

SETTLEMENT PATTERN IN THE PERIPHERAL AREAS OF BHAKTAPUR CITY

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Abstract

This study explores settlement patterns in the peripheral areas of Bhaktapur city, with detail study on three sites: Nagaancha, Degamana, and Byasi focusing on the street layouts – reflecting varying historical and social influences, significance of open spaces – as vital hubs for social interaction and community gatherings and analysis of dwelling types – illustrating the influence of historical designs on contemporary living conditions. Although many new buildings diverge from traditional styles, elements of the past remain, as evident in artistic window designs and courtyard arrangements. This research eventually highlights that settlement patterns of peripheral areas reflect the living histories, cultural identities, and social dynamics of the communities in Bhaktapur city. The findings develop wider conversations on urban development and conservation, promoting an urban planning strategy that honors historical contexts while responding to the changing needs of the community in the face of ongoing urbanization.

Keywords: Settlement pattern, Peripheral areas, Street, Open spaces, Dwelling

1. Introduction

In the past several years, there has been considerable research on the patterns of development of Bhaktapur city core and peripheral areas of Bhaktapur city. Kido et al. (2012) highlighted the spatial differences between the eastern and western parts of Bhaktapur, noting that the east has a decentralized and irregular street layout, while the west is more centralized with regular, grid-like streets. Their study also examined how residential units and *tole* boundaries relate to religious elements like Ganesha shrines and *Kshetrapala*, identifying different patterns of courtyard dwellings and boundary alignments. These variations reflect Bhaktapur's layered urban structure and the historical evolution of its neighborhoods.

Shilpakar (2021) studied the settlement patterns and courtyards of Bhaktapur core city, showing that the eastern, central, and western areas have different layouts and uses. She also found that community groups, like the Jyapu, who are mostly farmers, live in the outer parts of the city

near farmland. S. Prajapati (2019) studied the extended areas of Bhaktapur and found that, compared to traditional settlements, these areas have fewer and smaller open spaces, poor planning of roads and wells, but wider streets. She also noted that a few blocks in Bharwacho (भारवाचो) are different from other blocks, with houses lined along roads and having individual *Pikhalakhu* (पिखलाखु), and that these blocks were fully developed only by 1980 AD. Previous research by K. Prajapati (2024b) has documented the development of peripheral areas of Bhaktapur city, revealing distinct settlement patterns compared to the core city, developing predominantly after the Malla period. By analyzing the core city's structure, religious and social dynamics, and the influence of terrain and Ganesh shrines, it is suggested that the peripheral areas developed after the Malla period. Although there is no clear evidence of settlement growth between 1768 to 1960 AD, patterns in planning, clustering, and religious layout point to possible expansion during this period.

In the study of Thimi, Pant (2002, 2019) has identified three phases of development through the morphological analysis of settlement clusters related to *Pikhalakhu*. In this development phase 3, clusters are arranged with individual *Pikhalakhu*. This type of cluster is especially evident in peripheral areas, signaling later development compared to

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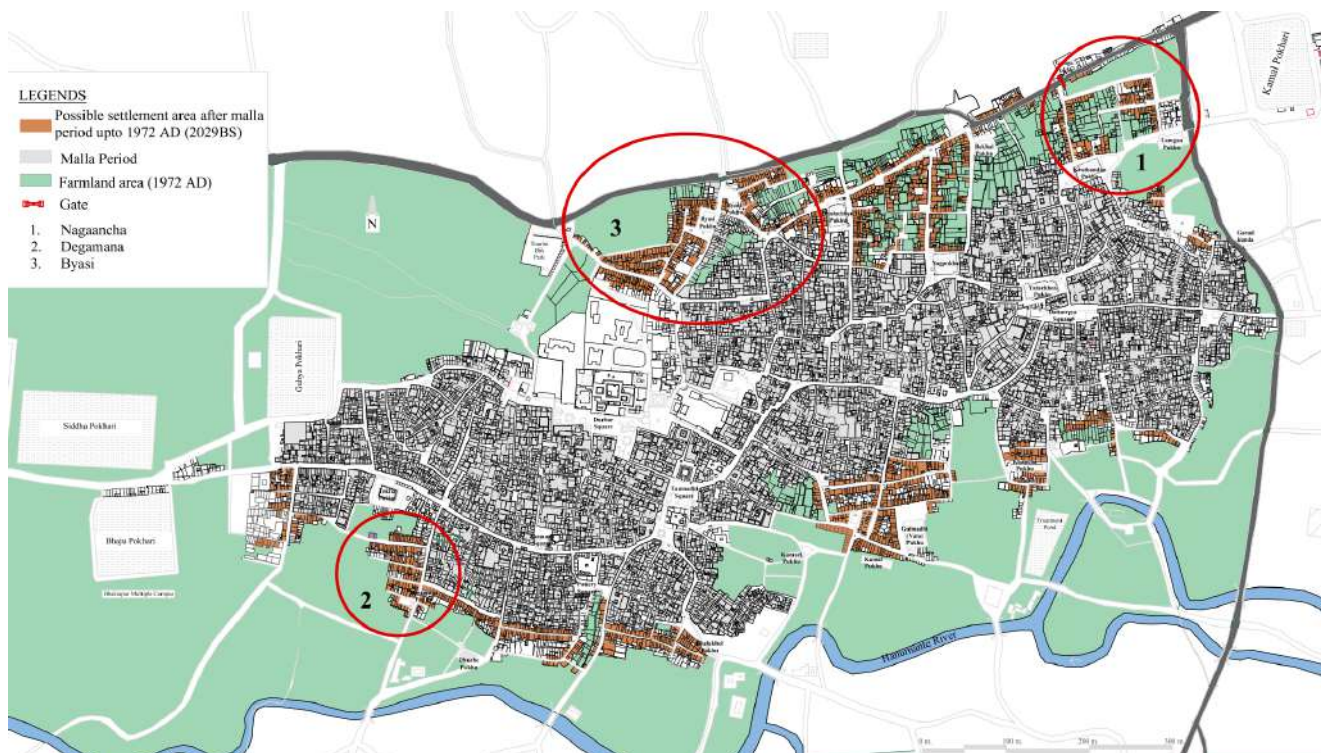


Figure 1: Location of case study area

the core city. Analysis of the terrain level of Bhaktapur shows that settlement expansion occurred from higher elevations in the core to lower peripheral areas over time, corresponding with newer developments.

The study of inscription plotted by S. Prajapati (2019) suggests that peripheral areas like Degamana, Nagaancha, Thucho, and Byasi of Bhaktapur developed after the Malla period. While the main jatra route, significant for important festivals, encircles Bhaktapur and fosters community unity, peripheral areas like Degamana and Nagaancha remain outside this route. Nevertheless, the use of open spaces as gathering points for festivals such as Gai Jatra demonstrates how core and peripheral areas, despite variations in their physical layouts, continue to reflect a sense of cultural continuity.

This paper builds on the broader historical context outlined in earlier studies, but shifts its attention to the finer details of settlement growth in peripheral areas of Bhaktapur city. It investigates the street patterns, open spaces, and physical layout of dwellings, and explores how these features both influence and reflect the life of the community. Through site survey, interview, and historical records, this research seeks to uncover specific patterns in arrangements of dwellings, development of street networks, and utilization of open spaces. The findings aim to deepen the understanding of how historical, cultural, and social

factors have continued to shape the urban form of peripheral settlements of Bhaktapur city.

This paper focuses on the study of three sites of the peripheral areas of Bhaktapur city: Nagaancha (नगाँचा) (northeast), Degamana (देगमना) (southwest), and Byasi (ब्यासी) (north) of Bhaktapur, to understand their settlement patterns.

2. Research Methodology

This study employs a qualitative case study approach to examine settlement patterns in three peripheral areas of Bhaktapur city: Nagaancha, Degamana, and Byasi. The research focuses on street patterns, open spaces, social activities, and dwelling types. The study was conducted in two phases.

In the first phase, semi-structured interviews were conducted with a total of 35 residents across the three sites, prioritizing members of the oldest communities (11 residents), while newer residents provided context on recent changes. The interviews explored the history of settlement development, community composition, social organization, the use of streets and open spaces, and household activities. Interactions with local experts and residents provided critical insights into the role of rituals, feasts, and social practices in influencing settlement form and use.

The second phase involved detailed field measurements

and observations of houses belonging to the oldest communities. 7 houses from Nagancha belonging to Makaju (मकाजु) and Magaju (मगाजु), 6 from Degamana belonging to Thimi (थिमी) and Chaguthi (चगुथी), and 9 from Byasi belonging to Koju (कोजु) and Lakhe were measured. Measurements included façade dimensions, plinth edges, street widths, and the size of open spaces such as squares, junctions, and courtyards. Through field observations, the study recorded street network configurations, the spatial characteristics of public and private open spaces, and dwelling arrangements, including linear clusters, individual *Pikhalakhu*, and internal courtyards. Particular attention was given to distinguishing reconstructed or newly built houses from historic forms. All collected data were systematically mapped to support later analysis.

Street networks were classified by width hierarchy (main, secondary, and alleys), connectivity, and their use, pedestrian and vehicular flow, as well as jatra routes. Individual maps were prepared for each site, with diagrams showing the street network alone, and additional maps overlaying open spaces to examine spatial relationships. Open spaces were categorized as either common, accessible to all residents, or private/internal, restricted to individual households. Dwelling types were grouped based on historical significance, orientation, and linearity along streets, and the presence of internal courtyards, *Kibas*, and wells. Relationships between dwellings, streets, and open spaces were analyzed to understand the spatial and social organization of each settlement.

3. Introduction to Case Study Sites

3.1. Nagaancha

Nagaancha, located in the northeastern part of Bhaktapur city, is connected to two main roads: Nagarkot-Kathmandu to the north and Jagati-Kamalyabinayak to the east. Historically, it had a gate at Gongga Pukhu during the Malla period, with only remnants remaining today. The name "Nagaancha" means "new village"¹.

The area is divided into four blocks (A, B, C, D), with Block A shared between Nagaancha and Kwathandau. Block D (Figure 2), developed later than the study period of this research, is inhabited by the Prajapati community, who relocated from Suryamadhi, as revealed through inquiries. There is a common open space in Nagaancha, which contains a well, *Pati*, *Dhungedhara*, and a Ganesh shrine.

A survey of 163 houses revealed that 28 different communities live here, making it a mixed community settlement. The Prajapati community, once involved in pottery, represents 17.79% of the population. Other significant communities include Magaju (7.36%), Makaju (6.7%), Kutuwa (5.5%), and Shahi (4.9%). The Kwathandau side was once primarily inhabited by

Bajracharya and Shakya communities, but these have since sold their homes, leading to a mixed population.

3.2. Degamana

Degamana, located in the south-western part of Bhaktapur, is connected to the city via a road starting from Barahi Temple, joining the main city road at Bansagopal Square. Historically called "Bajigancha,"² meaning a village producing beaten rice, it was later renamed Degamana.

The area consists of four blocks (E, F, G, H), with Block E in Tekhacho and the rest in Degamana (Figure 3). The area features a common open space with a *pati*, a Ganesh temple, and small shrines. Two ponds, Degamana Pukhu and Tekha Pukhu, are located on the eastern and northern sides, along with a common well. Significant development has been observed in recent years.

A survey of 159 houses revealed 12 communities, with the Chaguthi group being the largest (20%), followed by mixed communities³ (17.6%) and Thimi (11.9%). Manandhar and Awal are also prominent, representing 11.3% and 8.8% of the population, respectively. Most residents are farmers.

3.3. Byasi

Byasi, located in the northern part of Bhaktapur, is accessible via the Nagarkot-Kathmandu road and features the Byasi Gate to the north. The area is divided into Thulo Byasi (east) and Sano Byasi (west). Eight blocks were studied: Blocks I, J, K, L in Sano Byasi and M, N, O, P in Thulo Byasi.

The area has three main open spaces featuring various elements like *Pati*, wells, ponds, *Dhungedharas*, and temples. Residents also use open spaces near Indrayani Road and the tourist bus park. Byasi has two main ponds (Byasi Pukhu) and several wells, both common and private.

A survey of 277 houses (202 in Sano Byasi and 75 in Thulo Byasi) identified 22 communities. Suwal is the largest group, comprising 34.2% of households, followed by Koju and Basukala (12.6%) and Rajchal (6.1%). Most residents are farmers.

In Bhaktapur, each neighborhood has one or a few primary communities. Conversations with residents reveal that Makaju and Magaju are prominent in Nagaancha, Chaguthi, Thimi, and Manandhar in Degamana, and Koju, Suwal, and Basukala in Byasi. These communities have lived in their respective areas for a long period, highlighting their strong presence in these regions.

4. Settlement Patterns in Peripheral Areas

To understand the settlement patterns in the peripheral areas, this study focuses on the street patterns, open spaces,

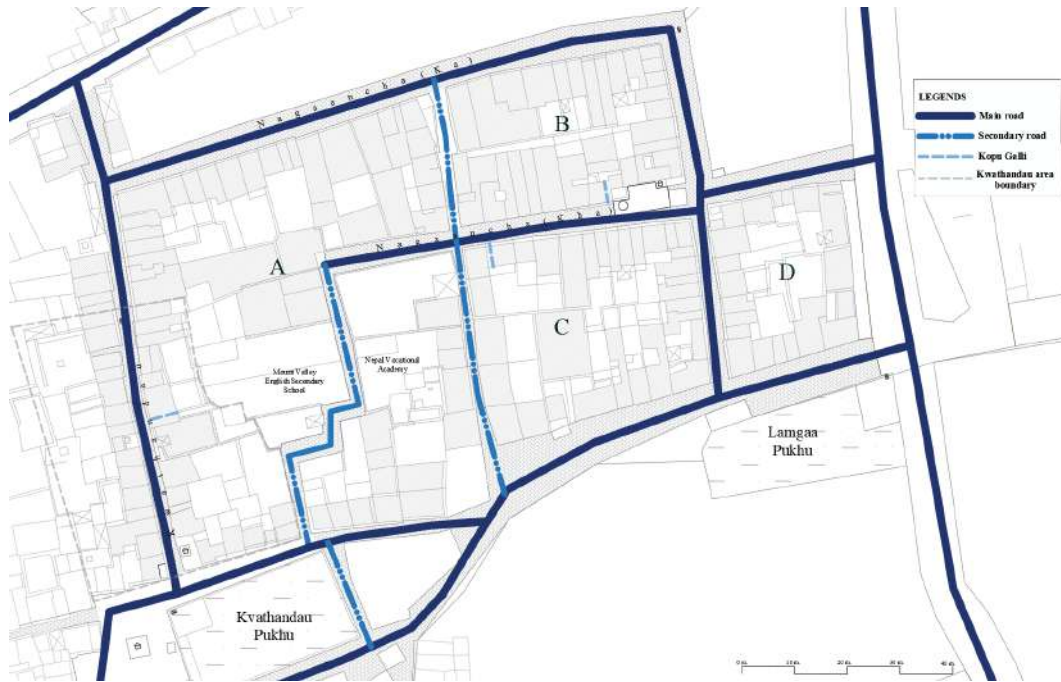


Figure 2: Street network of Nagaancha



Figure 3: Street network of Degamana

and dwelling patterns. This approach helps to analyze how the streets connect different parts of the settlement, the role

of open spaces in community interactions, and how the arrangement of houses reflects social and cultural dynamics in these areas.

4.1. Street Pattern

The street patterns of Nagaancha, Degamana, and Byasi show both traditional elements and distinct variations in layout, open spaces, and dwelling arrangements.

Nagaancha follows a grid pattern with regular intersections and rectangular blocks (Figure 2). The main street is 5.5 to 8 meters wide, while secondary streets range from 1.5 to 3 meters. *Kopsu gallis* (0.8 meters wide) connects streets to internal courtyards. Open spaces are formed at intersections, such as Nagaancha Square, and a wide plinth belt is observed along the streets, which are used for social activities and daily gatherings. Houses are arranged in a linear style, with *kiba* (backyards or vegetable gardens) at the rear. Degamana has a linear street layout with a main north-south street branching from the city's main road axis, but without forming a grid (Figure 3). The main street is 4 meters wide, and secondary streets range from 1.5 to 4.5 meters. *Kopsu gallis* (0.8 meters wide) leads to internal courtyards. An open area at Degamana serves as a key open space with public amenities like ponds and wells. Plinth spaces are present along the main street of the area. Houses are arranged linearly with courtyards or wells at the back.

Byasi has an irregular street layout, with three main streets leading to the core of Bhaktapur (Figure 4). The

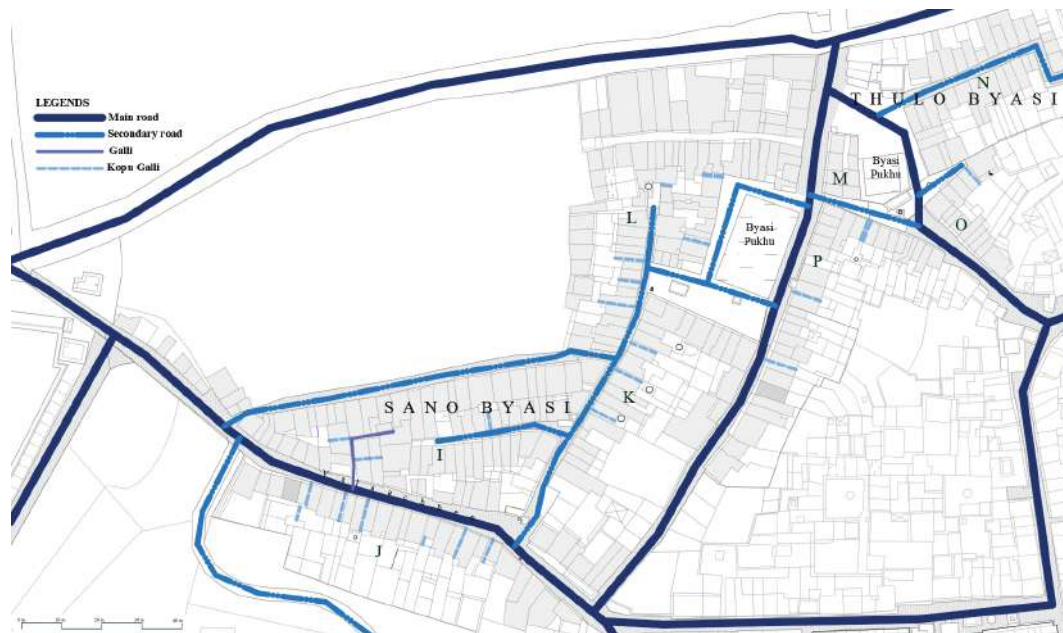


Figure 4: Street network of Byasi

main streets are 4 to 8 meters wide, and secondary streets range from 1.5 to 4 meters. *Kopu gallis* (0.8 meters wide) provides access to private open spaces. Open spaces are located at street junctions, featuring ponds, *patis*, and temples. The blocks are tapered or irregular in shape, and houses are arranged linearly with *kiba*, a private well, or *sagal* at the back. Plinth spaces are used for daily social interactions as well as during religious or cultural processions. Overall, the variation in street networks, from grid-like in Nagaancha and Degamana to irregular in Byasi, suggests that peripheral settlements did not follow a uniform plan but instead adapted layouts based on local conditions. This results in a more fragmented and less cohesive urban form compared to the compact network of the core city.

4.2. Open Spaces and Social Activities

In the study area, both common open spaces and private open spaces are found. The common spaces are planned with temples, ponds, *patis*, and various other features, which are accessible and used by the community as a whole. On the other hand, the internal courtyard consists of wells and small open areas that are typically owned and maintained by individual households. These spaces are more restricted in access and are often meant for private use or enjoyment. Furthermore, *sagal* areas can also be found within these regions, primarily used for keeping waste materials.

Nagaancha features a common open space that includes two *patis*, a well, a *Dhungedhara*, and a Ganesh shrine. This location is regularly used by locals for social interactions, gatherings, and feasts. Similarly, the open area around

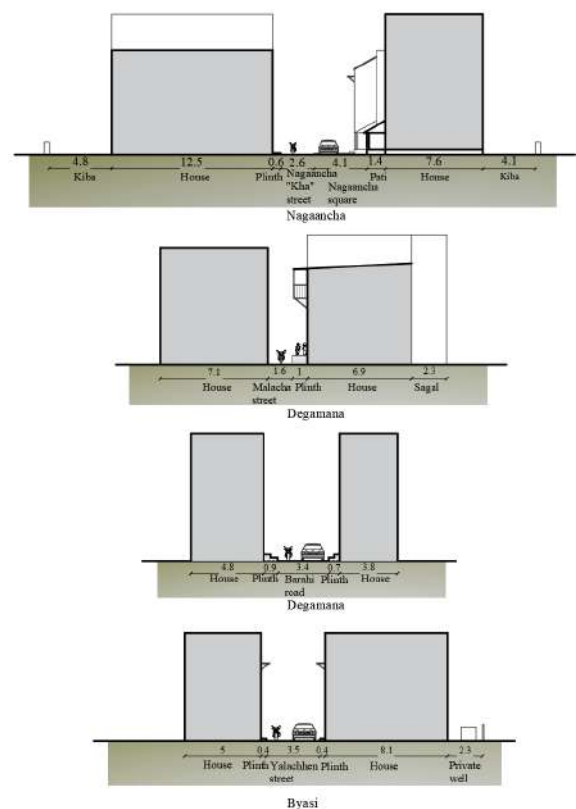


Figure 5: Street sections of the study area

Yatu Ganesh situated in Kamalpokhari, north-east side of



Figure 6: Open spaces in Nagaancha



Figure 7: Open spaces at Degamana



Figure 8: Nagaancha Square

the city (Figure 1), is also a feast venue, though modern banquet halls are now more commonly chosen. Houses in the Makaju community have *Bhoyepwa* on the second floor (*Chota*), and in the past, these doors were opened during feasts, similar to traditions in the old city.

However, this practice has declined due to property divisions among family members. People also gather along the plinths for socializing. At the ends of the street, two *patis* exist, though they are used less frequently compared to the central open space. There are no internal courtyards here,

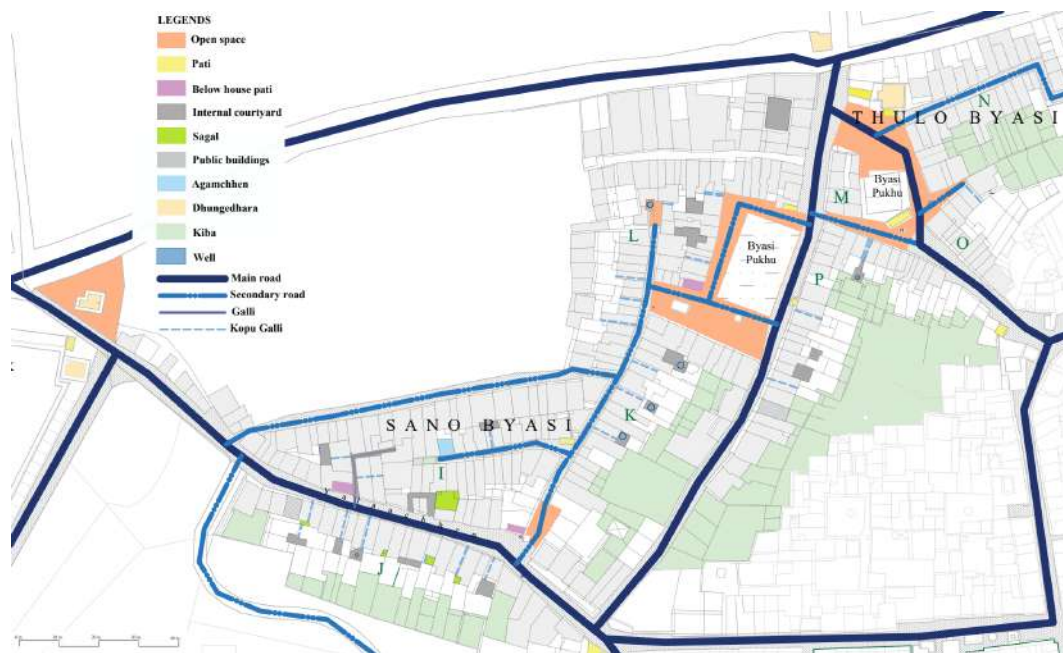


Figure 9: Open space at Byasi



Figure 10: Kwathandau Square



Figure 11: Degamana Square

but many houses still have *Kibas* in their backyards, though some new houses have been built due to limited space in the old houses. One house even has a *sagal*. Nagaancha Ka and Kha streets are utilized for social events such as feasts, crop drying, and daily gatherings.

While many residents are farmers, the practice of drying crops in open spaces has declined due to the ongoing decrease in farmland. This locality has only one well and a water tap, which everyone shares. Although the tap is no longer used for washing or bathing, the well continues to serve these purposes.

Degamana features two main open spaces. One is located at the intersection of the main and secondary streets,

containing a *pati* and small temples dedicated to various deities. The second is a common well along the main road. These areas are used for social activities such as community events, gatherings, and even for parking. Additionally, the *pati* on the main street serves as another spot for social interactions. Another significant open space is in Bansagopal, situated along the main north-south axis, used by residents of Dolen Street and the core area. There's also a pond, Degamana Pukhu, near the main street, but it has lost its importance and is usually fenced off.

Feasts are often held in the open spaces of Degamana and Bansagopal. A Manandhar *Guthi chhen* serves as a communal space for various groups to host feasts, although

communities like Chaguthi and Thimi have their own *Guthi chhen* for such events. *Bhoyepwa* is not present here, suggesting certain changes in the dwelling pattern from traditional styles.

This area has more internal courtyards, including a shared one used by the Chaguthi community. Some houses also have private spaces at the rear for personal use, with three of the houses featuring wells in their backyards. A *sagal* area can be found behind one of the houses.

Many residents in this area are farmers and use the open spaces in Degamana and Bansagopal to dry crops. Dolen Street, being wider than other lanes, is also used for this purpose. In the past, residents utilized Degamana Pukhu as a water source, and many still have private wells at the back of their houses.



Figure 12: Open space at Bansagopal

In Byasi, two primary ponds are surrounded by large open spaces, which include *patis*, *dhungedharas*, and ample room for social activities such as children's play areas, drying crops, and feasts. These open spaces are situated near the entrance by the Byasi Gate, and their use is shared between Thulo Byasi and Sano Byasi. Another open space to the west features two *patis* and two *dhungedharas*. A small area in front of the Balakhu Ganesh Dapha Chhen has a *pati* and a non-functional well. Additionally, there are *patis* in two different locations that serve as spots for social gatherings.

Residents of Byasi often use the open spaces for hosting feasts. Traditionally, feasts were held inside their homes, utilizing all floors and terraces. However, with growing family sizes, feasts have shifted to the nearby open areas. While *Bhoyepwa* is not commonly found, one has been identified in the northeastern part of the area. Due to the reconstruction of many houses, such features are harder to locate. Streets, open spaces near the ponds, and Indrayani Road are still used for drying crops. The area has three shared wells (Figure 4), though one is no longer functional,

and many residents also have private wells at the rear of their homes.

In this area, shared internal courtyards among multiple houses can be observed. Additionally, some houses have their own private internal courtyards. These spaces are either equipped with wells, left open, or used as *sagal*. In the southern part, some residents have *Kiba* in their backyards, although in certain cases, houses have been built over these *Kiba*.



Figure 13: Open space at Sano Byasi



Figure 14: Open space at Thulo Byasi

These three areas are slightly different from the core city⁴. The core has narrow streets and alleys, restricting crop drying to nearby open spaces. The limited width of roads prevents the use of plinth spaces, so social activities are mainly concentrated in open areas or along the main streets. Clusters are typically arranged around courtyards, with members of a single community often living together, allowing for connecting the adjacent dwellings by the

presence of *Bhoyepwa*. However, similarities exist in amenities, their use, and the functions of open spaces.

The reduced scale and frequency of communal open spaces in the peripheral areas, and the shift toward using plinths and roadsides for gatherings, indicate that the peripheral urban form provided fewer formal nodes for social interaction. This contrasts with the deliberate integration of open spaces in the core, highlighting a more informal and adaptive use of space.

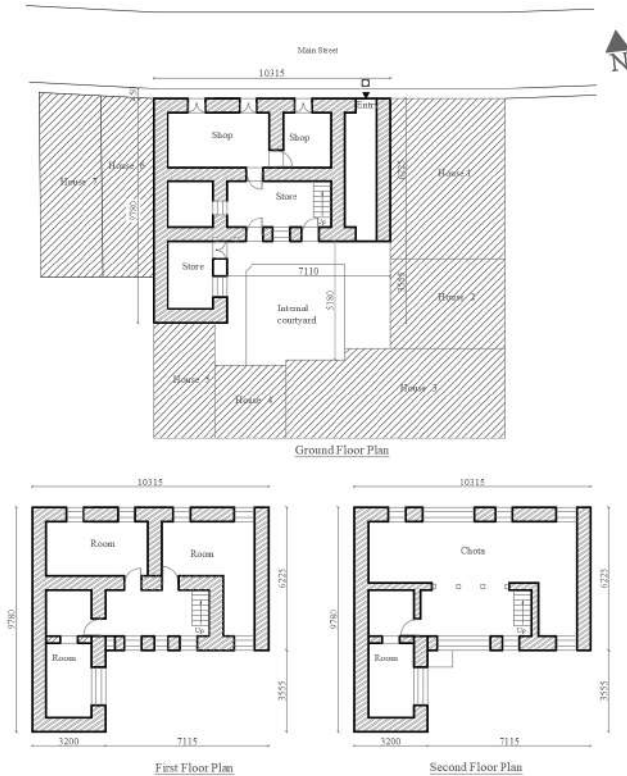


Figure 15: Dwelling Type I – The House of Chaguthi community

4.3. Dwelling Pattern

The study of settlement patterns shows that peripheral areas feature phase-3 clusters, as observed in Pant's study, where dwellings are arranged in a linear pattern along streets, each with an individual *Pikhalakhu*. Although similar patterns exist in the core, they differ in key aspects. According to Kido et al. (2012), these patterns in the core are extensions of existing communities due to family growth. However, this is not true for the peripheral areas. Community studies reveal that distinct communities reside in these areas, with no links to community extensions. Instead, most communities have relocated from the core city to these areas.

During the study, many houses were found to be newly

constructed, reconstructed, or in a collapsed state. When people were asked, they couldn't describe how the houses were in the past, making it difficult to determine the original dwelling patterns. However, efforts were made to study the remaining old houses in the area.

The dwellings have been grouped into four categories, with the first three representing the remaining historic houses. The last category, consisting of newly constructed buildings, has not been studied, as it falls outside the scope of the study period.

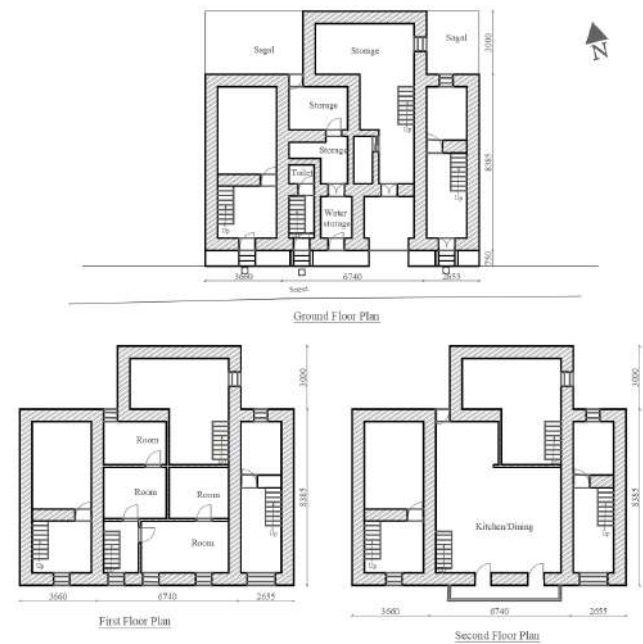


Figure 16: Dwelling Type II – The House of Thimi Community

4.3.1 Dwelling Type I

Houses of this type feature artistic windows, with *Sanjhya* and *Tikijhya* designs visible on the facade. Stone is used along the edges of plinth spaces, a common practice in the core area during earlier times. These dwellings are found in the Chaguthi and Kaju communities. For a detailed study, a house from the Chaguthi community in Degamana was selected⁵.

The dwelling consists of houses surrounding an internal courtyard, which family members of the Chaguthi community have divided into 7 parts among themselves. Houses 1-7 (Figure 15) have been reconstructed using modern technology, while only the house in the northwest corner remains in its original state, though in poor condition. The remaining house measures 10.3 by 9.8 meters, with the courtyard sized at 7.1 by 5.2 meters, and a floor height of approximately 1.7 meters.

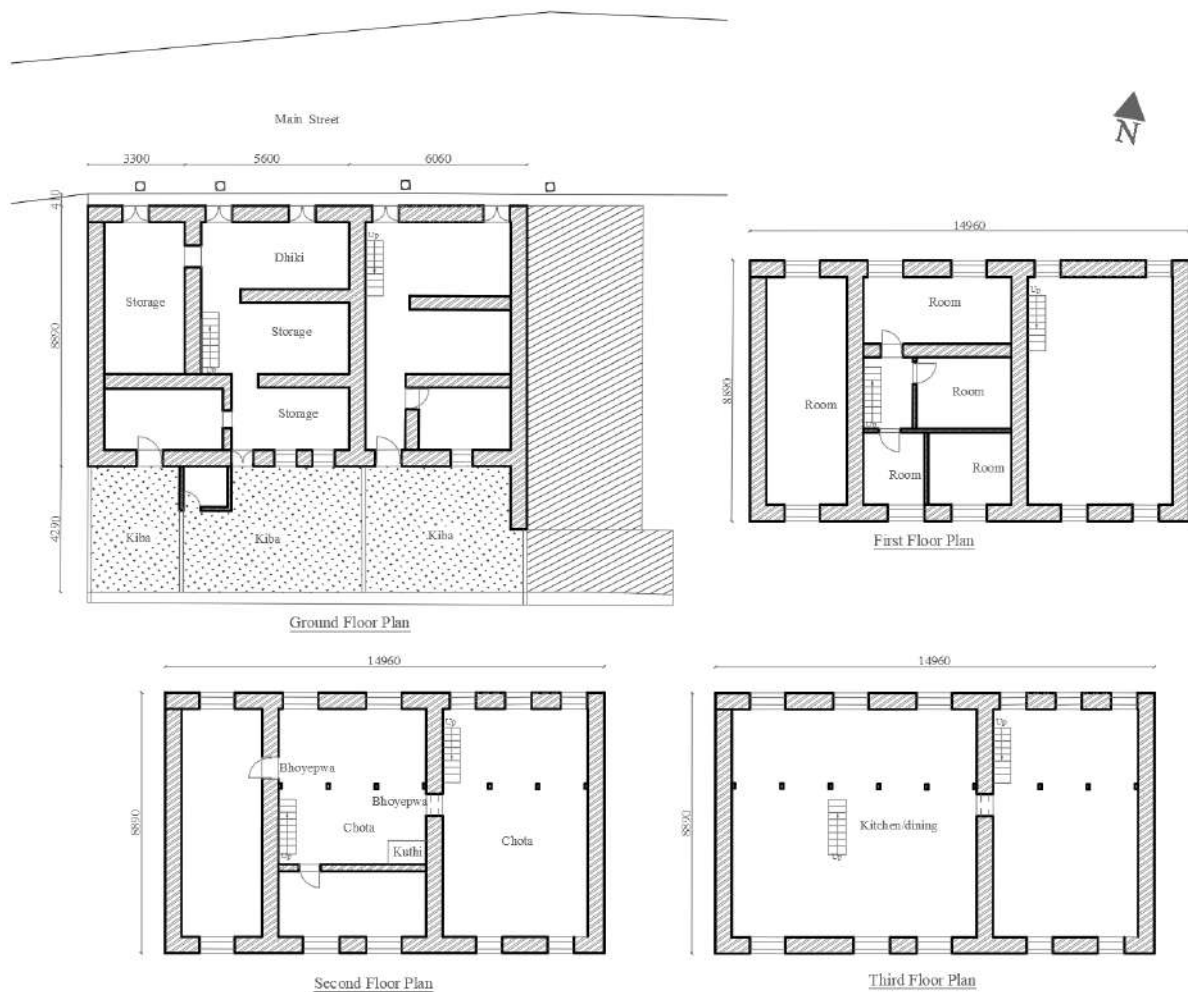


Figure 17: Dwelling Type III – The House of Makaju Community

Access to the house is through the internal courtyard, reached by a *Kopu galli* from the northern street. On the ground floor, a shop connects to the street, while a storage room is located at the back. Previously Dalan space, facing the courtyard, has been walled off. The first floor serves as a bedroom area, the second floor, *Chota*, is an open living space, or, in the present case, is used as a kitchen/dining area. The third floor, previously a kitchen, has collapsed due to an earthquake and is covered with CGI sheets, which initially had a sloped roof with roofing tiles (*polah Appa; jhingati*). Changes in the layout are evident over time.

The house sits on a 0.15-meter-high plinth and currently has three floors. The first and second floors are built with brick and mud mortar, while the ground floor is covered in cement plaster. The facade has been painted red, which is uncommon for traditional houses.

The second floor features three decorative *Sanjhya* windows on both the street and courtyard sides. The

first floor has *Tikijhya* windows, modified with open-able shutters, seen on both facades. Openings in the facade vary in size, with *Sanjhya* windows measuring 2.2 by 1.5 meters, *Tikijhyas* 0.8 by 0.8 meters, other windows 0.8 by 1 meter, and doors 0.8 by 1.5 meters.

In Nagaancha and Byasi areas, this type of house lacks a courtyard but has a *Kiba* or private well in the backyard. In one of the houses of the Koju community in Byasi, which shares similar facade features, a verandah was added to the third floor at a later stage.

4.3.2 Dwelling Type II

A verandah is present on the second floor of this type of building, along with *Tikijhya*. However, the facade has undergone substantial modifications, including changes to the windows and doors. The use of bricks for the plinth and edges indicates that this house was built at a later time. A detailed study was conducted on a house belonging to the

Thimi community in Degamana.

This house is planned along the street and has been divided into three sections among the family members of the Thimi Community⁶. The house is in a vulnerable state, particularly on the west side, which is at risk of collapse. It measures 13.1 by 11.4 meters, with a floor height of around 2 meters.

The ground floor is mainly used for storage and a toilet, but the house suffers from poor ventilation and lighting. As one moves further inside, the rooms become increasingly dark. There are *sagals* in two corners at the back. The first floor is typically used for bedrooms, while the second floor houses the kitchen and dining area, featuring a 0.9-meter-wide verandah. The house once had a third floor with a terrace.

The building is raised on a 60 cm high plinth with a width of 75 cm. Brick on the plinth's edges suggests later development. Currently a 4-storey structure, it originally had five storeys. The west wing of the façade is constructed with brick and mud mortar, while the rest is cement-plastered. The third floor once had a half-room and half-terrace layout, roofed with *Polah appa*, but now the structure only extends to the second floor, which is roofed with CGI sheets. The second-floor verandah is wooden and supported by struts (*tudals*).

Tikijhyas are present on both the first and second floors, though the windows appear to have been replaced at different times, as their sizes and designs vary. The façade features a range of window styles, reflecting multiple modifications over time. On the ground floor, the doors are simple wooden shutters. *Tikijhyas* measure 0.9 by 0.8 meters, other windows are 0.8 by 1.2 meters, and the door is 0.8 by 1.5 meters.

Other houses of this type in the study area exhibit similar features, though they lack *tikijhyas*.



Figure 18: Dwelling Type I – Street façade details

4.3.3 Dwelling Type III

Unlike the other two types, this type of dwelling does not feature artistic windows. The facade is simple, with only a projection on the third floor and basic openings. Brick



Figure 19: Dwelling Type II – Street façade details

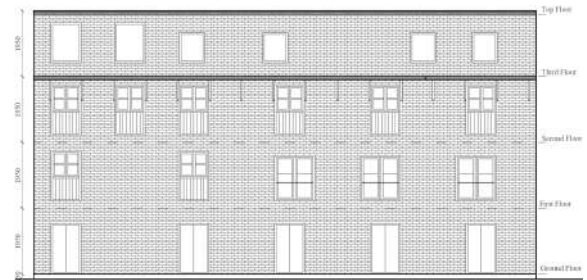


Figure 20: Dwelling Type III – Street façade details

cornices are visible in some areas, and the use of bricks for the plinth and edges suggests the house was built in a later period. For a detailed study, a house from the Makaju community in Nagaancha was examined, which claims to have been inhabited in the area since its early settlement development.

The house, planned linearly along the street, has been divided into three parts. Currently, it is abandoned, and no one resides there. Two other Makaju community houses are attached to it, but there are no internal connections. The house measures 15 by 9 meters, with a floor height of 2 meters. The space is directly accessible from the street and includes a *kiba* located in the backyard.

The ground floor once housed a *Dhiki* at the front, though it is no longer in use. Other areas on the ground floor are used for storage, and the rear was previously a cowshed. The first floor is used for bedrooms, while the second floor features an opening called *Bhoyepwa*, which was used during feasts. This floor also has a *Kuthi* space for transferring grains from the upper floors. The third floor, originally designated for the kitchen and dining, was partially damaged by an earthquake in 2015 and is no longer in use.

Traditional features like *Bhoyepwa*, *Dhiki*, and *Kuthi*, unique to the Makaju community, are not found in other house types in the area, indicating a possible connection to the core city.

The house sits on a 15 cm high plinth with stone edges. It

is a 4-storey structure with a brick-and-mud mortar facade. It was originally a sloping roof made with *Polah Appa* tiles, but now it has been replaced with CGI sheets.

Unlike other types, this house lacks decorative doors and windows. The wooden windows are simple, with double shutters and handrails. Two different window sizes are observed, with the third-floor opening likely added later when the roof style changed. The windows measure 0.9 by 1.5 meters and 1.2 by 1.4 meters, and the door is 0.9 by 1.5 meters. Most of the older houses in the study area belong to this type, and similar doors and windows are commonly found throughout the area.

All three dwelling types share a linear arrangement along streets and feature *Pikhalakhu* or internal courtyards, reflecting continuity with traditional settlement patterns. However, Type I retains more traditional elements such as artistic windows and courtyard access, Type II shows modifications in facade and verandah design with later construction techniques, and Type III is simpler with fewer decorative features, indicating gradual adaptation and variation across communities in the peripheral areas.



Figure 21: Dwelling Type I – Street façade of Chaguthi Community

5. Discussion

Peripheral settlements of Bhaktapur are characterized by wider street networks that differ in form across sites. Nagaancha and Degamana display a gridded layout that supports the formation of linear clusters, whereas Byasi shows irregular streets, pointing to less organized growth. These networks are more expansive than those in the core, where compact, interconnected streets supported closely integrated neighborhoods. The wider layouts of the periphery reduced the frequency of communal nodes, shifting social interactions from designated squares to more informal settings such as plinths and roadside spaces. Open spaces also illustrate this transformation. In the traditional



Figure 22: Dwelling Type II – Street Façade



Figure 23: Dwelling Type III – Street façade

core, squares were deliberately planned at junctions to maximize visibility and accommodate communal functions such as rituals, gatherings, and markets. In peripheral

neighborhoods, however, formal squares are fewer and less centrally placed. Instead, open areas emerge in the form of roadside spaces, dwelling courtyards, or raised plinths (chowks) that continue to serve everyday social and functional needs, although in more modest and localized ways. This shift points to a reorganization of communal life, where social interaction persists but becomes more dispersed and less tied to public squares.

Dwelling patterns further highlight continuity and adaptation. Across the three types, houses retain linear alignment along streets and features such as *Pikhalakhu*, *Kuthi*, and *Bhoyepwa* (in Makaju houses), but they differ in façade treatment, presence of verandahs or courtyards, and number of floors. These variations suggest that while traditional principles remained influential, households adapted designs to changing social and economic conditions. Studies such as Kido's observation of settlement expansion on Bhaktapur's eastern side similarly note that courtyard-style layouts continued in peripheral growth but in a less compact and more fragmented manner, reinforcing this interpretation.

Cultural features further underline this balance of continuity and change. While elements like *Pikhalakhu* and *Kuthi* remain embedded in peripheral neighborhoods, the absence of *Bhoyepwa* in some sites indicates subtle shifts in dwelling traditions and spatial use. Such changes point to evolving domestic and communal practices that distinguish the periphery from older neighborhoods.

Community organization also diverges from the clustered, community-based pattern seen in the core. Peripheral areas are more mixed, with families from different backgrounds settling apart. Yet selective continuity persists: groups such as the Koju and Suwal continue to reside in proximity, maintaining cultural bonds within an increasingly heterogeneous setting. Overall, these characteristics reveal that the peripheral areas of Bhaktapur represent a transitional phase in the city's urban growth. They neither replicate the compact, socially integrated fabric of the core nor abandon tradition entirely. Instead, they combine inherited spatial forms with adaptations shaped by new cultural and economic realities. This mixed character highlights the importance of peripheral settlements as evolving spaces that embody both heritage and transformation in the post-Malla urban landscape.

6. Conclusion

The study of Bhaktapur's peripheral settlements reveals their role as transitional spaces in the city's urban history. Rather than mirroring the core or abandoning tradition, these neighborhoods demonstrate how urban form adapts to changing social and economic conditions while retaining selected cultural elements. Recognizing this dual character highlights the importance of examining peripheral areas

as distinct urban entities, offering insights into processes of heritage continuity and transformation in post-Malla Bhaktapur.

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References

- Bhaktapurka dhoka [Interviewee in a Documentary Show, Nepal Television]. (2009). <https://www.youtube.com/watch?v=Dkof0baD6Uk>
- Dhaubadel, O. (2024). Bhaktapurko etahasik dhokaharu. *Khwopako Pahichan*, 2, 158–173.
- Gutschow, N. (n.d.). *Bhaktapur: Sacred patterns of a living urban tradition*.
- Gutschow, N., Kölver, B., & Shresthacarya, I. (1987). *Newar towns and buildings: An illustrated dictionary newārī-english*. VGH Wissenschaftsverlag.
- Kanekar, A. (1992). Celebration of place: Processional rituals and urban form. <http://hdl.handle.net/1721.1/36922>
- Kido, A., Yamamoto, N., Masui, M., & Takeuchi, Y. T. (2012). Study on formation of urban tissue in bhaktapur in kathmandu valley, nepal. *Journal of Science and Engineering*, 1, 1–16. <https://doi.org/10.3126/jsce.v1i0.22488>
- Korn, W. (2007). *The traditional architecture of the kathmandu valley (rev ed)*. Ratna Pustak Bhandar.
- Pant, M. (2002). A study on the spatial formation of kathmandu valley towns : The case of thimi. *Kyoto Univeristy*.
- Pant, M. (2019). *Thimi: Community and structure of a town, kathmandu valley*. Saraf Foundation for Himalayan Traditions & Culture.
- Prajapati, K. (2024a). Identification of patterns in the peripheral areas of bhaktapur city. *3rd National Conference on Architectural Trends and Heritage*.
- Prajapati, K. (2024b). A study on development patterns in the peripheral areas of the core city of bhaktapur. *Post Graduate Department of Urban Design and Conservation, Khwopa Engineering College, Bhaktapur, Nepal*.
- Prajapati, S. (2019). A study on an extended city at later malla period- bharwacho and itachhen, bhaktapur. *Post Graduate Department of Urban Design and Conservation, Khwopa Engineering College, Bhaktapur, Nepal*.

- Shilpakar, R. (2019). A study on the planning principles of urban squares: A case of bhaktapur. *Post Graduate Department of Urban Design and Conservation, Khwopa Engineering College, Bhaktapur, Nepal*.
- Shilpakar, R. (2021). Spatial structure of residential courtyards in the core city of bhaktapur. *Post Graduate Department of Urban Design and Conservation, Khwopa Engineering College, Bhaktapur, Nepal*.
- Tiwari, S. R. (2010). The town of bhaktapur- a study of structural changes over time.

Notes

¹Information from Om Dhaubadel

²Information from Om Dhaubadel

³Mixed communities has been categorized as there were many communities but small in number

⁴The discussion of the core city presented here is not based on new fieldwork but relies on previous studies, particularly S. Prajapati (2019), R. Shilpakar (2019), and R. Shilpakar (2021)

⁵The drawings and information were gathered based on inquiries, as residents lacked knowledge on initial designs and details.

⁶Due to the absence of two owners during the study, the drawing was prepared based on information provided by one individual.

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