



Transformation of Housing Policy, House Shortage and Spatial Growth of Housing in the Kolkata Metropolitan Area - a critical appraisal

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Abstract

Human Development is based on the people's health, education level and their standard of living. HDI is designed with the help of health index, education index and income index. Now, Chanderghat GP stands with HDI score 0.567 whereas the national score of India is 0.586 (rank 135 out of 187 countries as per census 2011). The study also found the diversity of HDI score among SC - 0.507, OBC - 0.545 and General - 0.651 respectively at GP. Income disparity and school dropout rate are two main reasons for such diversity. However, the current HDI status of GP is quite similar to Nadia as 0.570. There are few suggestions to mitigate the disparity among those categories..

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Introduction

The process of urbanization in India is characterized by increasing absorption of population in comparatively larger cities. In 2001 Class I cities contained 68.7% of the total urban population (defined as cities having a population of over 100,000). On the other hand 21.9% and 9.4% of total urban population was living in medium and small towns respectively (GoI, 2007). In 2011 there was a huge change and 92.7% of the total urban population was found living in the Class I cities (GoI, 2013). Supply of housing to this population is a major challenge especially if those states are "land critical" like West Bengal. As per the latest Government estimates, the housing shortage in the urban areas is 18.78 million units and out of which 99 % of the housing shortage pertains to the Economically Weaker Section (EWS) and Low Income Group (LIG) categories. Due to their low affordability economic demand of housing is very low. Out of this shortage, the congestion factor contributes to 12.67 million of households and need for fresh housing contributes to 16.29 Million units (GoI, 2012). In fact, recent report on the affordable housing 2022 by KPMG suggests that urban housing is to

account for about 85 to 90 % of the total investments and the focus should be on affordable urban houses, which is 70 % of the total urban housing requirement (Bansal, 2014). 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. More specifically it can be said that all the slum dwellers have no proper house so they also need houses. The paper elaborates housing shortage of the metropolitan area and its supply aspects with respect to geographical scale in detail in the following section.

Objectives

The paper addresses some crucial questions relating to housing development and its challenges in metropolitan area. The paper vividly elaborates how policy of housing

development has changed since independence and gets restructured by neoliberal period. Secondly, the nature of housing shortage in urban West Bengal (separately in KMA and KMC) has been extracted. Lastly, the existing spatial pattern of housing growth (2001-2011) has been analysed in 41 urban local bodies of the KMA.

Methodology

Data has been collected mainly from the Census of India between 2001 and 2011 to calculate the housing shortage of the Kolkata Metropolitan Area. A number of methods have been used to calculate the housing shortage in the area. Attractiveness has been measured to point out the area where spatial demand and supply of the houses are growing rapidly. 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 economy (Ghosh, 1992).

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). Principal component analysis has been performed using Stata 11 to correlate the various demographic and economic factors. Following variables have been taken to analyze the spatial housing growth in KMA. X_1 = Population Growth rate, X_2 = Population Density, X_3 =Travel Distance from the Kolkata, X_4 =Employed person's Density, and X_5 = Female employed Persons Density.

Findings and Discussion

Transformation of Housing Policy in KMA (Nehruvian Period to Neoliberal Period)

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 performance of the institutions change the face of policy in the early 90's (Rao, 2004). 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 third of the total allocation of the First Five Year Plan went into the housing sector (Rao, 2004). Rehabilitation colonies were set up across the country mainly in the west and eastern part as these areas were affected more 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 schemes were enacted in the Nehruvian era.

This was the period when housing was being developed for the industrial workers and later the housing programmes were meant for the middle income group. To build house one needs land and during this period large amounts of vacant land (mainly rural or peri urban area) were acquired by state for housing development. The idea of housing development in vacant land was necessary from planners' perspective as pointed out by Le Corbusier. He noted that "we must build on a clear site" (Hall, 1988). The politics behind the development of housing in the rural area was deeper because planning in the city fringe or for outlying sites deals with the replacement of unpeopled countryside by built environments and is largely technical and apolitical (Relph, 1987).

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 consequence 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 (GoWB, 1966). Second is the housing condition. Large share of the housing units were made of non permanent material. What is worthwhile to mention is that BDP proposes the Bi-Polar North south development of Kolkata Metropolitan Area. 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 (GoWB, 1966). Salt Lake and Kalyani were purely planned townships. This is the period when State acquired the land for providing housing to the people of different economic sections. Though plans mention that private investment is necessary for area development programme. 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 prepared following number of houses for different economic sections.

It is apparent from the above table 2 that house construction for the LIG & EWS (Low Income Group and Economically Weaker Section) has been reduced by 7.3 percent from after 1990s. This is the period when India stepped into neoliberal policy framework. One can argue that due to low demand for houses, supply decreases. However the reality is that both LIG and EWS are still in majority in the KMA. Apart from this the other trend is that housing construction by the state housing board within the KMA has been rapidly increased. Lopsided pattern of urbanization is responsible for huge demand for houses within the Kolkata Metropolitan area.

After 1990 lot of private developers developed houses mainly for the people of middle and high income groups. Private developers were developing houses in closed factories, peri-urban agriculture land as well as on residential land and sometimes filling the water bodies. To boost real estate sector of the state recently state government enacted West Bengal Land Reform Act 2014 to provide holding of land in excess of ceiling of 24.7 acres for setting of new township (CREDAI, 2015). Apart from this new township policy was notified in 2014 by the state government. The main features of the policy include the area of the township will be 50 acre or more. State government will not acquire any land instead developer would procure land. There will be 25% reserve for residential unit in the township.

Lastly 25% of the net land area should be kept for economic development purpose, excluding the infrastructure amenities and basic public infrastructure (GoWB, 2014). The policy triggers some crucial questions like is it possible for a developer to procure large tracts of agricultural land? We have to remember the west Bengal was in leading position in land reform. So plots are very much fragmented that indicate the number of land owners is very high. This policy of non-acquisition leads to the deprivation housing for EWS and LIG and other development activities which have larger interest. In reality developers develop houses in peri urban areas within small land for middle and upper income bracket and create an islander gateway community. These areas are facing acute shortage of urban service and create pressure for existing urban areas.

Nature and Dimension of Housing Problems in KMA

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 (Gol, 2012). Apart from this high gestation period of housing projects, limited and expensive capital, spiraling land and construction cost, high fees and taxes, unfavorable 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). Lim has pointed out the problem of traditional housing policy in developing countries that includes the setting of minimum building codes to prevent the poor from building low quality houses, limiting large-scale development to control urban growth and finally attempts to scatter the population so as to ease the pressure on metropolitan cities and related demand for housing (Annez and Wheaton, 1984; Lim, 1987).

Housing shortage in urban area of West Bengal is more than 64 percent in both methods. It indicates that low affordability of urban poor of West Bengal. However major share of this shortage are in non-slum area. It is to be noted that according to 2011 census KMC holds 31.35% of the slum population of the city total population. The low shortage of housing in slums is because of various programmes were introduced to build new houses for slum dwellers which include the Kolkata Environmental Improvement Programme, Jawaharlal Nehru National Urban Renewal Mission etc. Each have separate submission to provide house for urban poor. It is to be noted that decadal population growth rate of KMC is negative (-1.67%) but the metropolitan areas population growth is positive. Therefore housing shortage in KMA in both methods are higher (27.61% in first method and 26.60 % in Second Method) than the KMC.

Evaluation of Spatial Housing Growth

Principal Component Analysis

The principal component analysis method is a multivariate statistical method which aims to use the idea of dimension reduction, by researching the inner structure relation of the index system, to transform a lot of indices into a few independent indices which are comprehensive indices contain most information of the original index. If there are m indicators, the observed value of each indicator is n , so the principal component analysis model is established as follows (Yang and Zhang, 2013)

$$\begin{aligned} Z_1 &= a_{11}X_1 + a_{21}X_2 + \dots + a_{n1}X_n \\ Z_2 &= a_{12}X_1 + a_{22}X_2 + \dots + a_{n2}X_n, \dots \dots \dots (1) \\ Z_m &= a_{1m}X_1 + a_{2m}X_2 + \dots + a_{nm}X_n \end{aligned}$$

In (1) $a_{1i}, a_{2i}, \dots, a_{ni}$ ($i = 1, 2, \dots, m$) is the characteristic vector of the characteristic value of the covariance matrix of X , and X_1, X_2, \dots, X_n is the standardized variable of X .

$a = (a_{ij})_{m \times n} = a_{1i}, a_{2i}, \dots, a_{ni}$, $R_{ii} = 1$, R is the correlation coefficient matrix, λ_i is the corresponding characteristic value, a_i is the unit orthogonal vector, and

Following housing growth variables are analyzed by principal component method. X_1 = Population Growth rate, X_2 = Population Density, X_3 = Travel Distance from the Kolkata, X_4 = Employed person's Density, and X_5 = Female employed Persons Density. Obtained total variance explained in the following table. The data in table 4 shows the cumulative explained variance of the first five principal components, i.e. the sum of the largest eigen values normalized by the total sum of the eigen values. The number 0.65 means that the first principal component explains 65% of the housing growth rate variation in KMA. 86% of the housing growth variation is explained by the first two components, so the second component itself accounts for 21%.

To interpret each component, we compute the correlations between the original data for each variable and each principal component. These correlations are obtained using the correlation procedure. Here a correlation value above 0.5 is deemed important as it indicates strong correlation with each component i.e. the farthest from zero in either positive or negative direction.

The first principal component is strongly correlated with three of the original variables. The first principal component increases with increasing population density, employed persons density and female employed person density scores. This suggests that these three criteria vary together. If one increases, then the remaining two also increase. This component can be viewed as a measure of population density, employed persons density and female employed person density scores. Furthermore, we see that the first principal component correlates most strongly with the employed person's density. It could be stated that based on the correlation of 0.54 that this principal component is primarily a measure of the employed person's density. It would follow that in the areas with high density of employed person there would more house growth. It is because they have ability to buy house. It is to be noted that certainly all of them may not have the high purchasing power. In general there will be high growth of housing. Whereas areas with low density of employed person would have low growth of house. The second principal component increases with only one of the values, increasing population growth. This component can be viewed as a measure of how population growth of an area influences the housing growth.

The principal component score for any pair of principal component can be plotted on map. Here we

have calculated the score of the first principal component and plotted on map. The reason for doing this include searching for cluster and in general understanding the structure of the data and taking it as the basis of numerical classification of municipalities in terms of 5 variables. Factor scores are linear composites, formed by standardizing each variable to zero mean and unit variance. The factor scores are measured in units of standard deviations from their means. Based on prevalence of spatial housing growth four distinct individual groups could be identified.

The first group included the ULBs whose housing growth is high and these ULBs include Howrah, Bally, Kolkata, Bidhannagar, Rajarhat Gopalpur, Baranagar, South Dum Dum etc. These ULBs are very close to Kolkata. The second group included those ULBs which have moderately high growth of housing and ULBs include Dum Dum, Naihati, Panihati, Konnagar etc. Third group includes those ULBs which have comparatively less housing growth than the second group. ULBs included Uttarpara Kotrang, Budge Budge, Maheshtala, Bhadreswar, Bansberia, Garulia etc. The last category ULBs have lowest housing growth. The ULBs include Kalyani, Gayeshpur, Baruipur, Pujali etc. all these ULBs are far from Kolkata. Both third and fourth group have low growth of houses.

Conclusion

In this paper we tried to understand the transformation of housing policy in India and in particular KMA. It is clear that after independence rehabilitation programme and housing for industrial workers was given priority later the housing programmes were meant for the middle income group. In early 1970s parastatal body was created for housing development for different sections of the society mainly for middle income group. In West Bengal Housing Board was formed and they supplied houses for different strata of the society. The state is facing severe urban housing shortage and this figure is more than 30 % only in KMA (including KMC). It is because of the lopsided urbanization pattern. With the growing demand for houses in KMA, housing board built more houses within the KMA than non KMA area. Spatial growth of houses in KMA has a clear relation with population density, employed person density and female employed person density. Housing growth is still high in those ULBs which are comparatively close to Kolkata. As the current state government is not willing to acquire any land therefore role of the housing development board has been reduced to some extent while private developers are now in forefront for housing development. To attract more real estate investment state government also changed urban land ceiling act so large landholdings can be used and bring flexibility in the provision for conversion of agricultural land.

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Table – 1: Various Housing Programmes of Government of India

| 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

Table – 2: House Construction by West Bengal Housing Board

| Year | LIG | MIG | HIG | EWS | Total | Number of Housing Projects Close to Kolkata |
|-----------|-----------------|-----------------|------------------|---------------|-------------|---|
| 1974-1990 | 2715 (17.53) | 6426 (41.51) | 5484 (35.42) | 854 (5.51) | 15479 (100) | 37 |
| 1990-2014 | 2472 (13.32) | 4813 (25.94) | 10819 (58.31) | 449 (2.42) | 18553 (100) | 61 |

Source: West Bengal Housing Board, Data Compiled by author

Parentheses figures are in percentage

Table – 3: Housing Shortage of the Urban West Bengal, KMC and KMA

| | First Method | | | Second Method | | |
|------------|--------------|-------|-------|---------------|-------|-------|
| | Non Slum | Slum | Total | Non Slum | Slum | Total |
| WB (Urban) | 82.92 | 17.07 | 64.04 | 82.89 | 17.10 | 65.82 |
| KMC | 75.31 | 24.68 | 8.34 | 89.60 | 10.39 | 7.57 |
| KMA | 46.38 | 53.61 | 27.61 | 88.79 | 11.20 | 26.60 |

Source: Census of India 2011, Data Compiled by author *Figures are in percentage

Table – 4: Variance Explained by the Principal Components

| Component | Eigen value | Difference | % of Variance | Cumulative |
|-------------|-------------|------------|---------------|------------|
| Component 1 | 3.246 | 2.191 | 0.650 | 0.65 |
| Component 2 | 1.055 | 0.471 | 0.211 | 0.86 |
| Component 3 | 0.583 | 0.481 | 0.116 | 0.97 |
| Component 4 | 0.102 | .0908 | 0.020 | 0.99 |
| Component 5 | 0.011 | | 0.002 | 1.00 |

Source: Calculated by author

Table – 5: Correlation between Principal Component and Original Variables

| | Component 1 | Component 2 |
|--------------------------------|-------------|-------------|
| Population Density | 0.53 | -0.08 |
| Population Growth | -0.12 | 0.89 |
| Travel Distance | -0.35 | -0.41 |
| Employed Person Density | 0.54 | -0.06 |
| Female Employed Person Density | 0.53 | 0.08 |

Source: Calculated by author

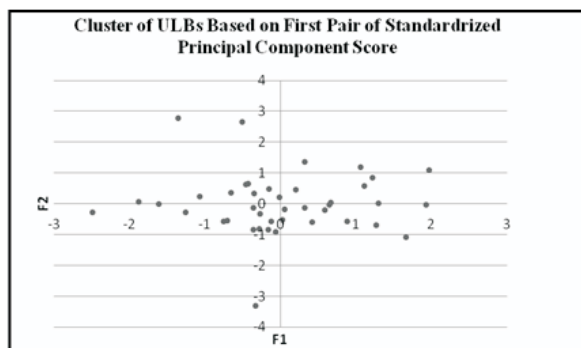


Fig. 1: PCA of the 41 Local Bodies

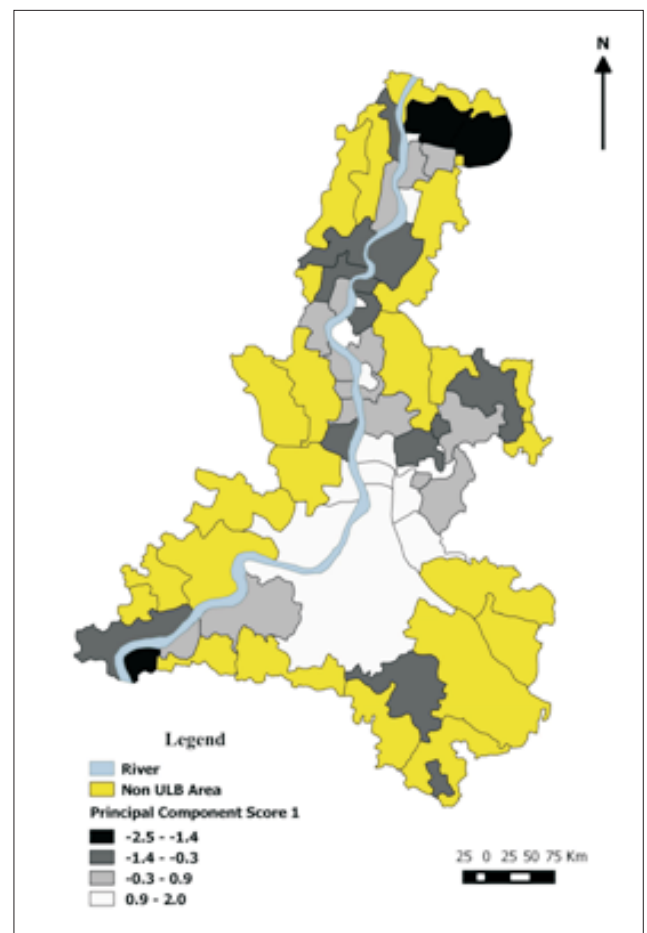


Fig. 2: Classification of ULBs based on PCA - 1



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