

Deciphering Urban Morphology of *Sadar Bazaar* Areas of Colonial Cantonment Towns of Bengal Presidency in India

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Abstract: Colonial Cantonment towns in India are centers of cultural heritage that narrate the tale of British influences on the Indian city planning, art and architecture. The establishment of these towns was an introduction to a new form of settlement with unique requirements that included climatic, political and administrative needs. From the amalgamation of the indigenous and new techniques of city planning, emerged some specific features and elements. One such unique feature of these Colonial Cantonment towns is the *Sadar Bazaar* area which was the market cum residential space. These *Sadar Bazaar* areas are the containers of the rich tangible and intangible heritage and this study advocates the need of an efficient and case specific conservation, management and development plan for these spaces. With this aim, the paper emphasizes that the *Sadar Bazaar* areas should be understood as a unique typology with explicit features. To record the characteristic features and elements of these *Sadar Bazaar* areas, and to bring forth the issues and challenges these areas are facing in the present scenario, some cases were surveyed and studied. As Bengal Presidency held great importance in the Colonial history in India, the cases from this region were identified for the purpose of study.

Keywords: Colonial settlements, built heritage, heritage, historic city core, historic urban landscape, urbanization

1. Introduction

During colonization, there have been a number of factors that contributed in defining the character of urbanization in Indian cities. These factors include the mission to project the intends of trade, imperial notions of authority besides the influence of military priorities. It is evident that the reason for settlement of the Colonial Cantonment towns was militaristic and administrative which reflects in the layout of these settlements that are oriented not towards the concepts of beautiful landscapes, but functional and military towns [1].

Due to the fact that the British focused on building army and administrative base for looking after the huge growth and trade of specific items, they were dependent on the natives for their daily supplies. The layout of the towns and their urban fabric reflect this priority [2]. Besides the residential areas for the British and their families, the towns comprised of ancillary buildings, recreational areas, training areas, etc. The garrisons also required a support system for supplies of items of daily needs for their survival and functioning and they were dependent on the local Indian population of traders, farmers, etc. for these goods [3]. Only certain market spaces were assigned for the British families and troops for the purpose, as there was no intermingling of the British with the native Indians due to the fear of the British that they might catch some disease if they come in contact with the natives.

Historic market spaces are among the most vibrant hubs of social, commercial activities since history, thus are a living heritage in

most of the historic towns [4]. The market places of the Colonial Cantonment towns are different in character from the other traditional markets [5]. In Colonial Cantonment towns, these market areas are still functioning and are the spine of the commercial activities within the old town. These market spaces of Colonial Cantonment areas are called the *Sadar Bazaar* areas [6].

The *Sadar Bazaar* area is a cluster of market streets with shops and shop-cum-houses lined up on both sides of the streets. These areas still possess rich cultural heritage that needs to be conserved [7]. So far, the developments that have taken place in most of the *Sadar Bazaar* areas of Colonial Cantonment towns, did not take the built heritage and culture into context due to lack of awareness and recognition. This is why the historic buildings and the overall character of these spaces is gradually deteriorating. Despite the fact that heritage towns and historic urban landscapes are being considered under certain government policies, they are not being popularized and applied on the Cantonment towns considering them a unique typology. This study tries to understand the characteristic features and key elements of *Sadar Bazaar* areas of Colonial Cantonment towns as unique typology and highlights the need of conservation of the same accordingly. The study also proposes recommendations for the same.

2. Methodology

For the purpose of identification of the characteristic features of the *Sadar Bazaar* area, some cases needed to be identified as sample for study. For a meticulous study where data is comparable for the purpose of analysis, it is necessary to study cases that belong to same region. It has been seen historically, that the climatic, social and political conditions tremendously influence the architecture and planning [8]. The cases from same region are thus more relatable and provide authentic data. The

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Bengal Presidency in Indian history has been an important seat for governance during the British rule [9]. Thus, Colonial Cantonments from the Bengal Presidency were studied for this research. The cases selected for the study were:

Sadar Bazaar area, Agra Cantonment

Sadar Bazaar area, Ambala Cantonment

Sadar Bazaar area, Karnal Cantonment

Sadar Bazaar area, Meerut Cantonment

Sadar Bazaar area, Lahore is another suitable example that could be studied but has not been covered up considering the physical limitations of the researcher. The reasons for selection of the above-mentioned case studies were the similarity in year of establishment, topographical and geographical conditions. Also, they all hold historic importance.

Scholarly literature and historic documents like old gazettes were referred with the aim to collect data on the historic relevance, authentic elements and characteristic features of the identified sites. With the purpose of identification of characteristic features, functionality, urban fabric and built heritage of the areas, level II surveys were conducted [10]. For this, the tangible and intangible elements of the site were recorded. These elements included the site conditions with respect to its topography, hydrology, geomorphology, water features, vegetation and other natural systems. Site elements like urban pattern, spatial organization, visual relationships, circulation and transportation systems, urban art and street elements were recorded and analyzed. These features were studied in comparison to their historic existence and evolution over the years.

3. Results and Discussion

The inferences from the study are discussed below:

3.1. Characteristic features

From the literature and study, it was found that the *Sadar Bazaar* areas were meant to be self-sustainable areas of the town. Their urban fabric comprises of the residential area as well as place of trade and work for different communities, the area demonstrates a hierarchy of streets in compliance to street use and function. This hierarchy is visible in both the cases- where the *Sadar Bazaar* area is laid out in a grid iron pattern, as well as in case when the fabric shows organic growth [11].

Sadar Bazaar area typically comprises of multiple *bazaar* streets which are shopping streets originally dedicated to a single type of trade or commercial activity [12]. This was primarily because at the time of settlement, families from different trades and professions were invited to settle and establish their commercial activities and trade here. These large families were allotted land from one *chowk* to another. With the due course of time, the families split, but carrying out the same trade or pursuing the same profession. Some even invited other friends from same profession considering the high demand of their work. The *Sadar Bazaar* areas of the Cantonment towns still comprise of some streets with their authentic use and name. In other cases, the name of the street or the neighborhood is still authentic, but there is a shift in building use in most or all of the structures. This deviation in trade and change in building use from past to present is due to factors like division of property, selling and buying of land and moving out of educated younger generations for better job opportunities. These changes result in the character of a space and impact the overall experience of the area [13].

The fact that there is a constant development pressure which leads to reconstruction and modifications in the name of face lifting of the original facades and at times the complete structure

still persists. This has resulted in shift of character of certain parts/ streets within these *Sadar Bazaar* areas.

3.2. Built forms

The built forms within the *Sadar Bazaar* area were found to be a result of layering of architectural and cultural attributes over the ages and showcase the local human development. The *Sadar Bazaar* areas are like museums that display the various architectural style buildings as paradigm of gradual advancement. [14] [15].

The built forms within the *Sadar Bazaar* area can be categorized and discussed as below:



Figure 1. View of a shop-cum-house in Sadar Bazaar area, Karnal

Source: Author



Figure 2. View of a Haveli in Sadar Bazaar area, Ambala Cantt

Source: Author

3.2.1. Residential buildings

Residential buildings that exist since the early years of establishment of the *Sadar Bazaar* area can be further categorized as:

Shop-cum-houses

Havelis and *Kothis*

The most prominent structures within the *Sadar Bazaar* area are

the historic shop-cum-houses. These structures are still occupied and dominate the streetscape [16]. These, as the name suggests, are residential-cum-commercial buildings with typically one or more shops on the ground floor and residence on the upper one or two floors. The access to the upper floor is usually through a narrow flight of staircase at one end of the shops. The shop-cum-houses have ornamented facades with protruded balconies running on all external walls. These balconies, supported over heavy timber logs and girders bear intricate railing patterns made out of thin iron rods. These patterns were repeated in the entire balustrade. The hand rail has been made out of deodar wood mostly rounded from the top. Wooden rail posts are raised high to the ceiling of the balcony which is mostly sloping. The sloping roof of GI sheet is supported over timber rail posts and pillars. Thin iron sheet bargeboard, with intricate cut-out pattern edges the balcony roof projection. In certain shop-cum-houses, the balconies are covered for functional purposes with timber louvered, openable shutters. These, at times, function the same as *jharokhas* [17]. These balconies created an extra space and was responsible for keeping the rooms cool.

The parapet walls bear a small arched shape window or opening on the floor level. This opening was meant to be used as a seating space to peep out into the street below. This opening was aesthetically placed to appear as a crown in the middle of the parapet wall. At times they were more than one and were placed symmetrically on both sides. The cornice on the exterior was created from different sizes of bricks. Bricks were oriented at different angles to achieve intricate patterns.

Over the years, the architecture of the shop-cum-houses evolved and this evolution is evident in the *Sadar Bazaar* areas. The basic form and purpose of these structures remained the same, but there were modifications like the semi-covered balconies were replaced by rooms. The number of rooms in the residential area increased and the façade treatment also evolved.

The *havelis* and the *kothis* are the glorious residential buildings that typically belonged to the elite and then favorites of the British officers. These did not much flourish as a typology in the townships under study as they were limited in number. The architectural vocabulary of the *havelis* is different from that found in other type of residential buildings as these bear elements of both the *kothi* and the bungalow.

The layouts of these *havelis* also reflect the interaction of the elite with the British officers and how their understanding of health and hygiene was influenced by the later. Unlike the houses of the commoners, the *havelis* had bathrooms attached towards the external corner of the structure- similar to what is seen in the bungalows. Standing outstandingly on a large plot that spanned from one chowk to another, the *havelis* were huge structures. The houses of the servants lay within the boundary of the plot. Garden was not a prominent and common feature in all the *havelis*, yet it can be seen in most cases.

The exterior facades of these structures are in exposed brickwork. There was limited use of plaster in the exterior. In many cases, plaster bands were used as highlighter. In many cases, some motifs were created on the exterior walls. The parapet walls were interesting brick *jalli* patterns with prominent spouts.

3.2.2. Commercial buildings

The structures that are being used for commercial purpose alone are largely constructed post-independence or have been renovated around a decade ago. There are few stretches of streets in the *Sadar Bazaar* area that were originally supposed to serve only as single-storied commercial buildings. The typical features of these built forms are the ornamental brick parapet walls, jack arch roofs

and a platform in front to serve as pedestrian walk. The shops where the old original doors still exist, show that the shops had wooden folding collapsible door shutters.

3.2.3. Health care buildings

The present day *Sadar Bazaar* areas possess a number of health care buildings which have bubbled up as a result of growth and need [18]. While talking of the time of establishment, the data from interviews and archival data suggests the overall scarcity of health care buildings as a result, there was only one BD Hospital serve as health care buildings within the *Sadar Bazaar* areas.



Figure 3. The first women and child care hospital in Ambala Cantonment- Banarasi Das Hospital, within *Sadar Bazaar* area

Source: Author

3.2.4. Educational buildings

Being a living example of co-existence of old structures and the new developments, the *Sadar Bazaar* areas still have old structures that continue to function as schools and colleges. Also, there are certain cases where the building use has been changed or the building has been renovated multiple times resulting in loss of authenticity of the architectural elements.

3.2.5. Places of worship

In the study, the *Sadar Bazaar* areas were found to exist in communal and religious harmony. As during the British reign (which was the time of establishment of these Cantonment towns), North India was a habitat for the Hindus, Muslims as well as Sikhs, there exist Hindu temples (*mandirs*), mosques and *gurdwaras* of the nineteenth century and later. Most of these are functional but modified as a result of various renovations. In some cases, like Ambala Cantonment, the abandoned mosques within the busy areas recite the story of thinning of Muslim population within the area during partition. The authentic architectural elements can still be found in structures that were abandoned or where the building use was changed over the years. The condition of these structures is not commendable, yet they stand and are being used as residences by families of different religious beliefs too.

3.2.6. Other structures

The *Sadar Bazaar* areas house some office buildings within the fabric. The government offices like post office are found being run through structures constructed in the eighteenth century or later. Very few recreational buildings were seen within the *Sadar Bazaar* area. The few structures found were built in post-

independence era particularly the nineteenth century, highlighting the fact that originally there were no recreational spaces or structures at the times these towns were settled.



Figure 4. Layout plan of Sadar Bazaar area, Agra

Source: Drawn by the author taking reference from site readings and Google maps



Figure 5. Layout plan of Sadar Bazaar area, Ambala Cantt

Source: Drawn by the author taking reference from site readings and Google maps

3.3. Urban Morphology

As discussed earlier, the settlement of the Colonial Cantonments was either by establishing on vacant ground or by penetrating within the existing city after occupying some important fort/building(s). Both the cases had a different impact on the existing urban morphology. Cases from Bengal Presidency, where new settlements were established, were studied. Over the past almost a century, new developments have mushroomed around these settlements but it is studying the urban fabric, it is evident that the fabric of the area under study is different from the

new developments over the years. The typical character of the case studied are compared and discussed:

3.3.1. Street pattern defining the fabric

The streets are not just the connecting linkages but also the living spine of a densely populated or a highly frequented urban area. The street pattern, width, street elements and periphery contribute tremendously in defining the overall livability and providing character to the urban area [19]. The built fabric of Agra Cantonment area is in contrast to that of the city, which demonstrates organic growth. The *Sadar Bazaar* area within the Agra Cantonment is a regular grid with wide roads on the periphery and narrow but homogeneously wide streets within.

In *Sadar Bazaar* area of Agra Cantonment, this grid has four prominent streets with built forms on both sides over a 78,000 square meters piece of land. The sectors thus carved have irregular narrow streets leading to individual houses. Somewhat resembling the conventional *char bagh* pattern popular in Mughal landscape planning, this grid has a central circular plot which possesses an old administrative building in ruins.

Another example of the *Sadar Bazaar* area with streets on grid iron pattern is that of Ambala Cantonment. Established in the year 1843, the 650m x 1,140m piece of land is intersected by streets dividing the area into 108 odd neighborhoods. These neighborhoods have a central open space for carrying out commercial activities or community gatherings. The streets are in hierarchy with street width varying from as wide as 70 feet to as narrow as 8 feet. Other than the 8 feet wide service lanes, the streets are in sun throughout the day. Initially the pedestrian walk was in the corridors abutting the shops and shop-cum-houses that lined up the streets with central lane for the *baggis*. This kept the pedestrian in shade. But with the passage of time, these corridors have been encroached upon to be a part of the shops, forcing the pedestrian to walk on the streets.

Karnal is another ancient city which is said to have been settled by the Mahabharata king Karan. The *Sadar Bazaar* area of Karnal is a dense area within the historic quarter of the city with fine urban grain. The *Sadar Bazaar*, spread over an area of 1050 sft is a market place along with residential area. The area comprises of a grid layout pattern created with intersecting streets. The main functional *bazaar* is the single artery that runs through the middle of the area with shops, residences and shops-cum-residences on both sides. The area is mostly residential with some small *bazaar* streets. The primary reason for this being that with the passage of time, the economically stronger families have moved out abandoning quite some structures.

The *Sadar Bazaar* area of Meerut Cantonment is an irregular pentagonal patch of dense urban fabric. The streets are narrow and bifurcate to form an irregular street pattern. The *Sadar Bazaar* area is the most vibrant market of the city and is accessed by the civilian as well as the families of army officials. The *Sadar Bazaar* of Meerut also comprises of a number of *bazaar* streets most of which are dedicated to one type of trade or commercial activity. Some *bazaar* streets within the *Sadar Bazaar* area of Meerut are Abu Lane, Bombay *Bazaar*, *Sarafa Bazaar*, *Lakkar Bazaar* (timber market), Furniture Market, *Kabari Bazaar* (junkdealer's market) and *Daal Mandi* (pulses' market).



Figure 6. Layout plan of Sadar Bazaar area, Karnal

Source: Drawn by the author taking reference from site readings and Google maps



Figure 7. Layout plan of Sadar Bazaar area, Meerut

Source: Drawn by the author taking reference from site readings and Google maps

3.3.2. Social structure and its impact on the urban morphology

The streets of *Sadar Bazaar*, dedicated to a single commercial activity from one chowk to another, lined up with residential, commercial and ancillary buildings like houses, shop-cum-houses, *havelis*, schools, hospitals, *idgahs*, *mandir*, *gurudwara*, hotels and *dharamshalas* are the containers of the culture and traditions of the residents that exist in social and cultural harmony. Having sung the saga of the British rule, the market area is frequented by the army personal as well as the civilian population and has been functional and vibrant ever since its establishment.

Studying the *Sadar Bazaar* area of Agra Cantonment, it is found that the area is wrapped up with commercial buildings on the outer periphery while the inner core possesses houses, few shops, *mandir*, *gurudwara*, *idgah*, *dargah* and public facility structures. Similarly, the *Sadar Bazaar* area of Karnal has more of residential area with few major arteries with commercial activities. The places of worship are less but prominent. On the contrary, the *Sadar Bazaar* of Meerut is more animated with

commercial activities even in the inner core. Thus, the inner core has more commercial buildings with less but prominent places of worship. As per the local need, it even has small pockets for two-wheeler parking. The area of *Sadar Bazaar* area of Ambala Cantonment is more and there are pockets with more residential structures, those with most commercial activities and some with both. There are communities living in harmony within the urban fabric with prominent, some not so prominent and some even abandoned places of worship. Although there were neighborhoods habituated by a specific community, but the present population is mixed.

The residential area of *Sadar Bazaar* area of all the case studies has a mixed population of the Hindus, Muslims and Sikhs living in harmony with religious places for all. No clear segregation of area or street allocation to a particular religion is found in the area. The major streets towards the inner core of the area are wide and sun bathed during most part of the day while the narrow local streets are largely shaded. No religious preference or economic stature priority is found in any segment or street yet.

4. Conclusions and Recommendations

With the above study, it can be inferred that the *Sadar Bazaar* area of the Colonial Cantonment towns living hubs of cultural heritage that showcases the legacy of not only the historic built fabric, but also the socio-cultural harmony. These areas still function as important commercial sectors within the historic towns and are Historic Urban Landscapes that need to be treated as a varied typology as they contribute in granting the city its soul and identity [20]. These areas carry historic significance because of the function they performed in the past and present. These areas have witnessed the architectural and technological advancements and thus are historically important [21]. In most of the cases, being active commercial areas of the city and are home to the traders and merchants that have lived in area for generations.

The national and international governing bodies including UNESCO have policies and recommendations on development and management of the Historic Urban Landscapes, but they lack compliance with the *Sadar Bazaar* area of Colonial Cantonment towns. Thus, this paper advocates the urgent need of policy framework for the development and management of these areas before they completely deteriorate and fall prey to new constructions in the name of development.

4.1. Inferences

On comparison of the four cases, as representatives of the *Sadar Bazaar* areas of the Colonial Cantonment towns of the region, the inference that have been achieved are as follows:

- The urban morphology of the *Sadar Bazaar* areas is unlike that of the traditional market areas of the historic quarters or cities.
- The *Sadar Bazaar* area is a cluster of various *bazaar* streets each dedicated to a type of trade or goods and named accordingly.
- The layout pattern of the *Sadar Bazaar* area can be grid iron pattern or organic, depending upon the establishment of the same.
- The streets are mostly oriented in the NE to SW direction and NW to SE direction.
- The basic function of these areas being common, results in similar types of structures with respect to use.
- The concept of shop-cum-houses flourished in these areas as per the need.

- There were little open areas for the all communities to gather at the same time, rather there were small open spaces within the neighborhoods for community gatherings and activities.
- Most of these areas are living hubs of cultural heritage and need to be studied as HUL as defined by UNESCO.

4.2. Issues and challenges as impact of urbanization

Like any other living entity, a city undergoes transformation as it develops [22]. Urbanization and growth have led to a tremendous change in the urban fabric of the historic cities. Unfortunately, this urbanization raises some issues concerning the functioning of historic quarters of the city. Today, what changed from the past is not only the population count, but also the type and number of street traffic, the shift in basic needs and the demand and affordability among masses. Accommodating the new basic amenities in the historic building is another challenge which mostly results in loss of authentic elements of the structure [23] [24].

The streets of the historic quarter of *Sadar Bazaar* area that once supported pedestrian, *baggis* and horse carts are now flooded with two wheelers and four wheelers. These streets face issues related to traffic like the lack of parking spaces, pedestrian walkways, heavy traffic, vehicular congestion beyond deterioration of built heritage and high development pressure. Carving out parking lots often becomes a challenge in the city cores and historic settlements. Also, as most of these market spaces have been serving as the main commercial area since decades, these are generally the activity hub during special occasions and festivals.

On study of the mentioned *Sadar Bazaar* areas, the challenges that these areas face, have been listed as:

Deterioration of the Built Heritage due to man-made causes including:

- lack of awareness
- lack of knowledge of materials and skill for repairs and maintenance
- multiple ownership
- dispute in property ownership
- development pressure
- commercialization of property and change in land use
- lack of regulatory norms
- stereotype development strategies
- vandalism of public property

Deterioration of the Built Heritage due to natural causes like:

- floods
- uncontrolled vegetation growth on the structures
- termite and insect attack

Other issues:

- lack of parking spaces
- traffic congestion

4.3. Suggestions and proposals

- Sadar Bazaar* areas are a hub of rich cultural heritage. The commercial activities and historic structures that display the layering of architectural development over the decades give the place its identity. These tangible and intangible forces that create a perception of the urban space for its users, need to be considered as an important factor while working out the development plan [25] [26].
- The sense of belonging, the emotions of growing with the city and the memories we associate with urban spaces, are the contributors that dictate our response to a city [27]. *Sadar Bazaar* areas house majority population that has been living in the area

since birth. Thus, while working on the conservation plan, it is important to record the response of all the stakeholders to various urban spaces and built forms.

- There are some small open spaces for meeting within the *Sadar Bazaar* areas as the streets were originally the interaction space, with covered walkways on both sides. The development plan for *Sadar Bazaar* areas need to revive the streets as living spines within the urban fabric by
 - increasing walkability
 - creating pockets near the important or most frequented built forms
 - making streets universally accessible
 - managing the vendors and animated points on the street
 - preserving the authentic built elements on the streets and its periphery
 - managing and controlling the street façades
- As *Sadar Bazaar* areas house the commercial activities as well as residential structures, it should be ensured that the stakeholders are encouraged and involved in the management of the built forms and should be provided with the know-how and if required funds for safeguarding the historic buildings, facades and their features.

It is proposed to include the above suggestions in the development plan specifically devised for the *Sadar Bazaar* areas of Colonial Cantonment towns. Also, that the *Sadar Bazaar* areas must be considered as a unique typology with specific features and a unique development pattern.

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Author contributions

Eva Prasher: Conceptualization, Methodology, Software, Field study, Data curation, Writing-Original draft preparation, Software, Field study, Visualization, Investigation, Writing-Reviewing and Editing.

Sat Pal: Validation

Conflicts of interest

The authors declare no conflicts of interest.

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