Region, Periphery and the City Core: Transformations in Morphology and Growth Symbiosis: A Case of Kolkata City and Region

Abstract: The urbanization and growth of the city of Kolkata is the history of the growth of Kolkata city at the core and a greater Kolkata region which has grown along the river Hooghly. For ease of understanding the structure of the core and the region, it is worthwhile to mention the two administrative areas, the Kolkata Municipal Corporation area (KMC), representing the core and the Kolkata Metropolitan Area (KMA), representing the region. While the KMC area is 185 Sq.Kms and has a population of 4.5 million, the area of KMA is 1850 Sq.Kms with a population of 14 million, both according to the census data of 2001. The present paper works at three different scales. It works at

- The regional (represented by the KMA),
- The periphery of the core city of Kolkata and
- The core city itself, the KMC area

The development in these areas has been guided by the presence of many state agencies, who have contributed to the development of the city structure. Historically, agencies such as the Calcutta Improvement Trust (CIT), the Calcutta Metropolitan Planning Organisation (CMPO) have guided the development of the city region, through varied thrusts which differed with each organization and also with time. Presently, KMDA, a statutory authority functioning under the administrative control of Urban Development Department of Government of West Bengal has the mandate of working in tandem with the elected Urban Local bodies (ULBs) toward the overall development of KMA.

The paper investigates the dynamics of temporal development in the metropolitan region, with the changing roles of the old and new parts of the city, the social and spatial links between the core and the periphery and the resulting urban morphology. The paper has as its thrust the declining role of the core, as a consequence of new peri-urban growth.

It is thus, essential to understand the functioning of the earliest residential areas at the city core which are representative of the city.

Thus, the essential focus of the present paper is to understand the functioning of the core city of Kolkata, with an inside out approach to eventually address the emerging morphology of the entire region. Specifically, the paper examines the transformations of residential neighbourhoods at the core, their uniqueness, incremental growth patterns, migration and (de)gentrification along with speculative development scenarios and aligns them in the broader framework of development at the scale of the Metropolitan area.
1. **Introduction: Kolkata and the region**

Kolkata Metropolitan Area (KMA) is the most important urban conurbation of eastern India. Comprising of areas along both the banks of River Hooghly, KMA has an area of 1,785 sq.km with a population base close to 14.0 million (2001, estimated). The area of KMA comprises portions of six districts – those of Kolkata (municipal corporation area, which is a district in itself) along with the districts of Howrah and Hooghly on the western bank of Hooghly, and the districts of Nadia, 24 Parganas-North and 24 Parganas-South, situated on the eastern bank. Located at about 22.82°N, 88.20°E, KMA comprises of three municipal corporations – those of Kolkata, Howrah and Chandannagar (Hooghly district), 34 municipal areas, 62 non-municipal urban areas and about 400 villages.

![Kolkata Metropolitan Area](image)

**FIG.1:** Kolkata Metropolitan Area (KMA) showing KMC and Howrah, the two largest corporations forming the nuclei of development of the region. (Source: NATMO Atlas and the authors)

**The Growth of the Kolkata City Region**

It is worthwhile to take a look at the chronology of growth pattern of the Kolkata region. The National Atlas and Thematic Mapping Organization (NATMO), has identified the growth of Kolkata and its region in three phases:

1. Before 1793
2. 1793-1856
3. After 1856

NATMO summarizes the growth of the city and its environs in three phases. There are numerous layers over these broad classifications which form the intricate pattern of neighborhood structure in the Kolkata metropolitan area. The first phase is considered before 1793 (Wood’s map of 1784 is considered one of the oldest documentation of this phase) where the city is shown as growing along the River Hooghly, which, quite understandably, was the
major transportation spine. Chitpur, Cossipore, Baranagar, Dakshineshwar, Panighati, Khardah, Titagarh and Barrackpur were the settlements on the eastern bank of the river. On the other side, Baidyabati, Srirampur, Bali, Haora and some other smaller settlements were consolidating.

In the next phase, which is classified as the period between 1793 and 1856, Metiabruz, and Tollygunj coalesced with the conventional city within the Circular road system (which was made ‘pucca’ as documented in Radharaman Mitra’s accounts\(^2\), in 1799). The radiating roads out of the conventional city as shown in a ‘Map of Calcutta suburbs of 1817’ are a clear indication of this outward growth. During this phase, parts of Alipur, Kalighat, Bhawanipur, Ballygunj, Narkeldanga, Ultadanga and DumDum also developed. There was development along the Calcutta-Naihati road, running parallel to the river, which nonetheless was discontinuous. Baranagore being already a consolidated settlement, growth around this area was quite significant. On the western side of the river, the linear development was continuous, from the Botanical garden to Champdani. (Source: NATMO). In September 1854, the first train from Howrah to Chinsurah (mentioned as Hoogly in contemporary time-table) was introduced by the East Indian railway, a distance of twenty three and half miles covered in just within an hour. (source: kolikata Darpan\(^3\)). With the completion of the Howrah Bridge across the river Hooghly, Kolkata was part of the emerging nationwide rail network system.

A map showing the growth of Kolkata at the core and along the river discussed above can be summed up by the growth map of NATMO superimposed on the map of the Kolkata Metropolitan Area as prepared by the KMDA.

![Growth of Calcutta](image1)

**FIG. 2:** Maps showing historical growth of Calcutta along the river Hooghly and the present configuration of the Kolkata Metropolitan Area. Note the growth nodes. (Source: NATMO Atlas and KMC website, [http://www.kmcgov.in/](http://www.kmcgov.in/))

It is quite clear from the maps that apart from the development of the core defined by the Mahratta ditch, initial developments happened along the river in patches and subsequent
developments happened gradually outward from the core and slowly, the city acquired a homogeneous character over bigger areas and over a hundred year period, larger areas till the NSC Bose road in the South, large part of Behala in the South West came to acquire the homogeneity; the entire present Corporation area which has grown considerably in the last four decades show this homogeneity in its urban fabric. It is thus logical to look at the city of Kolkata’s residential neighborhoods as a homogeneous entity dissected by the original English administrative core which could be considered in today’s scenario as the area within the Acharya Jagadish Chandra Bose Road (the erstwhile upper and lower Circular roads) on the East and South and the Lenin Sarani (the erstwhile Dharmatala street) on the North. It is obvious that a large spread of urban space with ‘Calcutta character’ will emerge as the physical connections are consolidated with evolved multi modal transport infrastructure.

Professor Monideep Chattopadhyay, noted academic and urban planner, in his write up KOLKATA IMPROVEMENT TRUST: A Century Old Legacy of Finest Urban Planning Practices in India summarizes the development process of Kolkata and the role of KIT (erstwhile CIT, Calcutta Improvement Trust) in the following way:

“It is indeed interesting to note that the historical bench mark planning document, Basic Development Plan (BDP) for CMD, published in 1966 by Calcutta Metropolitan Planning Organisation (CMPO) categorically recommended the extension of KIT and HIT (created for Howrah development) jurisdiction on both banks of the river to cover entire Kolkata Metropolitan Area (KMA). Like many other well thought out recommendations of BDP this was also not implemented.

In the changed context of rapid urbanization in small and medium towns of West Bengal, it might be considered a prudent measure to extend well laid out enabling provisions of scheme formulation process as provided under CIT Act, 1911, to all urban bodies of the state so that the utter urban chaos and confusion prevailing there could be arrested to some extent.”

**Growth, infrastructure and urban morphology – dynamics of core and periphery**

A summary of developments of Kolkata, as discussed in this paper on the City’s historic growth and development pattern, when overlapped show the following key findings:

- **Early Developments: Mid 18th Century**

From the beginning, the native or ‘Black Town’ in Kolkata was geographically located at two disjointed ends of the town, with the ‘White Town’ along with the British Fort occupying the geographical centre. Chitpur Road, a peripheral road, along the Hoogli River was the only connector between the northern and southern parts of the town. No other main roads existed either in the North-South or East-West directions.
FIG. 3: Early developments of Kolkata (Source: Authors)

FIG. 4: Transportation network developed between mid 19th to early 20th century (Source: Authors)
Some Important Interventions: mid 19th century to early 20th Century

- Establishment of the Calcutta Port
- Suburban Railway line set up
- Tram services installed within the city
- Major Road Network, Sewerage & Drainage system developed – setting up of Calcutta Improvement Trust (C.I.T.) in 1911.
- New roads suited to motorized vehicles tore open the organic network within the old town
- Infrastructure developed fairly in conformity with growth of population & activities.

20th Century onwards – shaping of the city in its present form

- Social factors affected the city’s growth: partition of Bengal, World War II, and the great famine led to large influx of population into the city.
- Spilling out of the city to the periphery.
- Breakdown of available infrastructure by mid 20th century -prime concern.
- Setting up of Calcutta Metropolitan Development Authority (CMDA) in 1970 for comprehensive development plan.
- Extension of the city area much beyond the Corporation Limits.
- Construction of Metro Rail
- Development of Eastern Metropolitan By-pass & Circular Rail.
- Second Hoogli Bridge construction

FIG.5: Transportation network and city morphology (Source: Authors)
City extents stretched along both North-South & East-West directions.
New infrastructure inputs improving connectivity and better liveability conditions have made residential areas far removed from the old city more in demand by the upper and middle classes.
Out migration of original population from old city areas
De-gentrification of the core

2. The city core and the ‘Grey Zone’ continuum
Large areas along a major North-South Spine (Central Avenue under which the Metro Passes) even though are having the locational advantage of prime properties show stagnation and trends of a gradual degenerative process.

After the introduction of the Metro Rail, locations of the surface dispersal points have become major areas of passenger interchange, but in spite of this, the areas have not been considerably rejuvenated, nor have their land values escalated to the extent envisaged.

Due attention needs to be given to the ‘block behind’ – one block deep from the main artery where the built structures speak of a craftsmanship of a bygone era but the activities housed in them abuse the original structure to extents that mutilate the structures beyond recognition.

On taking a close look at the areas discussed in preceding sections of the paper, following characteristics, which would help identify a ‘grey zone’ can be enlisted. In this section, we are dealing with the city core, which when elaborated upon, would give an operational framework for intervention in the urban fabric, which would strive to strike a balance between retaining old fabric and development; the principal agenda for growth symbiosis when we deal with older and newer urban fabrics as part of a concerted holistic development program:

- Old city districts, which have undergone/are undergoing considerable transformation already, and neither possess a large number of individual buildings of historic relevance to qualify as a historic district.
- Areas where the overall built form however retain a flavour of the past and can in no way be confused with the anonymous new development of the remaining city.
- Areas located near major arterial corridors/ commercial districts of the city, having strong forces of land use change and redevelopment acting upon them.

The architect and urban designer/planner who would work on transformations in urban morphology of Kolkata and intervention strategies will have to work within multiple layers of mythic spaces (as documented, portrayed and imagined in films and literature and paintings etc. with the city as a major character) and changing urban structure. A review of the city structure reveals the distribution of the ‘Grey zones’ in the city separated by the central colonial district. In the following map, it is evident that large chunks of the city fall under the ‘Grey
zones’ which are formed along the north- south Metro spine and along the perpendicular street network which intersects it at intervals.

Fig. 6: Map showing ‘Grey Zone’ delineation, study patch, the Metro spine and the major road network (Source: Authors)
Image and perception of the neighborhoods were generated through Cognitive maps and Kitescapes of the patches. The following snapshots from the city core portray the urban fabric and building typologies of a typical ‘Grey Zone’:

The urban fabric:
- The raised platform on the outer wall
- The corner grocery or the cigarette shop
- Little open space or the neighborhood park
- A certain patterned balustrade
- The occasional colonial lampposts

FIG 7: Urban fabric of a typical ‘Grey Zone’ (source: Authors)

The building typologies:
- The central courtyard type building
- The common wall type connected at the roof level
- The balconies with certain patterned ironwork
- The projected plinth

FIG 8: the building typologies within a typical ‘Grey Zone’ (source: Authors)

This paper presents the central research idea explored in many research collaborations by the present authors which deal with the city core with the ‘Grey zone’ continuum as a significant urban space in the city of Kolkata and suggests the possibility of an inside out approach to address an emerging urban space in the Kolkata region as mentioned before, which would hold, alongside development dynamics in the region, the quintessential nature of Kolkata.

The research engages in physical transformations mapping in selected urban patches in the demarcated ‘Grey Zone’. It documents visual and social attributes of such urban patches and does premise level documentation of building typologies and suggests intervention strategies with the aid of a rapid appraisal template which can assess and ideate physical interventions in individual buildings/premises.

3. A Development Blueprint
The future of the neighborhood patch depends largely on the transformation that happens in each premise. The nature of new development that takes place then determines the transformed character. This new development is dependent on the existing bye-laws. In addition to the transformation scenarios discussed, the present building regulations play an important role in determining the character of the neighborhood.
In the present scenario, the impact on the visual character of the environment, over time, is presented in one of the case study areas in the following section through a series of three images:

![Series of three images](image)

**FIG 9:** Ramdhan Mitra lane area (one of the study patches in North Kolkata): development scenario over time (source: Authors)

The series of three images above depicts the gradual transformation in the physical fabric and hence the visual perception of the neighborhood over time, in the present context of development regulations applicable. The first image shows the existing fabric and the next two are possible future scenarios over time.

In the first stage of redevelopment, larger premises with few stake holders would be prone to new development. Vacant plot areas would succumb to market forces and start having new developments utilising maximum FAR, giving rise to clusters of blocks within the sanctuary areas in place of the open spaces. This would propel the transformation of the visual perception and character radically.

A review of the present day scenario reveals, that the clauses of the Kolkata Municipal Corporation Building Rules (2009), linking road widths to maximum permissible FAR and building heights, is one of the main reasons of transforming neighborhoods from their earlier forms. House owners and builders have chosen the ubiquitous apartment typology developing in newer parts of the city as the preferred building typology even in these grey zones, to leverage on the benefits of height and FAR, wherever possible.

The result in the visual and perceptual impact on the streetscape and ambience of the neighborhood is depicted in the figure below through a comparison of the cases discussed above.
The objective of the research work has been to establish the importance of entire neighborhoods in the imageability of the city and establish these areas as a distinct type of city zone. In this section it is argued that the existing building regulations are inadequate to handle the complexities of re-development in these zones and have actually contributed to the destruction of the imageability of these areas.

The need for:

i. identification of ‘grey zones’ within the city,
ii. declaring ‘grey zones’ them as a distinct type of zone,
iii. working out a different set of building regulations and
iv. introduction of urban design control guidelines for these areas

Emerge strongly from the study.

At the individual premise/plot level, three possible outcomes can happen:

1. **Maintenance of status quo**: The existing building is in good condition and the socio-economic conditions have not changed significantly over time, and the building has retained its architectural expressions.
2. **Decay**: The structure has gradually decayed, because of various factors, some of which include, lesser use of the building due to outmigration, downgrading of socio-economic conditions, inability of aged family members to maintain the house etc.
3. **Transformation**:
   a. This may include modifications in the built structure to accommodate changes in family structure. This can either change the original character totally or can continue to retain the old characteristics.
b. Other transformations may include demolition of old structures and construction of new buildings. The apartment typology has found much appreciation and has come up on many plots. However, there are no urban design guidelines for the visual expression of these new buildings.

And hence, upon summing up, it can be asserted that the emerging scenario of transformation would need a thrust in terms of intervention focus, mapping, as it were, a web of patterns of transformation to a pattern of interventions. The summary can be presented through the following figurative representation:

FIG 11: Transformation- intervention patterns; a summary of findings (source: Authors)
The development which occurs on each plot is a result of the combinations of the values that each of them take in each class of attribute. A mapping of the individual values of each attribute for each plot and the links between them can give the pattern of transformation it will take. The cumulative patterns of transformation of all plots in the neighborhood, gives the overall transformation possibility for the patch. The interventions required can be suggested based on the pattern of transformation emerging.

A comparison of the two case study areas citing the main reasons for these transformations are represented graphically as under:

FIG 12: comparison of the two study patches (source: Authors)

In the process of research of this study, it was found that the absence of base maps and the methods of mapping old city areas is a major cause of projects not taking off in these areas. A major hurdle in working in these areas is to find ways of rapid appraisal, which can initiate the path of project identification.

Through the methodology used in the research, a template of mapping the attributes identified along with their values has been devised, which can be used as a rapid appraisal tool to assess the health of the neighborhood and its propensity towards transformation. Based on patterns which emerge, a directory of possible thrust of interventions can be referred to, to identify the degree of intervention possible and the methods of appropriate funding required.
As shown in map (FIG 6), large parts of the core city area can be classified as grey zones. If the tool is applied to identify the causes of transformation and provide pointers towards the direction of intervention, for all the wards of the grey zones, many Urban Rejuvenation projects can be identified on priority basis and detailed project reports then submitted for funds which are available.

This research can contribute to accomplishing the first task of identification and prioritising of areas of intervention, from where access to project funds can then be garnered. A sample template which can be used to document the premise level characteristics and form a tool of rapid assessment of the pattern of transformation is designed. The pattern which emerges would be linked to the pattern of possible interventions to get the development blueprint guidelines. The template is presented below:

![Rapid Appraisal of Neighbourhood: Template for Premise Transformation](source: Authors)

The template above is devised as a tool to map the interrelationships between various values of attributes. For a given premise, a single line joining the various attributes can be drawn. Each value of every attribute is marked with a colour code on a scale of red-yellow-green. Each value that an attribute takes up, represents whether it resists transformation/is neutral to transformation (i.e. maintaining status quo)/ or is prone to transformation. These three cases are depicted by the colours red, yellow and green respectively. The line which joins the values across attributes would pass through a combination of red, yellow and green dots and would suggest appropriate strategies for redevelopment.
4. Research Relevance
The research focuses on the need to understand the potential of core city areas as grounds of future development, in large metropolitan city regions. As elaborated in earlier sections of the paper, the city development agencies, at different points in time, have persistently concentrated in developing new areas at the city periphery, moving the city boundaries further outward from the core. However, with every outward movement of the city boundary, the neglect of the core becomes more acute through lack of funding for augmentation of infrastructure, social and physical and indiscriminate building development permits, with no relevance to the context. As a result of insensitive approaches to planning, large parts of the core city become progressively de-gentrified and degenerated and eventually cause economic losses to the city by losing out on appropriate development opportunities at prime central city locations.

The present research attempts to put forward a sustainable model of development of the core, which would help in reducing the development imbalances and help rejuvenate the city core as an essential component of a larger city region.

References:
3. Ibid