

Transmitting 'Resilience'

Socio-Spatial Patterns and Social Resilience. Case: Kolkata, India

Shamik Sambit Chatterjee, School of Planning and Architecture, New Delhi, India

Abstract

Indian cities are diverse, amorphous, and unimaginably complex systems; rapidly transforming and adapting; yet remaining uniquely rooted in community behaviours and socio-cultural behaviours. In the pursuit of globalised paradigms, the unique patterns of daily urban life that fostered community bonds and kept us connected as 'neighbours' instead of 'strangers', are being sacrificed. Many existing frameworks and tools have attempted to curb this loss of familiarity but have had little success, in part, due to their inability to engage the community adequately. However, Resilience, especially through social or community resilience, due to its' emphasis on adaptation and community, could be an appropriately engaging lens through which to engage design of our cities and enhance the inherent resilience in our communities.

Using the case of Kolkata, this paper forms a deeper understanding of how everyday cultural patterns such as 'para' and 'adda', can integrate with urban form elements to form a mutually reinforcing and self-propagating system, capable of enhancing community resilience at the neighbourhood scale. This paper builds on established knowledge frameworks in the fields of social resilience, everyday cultural patterns and urban form and highlights the need of incorporating urban form, elements of social interaction and everyday cultural patterns into a combined socially resilient framework.

Keywords

Social Resilience, Every-day cultures, Urban Form, Socio-Spatial Patterns, Neighbourhood

1. Introduction

"Resilience" as the city's ability to manage various adverse events is not new in urban planning (Batty, 2013) and has been used in governance, planning, and urban regeneration (Scott, 2013). Climate change (with its attendant disasters) has become one of the key concerns for resilience frameworks (IPCC, 2014; UNISDR, 2015) and with it, adaptation has become a core concept in disaster risk reduction (Satterthwaite and Dodman, 2013).

But what does "resilience" actually mean? Despite extensive research, definitions remain varied (Coaffee et al., 2018), and methodologically challenging (Crowe, Foley, and Collier, 2016) due to uncertainty in inter-disciplinary approaches. (Chandler and Coaffee 2016). There also remains a disconnect between theoretical resilience frameworks and their translation into holistic strategic design and planning tools for resilience. (Tanner, Bahadur, and Moench 2017). Several social theorists have highlighted the need to consider resilience 'for whom' (Carpenter et al. 2001) and engage with resilience as a process of resistance, adjustment and adaptation. (Davis and Uffer, 2013). In this context, social and community resilience becomes an important dimension for an effective resilience framework. Community resilience has been variously defined as a community's ability to respond or recover from multi-hazard threats (Colten et al., 2008), as a sustained ability to self-organize and take collective actions (Adger, 2006), ability to recover from sudden events (Merz et al, 2013; Weichselgartner and Kelman, 2015) and the ability to adapt to emerging trends. (Satterthwaite and Dodman, 2013; Shaw and Maythorne, 2013; Pickett, Cadenasso and Grove, 2004) Urban social resilience is considered as a community or social systems' ability to respond and recover from disturbances (Cutter, Boruff, and Shirley, 2003) or as the ability for societies to adapt and transform when faced with various challenges. (Cuthill et al., 2008)

While most research on urban resilience in India concentrates on top-down planning, institutional or governance frameworks (Mushir, 2019; NIUA & TERI, 2020; Karanth and Archer, 2014), there remains less emphasis on neighbourhood-led or urban-form based resilience frameworks in an Indian context.

Scholars (Fatiguso et al, 2017; Hassler and Kohler, 2014) have stated that historic, vernacular settlements inherently reflected "resilience" in the morphology and typology of built fabric. Research on vernacular settlements in India have shown that traditional urban forms used to enhance "resilience" through community bonding. (Sharma, 2017) These frameworks could be extended to analyse historic neighbourhoods in the city, which have organically developed, and reveal attributes of resilience within their urban fabric, supporting the necessity of research in this area.

In this paper, the focus has been kept on studying the relationship between everyday socio-cultural community patterns and the physical dimensions of cities, and showing how, together, they reinforce social resilience in urban neighbourhoods. Through the case of Kolkata, it attempts to understand how certain urban elements and every-day behaviour patterns become mutually-fostering self-sustaining cyclic patterns and propagate aspects of resilience. Through this pattern, the objective is to highlight the importance of flexible, small and medium-scale urban form attributes as systemic anchors in fostering every-day life and their earlier role in ensuring social resilience in the city, while revealing the absence of such elements in modern residential typologies in the city.

The paper is structured into 4 broad sections: Understanding Social Resilience and Urban Form linked resilience; Understanding Kolkata and the spatial manifestations of every-day cultures; Evolution and transmission through the city and finally, a comparison of urban fabrics to evaluate the future of socio-spatial patterns.

2. Methodology

In the first phase, a comprehensive literature review on resilience, urban form and culture, was undertaken to understand the possible factors and recent frameworks related to social resilience, urban form and their interdependencies. These relationships were then correlated with the research done on Kolkata city and its' cultural manifestations to ascertain the relevant dimensions to study in the next phase. As culture and community are vast multi-disciplinary subjects with varying contexts and definitions; literature review was conducted in both scientific journals, articles and books; as well as non-fiction writings pertaining to Kolkata and its' cultural dimensions (Chaudhuri, 2013 Chakravarti, 2017; Moorhouse, 1983 etc) Though the author has lived extensively in the city and has strong community linkages in the city; by understanding differing lenses and varying narratives on the city, common cultural behaviours and their elements can be distilled, without any unconscious bias due to the author's own cultural experiences in the city.

From the review, the 'neighbourhood' was selected as the basic spatial unit to be studied and documented due to its' scale (Sharifi, 2019) and the multiple factors emerging from the research. 4 study areas were chosen to represent varying neighbourhood types: historic core, suburban single-family, multi-family medium-rise and multi-family high-rise living within the city of Kolkata. These study areas represent the range of neighbourhoods present in the city, as well as the newer residential typologies emerging in Kolkata. Field visits and on-site observations were carried out at these sites to verify and document form elements of everyday patterns. Through this urban fabric documentation study as well as Informal and semi-structured interviews, tangible and intangible elements were documented, analysed and contrasted across the site areas, leading to a possible framework for strengthening every-day social resilience.

3. Understanding Social Resilience, Urban Form and Spatial Interactions

3.1 Social and Community Resilience: an overview

While there are multiple aspects and frameworks of community resilience (Norris et al, 2007; Edwards, 2009), Social Capital is chosen as the focus, due to its' emphasis on support resources embedded in social networks, forming trust relationships and social norms emphasizing reciprocity. (Lalone, 2012) The key aspects involved in Social Capital were reviewed (Goodman et al., 1998, Perkins, Hughey and Speer, 2002; Perkins and Long, 2002; Tartaglia 2006) and some of its' key components involving community bonds, social support and information dissemination (Norris et al, 2007) have strong connections with every-day life patterns.

Social Resilience maybe defined in terms of social-ecological systems (Holling 1973, 1996, 2001; Carpenter et al. 2001; Westley 2002; Walker et al. 2004) and the capacity of social groups to respond to a crisis positively. (Maguire and Hagan, 2007; Manyena, 2006). Community networks, people-place connections and community infrastructure are important attributes of social resilience (Maclean et. al, 2014) and these attributes share relationships within urban design frameworks and theories as seen later.

3.2 Resilience and Urban Form: an overview of existing frameworks

Urban form has been defined extensively through its complex interactions between various scales and dimensions as well as classification of its' elements (Dempsey et. al., 2010)

There is a significant body of work establishing the relationships between resilience, urban form and design in cities. (Felicetti et al., 2016, 2017; Davis and Uffer, 2013; Romice et al., 2020, Carpenter et al, 2005) Based on the concept of observable 'resilience proxies' (Carpenter et al, 2005), Felicetti et al

(2016,2017) defined and applied a framework of 5 resilience proxies: Diversity, Connectivity, Redundancy, Modularity and Efficiency. Feliciotti et. al (2016,2017) and Sharifi (2019) place importance on the meso-scale of resilient urban forms and define some of the important aspects to observe as neighbourhood form and design, density, land use mix, lots, urban blocks and urban open spaces.

The smallest scale of urban form considered is the *plot*, followed by the street edge, then blocks, bounded by a Street network and finally, sanctuary areas or districts. (Feliciotti et al., 2016) Based on the field studies and the review of socio-cultural patterns in Kolkata, a scale level down is required for small urban elements such as the plinths, boundary walls, informal small-scale food or drink stalls and other such elements. The complexity of Indian cities necessitates viewing "resilience building" as an on-going process which responds at scales ranging from small, incremental every-day events to more sudden, major events. (Davis and Uffer, 2013)

3.3 Spatial Interactions, Social Cohesion and the Neighbourhood

The neighbourhood is considered as the basic unit for social resilience also because it is where social ties are developed (Wickes et. al, 2019), which fosters social cohesion (Browning et al., 2017; Hipp and Perrin, 2006), empowering residents to resolve problems (Sampson et al., 1997). Social science research shows the necessity of local networks in creating community (Bott, 1957; Bell and Newby, 1974) while urban theorists have linked places as key to neighbourhood social life (Jacobs,1961) while identifying supporting urban attributes which contribute to daily life. (Freeman, 2001; Jacobs, 1961; Francis et al, 2012; Montgomery, 1998). Forrest and Kearns (2001) state that routines of everyday life are foundational to social cohesion, along with physical boundaries and local landmarks. Extending this, Wickes et. al (2019) classify places that provide opportunities for social interaction as "neighbourhood social conduits" and, based on land uses, proposes a typology of 4 social conduits: Anchoring conduits; Local exposure conduits; Scheduled conduits; and Extra Local exposure conduits. (Wickes et. al , 2019)

Others have spoken about urban vitality and the influence of spatial conditions at street level on it (Blokland and Nast, 2014; Gehl, 1987; Montgomery, 1998) which may possibly lead to weak links of public familiarity (Guest and Wierzbicki, 1999) and sense of belonging in daily spaces. In order to build a social 'comfort zone' (Lofland 1998) of 'public familiarity (Blokland, 2014), neighbourhood elements which lead to unplanned interactions through local daily routines are intensely important. Hence, if social resilience is dependent on community bonds and trust relationship; urban elements which enhance every-day spatial interactions and lead to 'familiarity' is integral to any framework on social resilience.

4. Everyday patterns, Space and the City

'Culture' in urban space remains a vast and complex term, with multiple definitions and myriad inter-relationships across differing scales. (Lefebvre, 1991,1992; Rapoport ,1969,1977; Mumford, 1938; Zukin ,1995; Amin, 2008).

Based on the research connecting every-day patterns, culture and the production of space (Lefebvre, 1991; Zukin, 1995), this paper focuses on understanding the interdependencies of the network of everyday life and activities and their associated urban spaces forms. Using the case of Kolkata, certain specific every-day manifestations of 'culture are studied and an attempt is made to understand how they were transmitted across the city, through public spaces.

4.1. Kolkata: An Overview

Kolkata, located on the east bank of the river Hooghly, is the capital city of the Indian State of West Bengal and is a thriving metropolis with a population of about 4.5 million (Census of India, 2011). Originating from the amalgamation of 3 villages called Sutanuti, Kalikata and Gobindapur by Job Charnock in 1690, Kolkata (or Calcutta as it was known then) grew to become the capital city of the British Empire

in India in 1773 until 1911. The city developed linearly along the river and was segregated between the native or "Black Town", mostly occupied by Indians, and the "White Town" (containing the British Fort, homes and businesses of the English). There exists considerable research documenting early colonial attempts to plan the city (Chattopadhyay, 2005; Datta, 2012) which led to significant changes in the urban fabric of both Indian and British spaces.

Popularly called the Cultural Capital of India, Kolkata is known for its' festivals, cultural institutions, and fostering an environment of literature, art, politics and social movements. Kolkata is an important case for this framework as it retains many of its' traditional social and cultural resources, present in the public realm, that allows connections between its' inhabitants like no other cities in India (Choudhury, 2017) while also adapting to new urban forms, such as high-rise housing complexes. This allows us to study diverse conditions in a similar context, which is crucial when studying patterns. Being situated on a floodplain of a major river as well as in close proximity to the coastline, it is vulnerable to future adverse events due to climate change, making 'resilience' a requirement. Based on the review of social resilience, we shall consider two every-day socio-cultural patterns of Kolkata: ***The 'para' and 'adda'.***

4.2: 'Para': Physically amorphous yet socially-cohesive neighbourhoods

The origins of 'para' (a Bengali word signifying neighbourhood) can be traced to rural Bengali villages, oftentimes named after the principal families living in them (Sengupta, 2018) before they appeared in the city. While the boundaries of a 'para' in the city were conceptually amorphous; they were mostly bounded by streets, creating a block identifiable to its' residents. (Chattopadhyay, 2005; Sengupta, 2018) However, with the evolution of administrative needs, 'paras' were replaced by administrative wards, usually larger than the *paras* (Chattopadhyay, 2005) and bounded by major roads instead of streets (Sengupta, 2018).

'Paras' usually covered a walkable area, approximately ¼ mile by ½ mile. (Chattopadhyay, 2005). Chattopadhyay (2005, p. 88) further states that *"Cognitively, the space constituted a territory. It derived its sense of identity from a physical feature, which could be a garden(bagan), pond (pukur) or a bazaar, invariably implying the presence of a wealthy family that owned the bazaar."* The spatial structure of the early 'paras' were highly dense, leading to both public and private functions being celebrated in public spaces such as streets. (Biswas, 2021). This inherently created strong community bonds by familiarising the residents with each other.

Sengupta (2018) calls the 'para' an affective space of social identities and emotive bonds. He refers to it as a collective unit which adapted aspects of colonial modernity, through institutions like libraries, literary associations and sporting clubs, which came up in these neighbourhoods in the late 19th and early 20th centuries, to create new meanings. (Sengupta, 2018). While many of these institutions are disappearing in modern times, the sporting clubs have adapted by orienting themselves as youth centres and organising the annual neighbourhood Durga Puja festival. They now serve both as community gathering places as well as a welfare youth association, becoming integral to the informal social structure of the para, being colloquially called "para clubs'.

4.3: 'Rajbaris' and the 'Para': Anchoring 'culture' in the neighbourhood

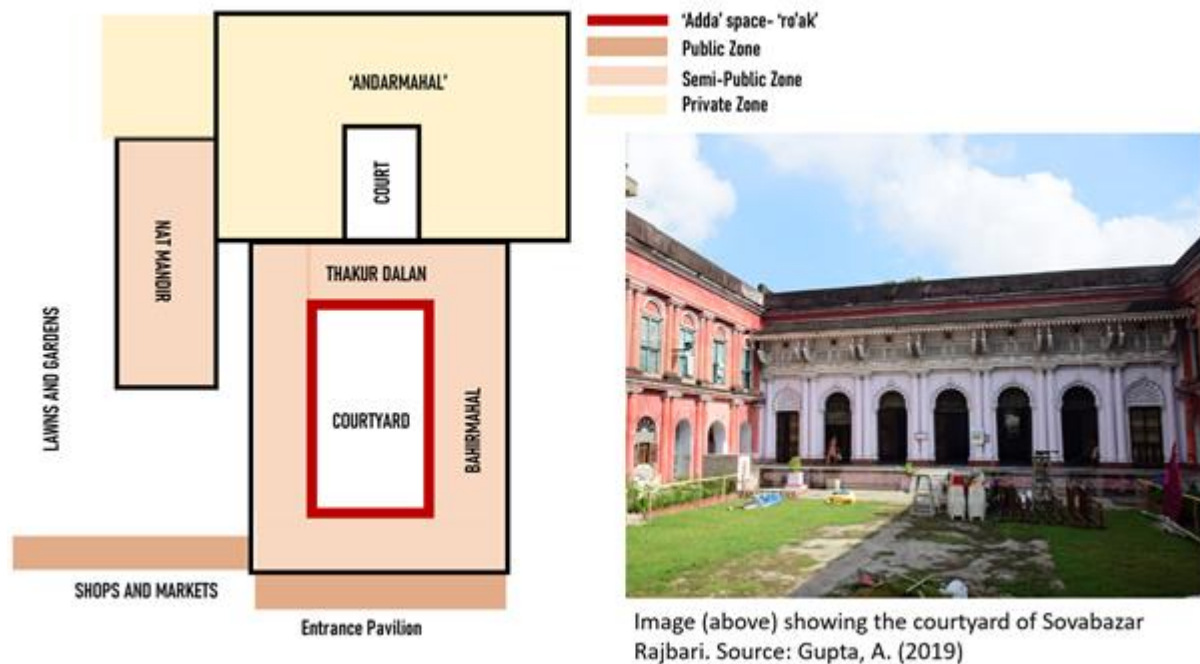


Figure 1 (Left) a schematic diagram showing spatial zoning of a rajbari. Source: Author (right) Image of the courtyard of Sovabazar Rajbari. Source: Gupta, A. (2019)

From the late-18th century onwards, under the East India Company's rule, Kolkata saw the emergence of a group of Indians who became very wealthy working for the British, as business managers, accountants, lawyers and others (Bose, 2020). Accumulating huge amounts of wealth, they began building large mansions (popularly called Rajbaris) in North Kolkata, and leading lavish lifestyles, popularly called 'Babu Culture' (Bose, 2020). The architecture of these mansions reflected their lifestyles. The house became spatially segregated between a public face (shops or offices), a semi-public zone (called 'Bahirmahal') and the private quarters (called 'Andarmahal'); usually arranged around courtyards. (Saha, 2023; Chattopadhyay, 2005) With multiple courtyards, the formal courtyard contained the thakur-dalan (religious pavilion), and a range of public rooms such as the baithak-khana, hall, nachghar (dance room), office, and library (Chattopadhyay, 2005) The bahir-mahal became an integral part of the city's public space network by virtue of being where the 'Babu' held public gatherings. During festivities or for dramatic performances, these spaces were opened to the public to enable them to enjoy the festivities hosted by the elite. This made the 'Rajbari' a landmark and a cultural anchor in the 'para', while simultaneously increasing the influence and prestige of the 'Babu'. Over time, he would hold public discourses in the courtyard of the 'bahir-mahal', surrounded by people sitting on the *ro'ak* (a raised, extended open-to-sky plinth or platform). This was the beginnings of the everyday practice called 'adda'.

4.4: 'Ro'ak' and 'Adda': Mutually Fostering Spatial-Cultural systems

Chakrabarty (2000, p.180) describes "adda" as *"the practice of friends getting together for long, informal, and unrigorous conversations."* The key aspect of "adda" is its' flexibility in terms of topic, timings and space (Chattopadhyay, 2005). The topics, timing and duration are free-flowing and dependent on the participants, with people leaving and joining at will. The spatial patterns of 'adda' and its' relation with the 'ro'ak' in the public realm, led to a proliferation of social networking and extended the concept of 'para', strengthening community bonds similar to the suggested frameworks of social resilience found in the research.

A 'ro'ak' is essentially a raised plinth, extending out from the building into the street and acting similar to a stoop or verandah space. (Chattopadhyay, 2005) As an extension of the lived space (Chattopadhyay, 2005), the strength of the ro'ak lies in simplicity. Physically, it is just an extended and raised plinth to the house. Secondly, a raised platform is necessary as a protective measure against flooding and heavy rainfall and was present, in some form, outside most houses. But, because of these conditions, the ro'ak also becomes a multi-functional space where traders could sell wares, homeless could sleep at night and physically easing the transition between private and public and, thus, building a sense of community (S. Chattopadhyay) By being outside the household space, physical urban elements such as the ro'ak provided an "alternative mode of sociability for neighbours" (Sengupta, 2018), and became a valued place of 'adda'. (Chattopadhyay, 2005)



Figure 2 (Left) An example of a 'ro'ak' on the streets of Kolkata. (Right) A current picture of the 'ro'ak still being used today as a gathering and resting space. Notice the addition of the shop as an 'anchor element' to sustain this everyday behaviour. Source: Author

4.5: Evolving Patterns over time

Informal social gathering, adda, theater, and public speaking became immensely significant in nineteenth-century Bengali society. (Chattopadhyay, 2005), albeit adda remained heavily gendered at the time (Chattopadhyay, 2005; Chakrabarty, 2000; Sengupta, 2018).

A rising middle-class population led to new architectural forms and changes in the urban structure (Sengupta, 2017). By reviewing the documentation of the new buildings by Chattopadhyay (2005), changes to the urban forms and structures can be linked to evolving socio-cultural patterns at the time. As the middle-class increased, plot sizes decreased in order to maximise earnings from sale or rent. The built form shrunk and was built contiguous with the street, removed the public courtyards and assumed a more axial row-house typology (Chattopadhyay, 2005). As the ro'ak was earlier placed within the public courtyard, it became even more important in the front, both as a means to participate in the street life of the 'para' and extending the smaller living space out to the street.

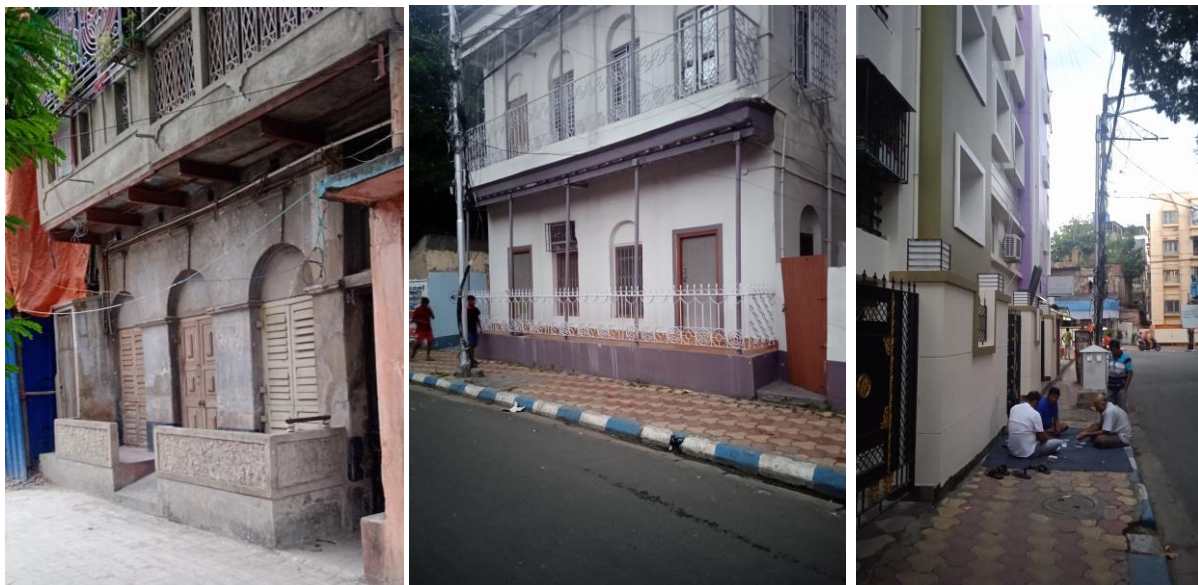


Figure 3 Images showing the plinth becoming fenced and secured from the public realm, the public 'ro'ak' being replaced by boundary walls, leading citizens to congregate where they can. Source: Author

In the mid-20th century, areas towards the south of Kolkata (Eg: Rabindra Sarobar, Southern Avenue) were developed and made available for purchase. Planned by formal organisations, many of these areas were populated by middle-class families and a continuation of the vernacular every-day cultural patterns can be observed here. However, currently, the 'ro'ak' has become rare here due to faster redevelopment of the houses (which remove many elements of social cohesion), safety concerns (due to loosened neighbourhood bonds) or appropriated into private space. Many 'ro'ak's are beginning to become fenced, reflecting a need to demarcate and control space or even fears of misappropriation by strangers.

This does not mean that in these areas 'adda' has gone away. It has moved to the new anchor points of the tea-stall or benches next to shops or even infrastructure.

However, some redevelopments are also retaining the 'ro'ak, refurbishing it for further use. The following images show some examples of restoration of the 'ro'ak'. Although the exact motives behind it are unclear, it shows that these elements could still be adapted for modern communities, as the community seem to connect to it still.



Figure 4 Images showing the restoration of the 'ro'ak' carried out during redevelopment activities by some households. Source: Author, Athena Eye Care



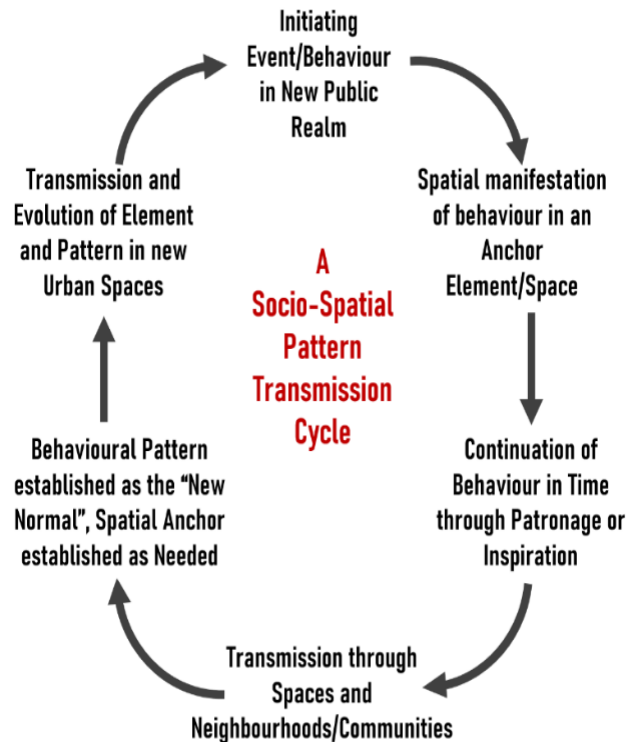
Figure 5 The new spaces of 'adda'. With the 'ro'ak' disappearing, temporary pavilions and informal tea stalls become 'anchors'

4.6. The Evolution of every-day patterns: A Socio-Spatial Transmission Cycle

Using the evolution of 'para', 'ro'ak' and 'adda'; an attempt has been made to condense the understanding into a diagram, which this paper is referring to as a "Socio-Spatial Pattern Transmission Cycle"

In its' origins, 'para' was associated with markets (**public space**) and the influential families in the village or among homogeneous communities (**the 'patrons'**). With the advent of Empire, the 'Zamindars' gain new wealth (**An Inciting Event**) and become both influential and aristocratic. They showcase their wealth through large mansions and by sponsoring large festivals, community gatherings and semi-public gatherings for discourse (early 'addas') in their houses. (**Patronage**) The people sat on the raised plinths (**Anchor Space and Elements**), eventually inking 'para' and 'adda' through the communities. (**Transmission**) Over time, these concepts become enmeshed and 'culturally coded' in the urban form(rapoport?), leading to it becoming an everyday activity. (**Establishment**) Once established, even with the removal of the 'zamindars' as patrons, the new middle-class communities adapted the necessary elements of urban form in their new neighbourhoods (**Transmission and Evolution**), leading to an adapted 'everyday culture' being initiated in the new urban space by the urban element itself. (**Initiation and Cyclic**).

Figure 6 A diagrammatic understanding of the evolution and transmission of socio-spatial everyday patterns such as 'para' and 'adda'. Source: Author



In the beginning, this cycle is dependent on the simplicity and flexibility of the 'element', a strong 'patron' to sustain, anchor and proliferate the socio-spatial pattern until the community internalises the new patterns. Post this, the system becomes almost **self-generating, self-sustaining, adaptive**, and leads to **socially-resilient communities**.

5. Urban Form Sampling: Learnings from fabric studies

While Darjipara, being a historic neighbourhood, allows us to observe these socio-spatial patterns in the closest context to their formation, it is necessary to also understand why these patterns are not reflected in housing typologies today. Kolkata is expanding rapidly and its' community structures and socio-economic context has evolved in the decades since the 'high' point of 'para' and 'adda'. By choosing recent urban typologies in the city, it is possible to contrast and evaluate them against the 'anchor elements' and 'conduits' of social resilience seen in the historic neighbourhood and generate useful insights for future design frameworks and further research in this field.

Darjipara showcases many elements of the typical 'para' such as narrow, self-shaded streets, ranging between 10-15 feet wide, which is conducive for face-to-face interaction. (Chattopadhyay, 2005) while the suburban co-operative housing as wider streets, more greenery and less density. The fabric of Darjipara is highly porous with several streets and lanes connecting across the fabric (which has a variety of plot sizes) with great diversity of uses and it remains an immensely pedestrian-friendly and socially cohesive neighbourhood while in the Co-operative Society, fabric is more uniform, rigidly plotted, access-controlled and almost no diversity of uses. Although, the internal grid street network is highly efficient and easily connected. Darjipara remains socially cohesive, inspite of new redevelopments, and retains the old 'ro'aks' while no such 'anchor elements' exist in the cooperative society.

However, when questioned, Residents of the co-operative society felt the community is as neighbourly as a 'para' while having all the advantages of suburban living. How does this occur when so much of the fabric is different and no 'anchor elements' are present? One possible inference is that, while it is plotted and has setbacks and boundary walls, it is important to note that the *front setback is only about 1.5-2.0m and the boundary wall height is lower than average. When coupled with visual porosity at the ground floor level, people sitting in their houses can still visually interact with the street and residents of the neighbourhood.* Also, the green cover on the street edges makes the pathways well-shaded and conducive to pedestrian activities. Thus, it offers the environment of a 'para' while adding the advantages of suburban living.

Comparatively, the gated complexes don't align with much of the resilience factors derived through research. Connectivity is non-porous and inefficient with highly controlled access; Diversity of uses is non-existent and *there is no spatial interaction at the ground floor.* In apartment living, chance and stray interactions are almost non-existent. Meeting people involves going out to a neutral third place (the central community hall or a restaurant) or as an invited guest to another's house, but always by appointment and almost never by chance. While apartment complexes show higher densities, without the urban elements to foster it, social cohesion through familiarity and stray interactions is almost impossible.

It is interesting to note that residents in the two gated complexes almost exclusively referred to their typology as "a good society" instead of a 'para'. They happily showcased the number of amenities available to them and the clubhouse seems to have become the most important community space to them, though some did mention that due to work schedules they do not visit the community hall as often as they would like. This seems reflective of a new globalised world view of living, wherein the emphasis has shifted from local comforts to global luxuries.

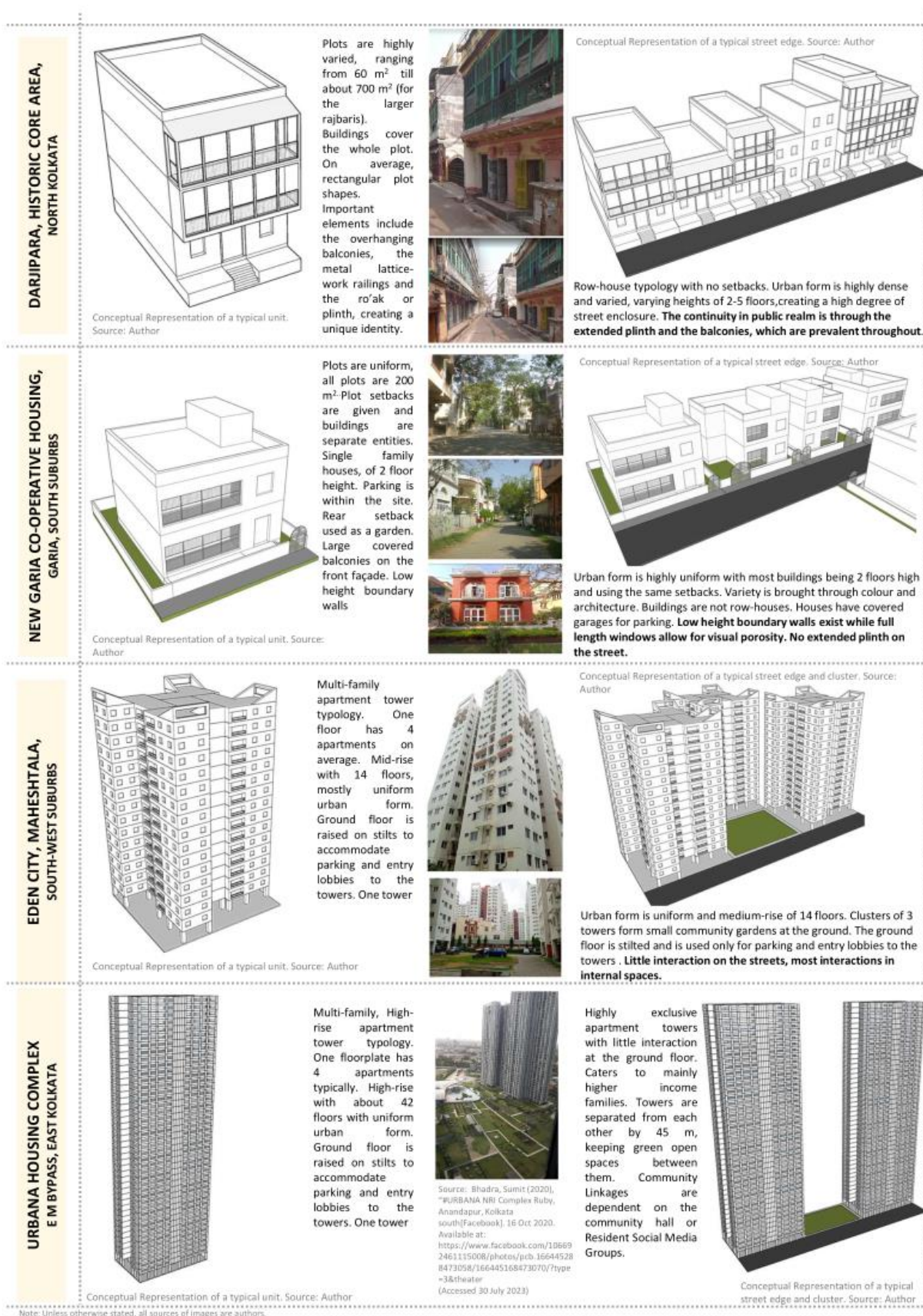


Figure 7 Analysing the basic unit of plot and building across the neighbourhoods. Source: Author

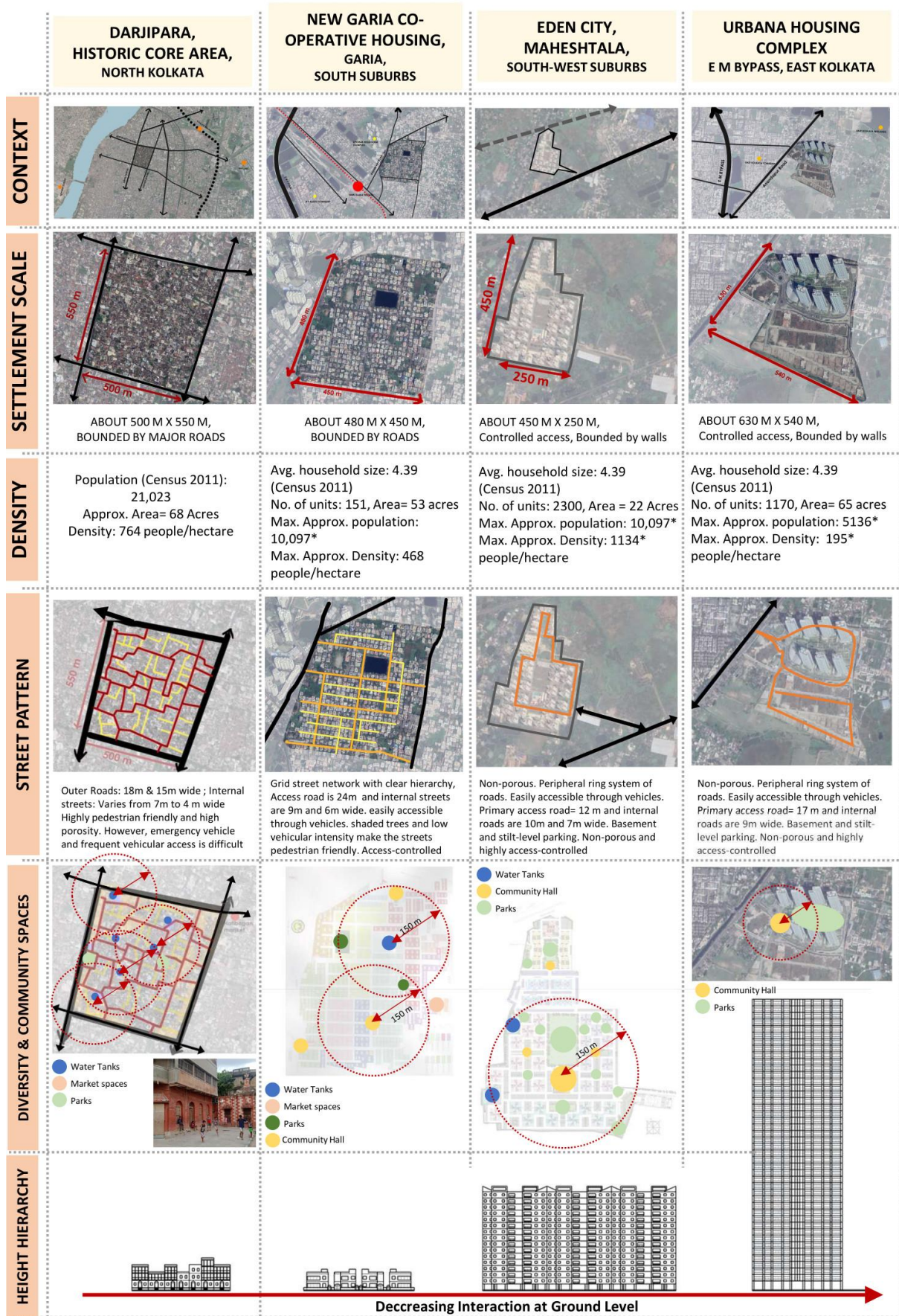


Figure 8 Analysing meso-scale urban form characteristics across the 4 neighbourhoods. Source: Author

4. Transmitting Resilience: Conclusions and way forward

With increasing globalization, rapid urbanization and runaway climate change, urban areas have to deal with a multiplicity of overlapping problems in rapid succession and the speed of transformation is only increasing. Romice et al(2020) have demonstrated a framework analysing the different speeds at which different scales of urban form process change. Thus, it is necessary to understand how urban form elements, especially at the neighbourhood and smaller scales, may enhance community linkages and interactions, as these scales of form are the most crucial for “social resilience” and also transform the most rapidly in response to external pressures.

However, as the pace of Indian urbanisation and rural-urban migration keeps increasing, the emphasis will need to shift from “How do we create resilience in the urban fabric?” to “How do we both create and transmit resilience through the urban fabric?”. Otherwise, we run the risk of “resilience” becoming restricted to particular areas rather than empowering communities as a whole.

Through the research, this paper has attempted to understand how every-day spatial patterns of urban environments can influence ‘social resilience’ of the whole urban system and apply the understanding to evaluating certain neighbourhoods in Kolkata. While there exists multiple dimensions of Kolkata’s cultural practices and their spatial manifestation (Eg:-the festival of Durga Puja and the location of puja pandals), the few discussed here facilitate the every-day cultural patterns which are integral to enhancing impromptu social cohesion (Biswas, 2021). As shown by various resilience frameworks, they share all the characteristics of “neighborhood social conduits” (cite social conduits), “resilience proxies” (cite that one) and allow community linkages to form without formal institutional intervention but through daily interactions. A preliminary diagram tentatively entitled “Socio-Spatial Pattern Transmission Cycle” is proposed to demonstrate the self-propagating and mutually influencing relations of certain every-day behaviours and spatial elements. This cycle hopes to show the importance to inbuild resilience in relation to the production and continuation of ordinary, every-day spaces as they are crucial to place engagement, community life, sense of safety and identity and comfort. (Romice et al, 2020)

As urban design primarily deals with the relationships between space, form and people; it is only natural to enhance the resilience of urban systems, through the adaptation of urban design elements. However, thus far, there has been little research in applying or evaluating urban form-led resilience frameworks in an Indian Metropolis, or in adapting every-day cultural patterns to enhance resilience in an Indian Context. COVID-19 has shown us the fragilities of our current urban spaces and lifestyles and fresh perspectives on urban life and their spatial dependencies will be key in considering future urban resilience.

This paper builds on existing research on the relationships of urban form and resilience by focusing on the socio-cultural and physical aspects of these frameworks to analyse the urban form scenarios in the context of Kolkata and its’ urban surroundings, and demonstrate a deeper understanding of cultural transformation in daily life. By focusing on those elements which influence everyday cultural patterns and can facilitate every-day inter-connection, improve socio-spatial interactions and increase familiarity amongst people, it attempts to start a wider discourse on the applicability of socio-cultural resilience when designing the modern Indian city.

Future research could involve evolving this framework to include systematic ways of measuring and evaluating social interaction indicators at the small scales of urban form, before moving onto larger networks. While the diagram of Socio-Spatial Pattern Transmission is a beginning, it doesn’t account for what happens when two contrasting yet equally powerful cultures interact in the same urban space or how a framework based on the physical would react to an event like COVID-19, where physical

interaction stopped completely. This work situates itself as part of an ongoing and broader research effort in developing a new approach to designing resilient cities in the Indian context while revealing the hidden strengths in our communities.

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