Table HH 4 computed by author

Appendix 5

Descriptive Statistics

	Mean	SD
Area of the ULB	2.67	0.78
Population Density	7.91	0.55
Population Growth	0.814	2.66
Distance from Kolkata	3.00	0.78
Railway Station	0.24	0.43
Railway Junction	0.87	0.33
Density of employed person	8.3	0.60
Density of Female employed person	6.6	0.60

Source: Computed by the author