Space Formation and Transformation of the Urban Tissue of Old Delhi, India

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Abstract
This paper discusses the space formation and transformation of the urban tissue of Old Delhi. Main focuses are the street system, neighbourhood blocks, the distribution of public, religious and commercial facilities and the distribution of religious communities.

Based on field research within the south-western area of Jama Masjid, the authors found a hierarchy in the street system. There are 1. Major roads (Bazaar), 2. Smaller public streets, 3. Narrow lanes within residential blocks, and 4. Dead-end alleys. Narrow lanes and dead-end lanes within residential blocks are called kuchas, galis or kratas. Each kucha, gali or katra has its own name and forms a neighbourhood block. In some places a larger neighbourhood quarter called a mohalla is formed by neighbouring kuchas, galis and kratas.

Religious facilities for Muslims (mosques, dargahs) and Hindus (mandirs, shrines) are distributed separately. This means that Muslim and Hindu communities were also separated.

However, the distribution of religious facilities shown in the 19th century maps of Shahjahanabad indicates that these communities were previously mixed to a greater extent than they are today.

Keywords: Islamic city; India; Delhi; Shahjahanabad; urban tissue

1. Introduction
Many historical dynasties in India have built their capital in the Delhi area because of its many advantages for trade and defence1. Among those historical capitals, Shahjahanabad (constructed by 5th Mughal emperor Shah Jahan in the mid 17th century) has survived to this day. When New Delhi was built next to Shahjahanabad in the 20th century as the new capital of British India, Shahjahanabad came to be known as 'Old Delhi'.

Shahjahanabad was built as the capital of the Mughal Empire, India's most powerful and largest Islamic dynasty. This makes it one of the most pertinent cities for the study of urban formation in the Islamic region.

This paper discusses the space formation and transformation of the urban tissue of Old Delhi. The main focuses are the street system, neighbourhood blocks, the distribution of public, religious and commercial facilities and the distribution of religious communities.

Regarding the transformation of the urban tissue of Old Delhi, there are some detailed old maps drawn in the mid 19th century that show the urban formation of that time. By comparing the urban tissue of today with that of the mid 19th century, the authors can attempt to describe the transformation of the street system, urban facilities and religious communities.

2. Urban Tissue of Old Delhi
To reveal the space formation of the urban tissue, field research was carried out in the south-western area of Jama Masjid2 (Fig.1.). The research area is triangular and framed by Chowri Bazaar in the north, Matia Mahal Bazaar and Bazaar Chitli Qabar in the east and Sita Ram Bazaar in the south-west (Fig.2.). This area is divided into north and south blocks by Churiwalan Street, and the south block is further divided into east and west sections by Sarak Premnarayan Street.

Jama Masjid, the largest mosque in Old Delhi, was built in the same period as the construction of Shahjahanabad. The area surrounding the mosque is one of the oldest built up areas in Old Delhi. The area remained untouched during the rule of the British and the authors can therefore accurately associate this part of the city with indigenous, rather than foreign, development. Besides that, the research area is one of the busiest areas in Old Delhi, combining residential buildings and neighbourhoods with various retail,
and are further divided into smaller lanes or dead-end alleys. Open spaces are formed in some places within the system of kuchas, galis and katras.

The size of the neighbourhood block varies in each kucha, gali or katra and no particular size can be observed. But the sizes of 3 katras (No.3: Jamatah Katra, No.8: Katra Dhoomi Mal, No.13: Katra Hanboo Mal) in the research area are smaller than that of the kuchas and galis. The reason for this difference is thought to be the original formation of the kucha, gali and katra. The words kucha and gali both mean 'small lane'. The original meaning of katra is 'small open space enclosed by some shops and houses'. Katra Hanboo Mal (No.13 in Fig.2.) is keeping the original formation of the enclosed open space.

The density of houses also varies between neighbourhoods. High density is seen in some neighbourhoods such as Gali Berina Wari (No.17) and Old Churiwalan (No.25). Some particularly high density spots are observed in certain neighbourhood blocks. About 40 houses are gathered around a courtyard-like space at the end of a small lane in Gali Godiya (No.5) and some 70 houses are clustered around the open space at the end of a dead-end alley in Gali Lal Darwaza (No.9).

The south-eastern part of the research area is a hilly mound on which Kucha Bulbuli Khana (No.37), Mohalla Pahari Bhojla (No.38) and Gali Pahari Imri (No.50) are situated. Many narrow lanes sprawl across the slope of the mound. The density of the houses within these neighbourhood blocks is higher than that of others. According to Chenoy, there was some kind of settlement in this area before the construction of Shahjahanabad. The grave of Raziya Sultan who ruled Delhi from 1236-9 and the shrine of the Muslim saint Shah Turkman (built in 1240) are located just south of this area. So this area is considered to have a long history as a Muslim quarter. The area of Mohalla Pahari Bhojla (No.38), which is composed of 10 galis, is supposed to indicate the extent of the settlement that existed before the construction of Shahjahanabad.

2.3 Distribution of Urban Facilities

2.3.1 Street Gates

Street gates are located at many points along, and at either end of, the kucha, gali and katra. They function as entrances and exits at the borders of neighbourhoods and act as a physical barrier that provides security in emergencies.

Interestingly, while street gates are located at almost all the turning points into kuchas, galis and katras along Sita Ram Bazaar, there are few gates at the turning points along Chawri Bazaar. The former kuchas, galis and katras are occupied mainly by residential buildings whereas the latter are occupied mainly by commercial buildings. Therefore, street gates are considered to be placed for the security of residential areas, rather than commercial blocks.

2.2 Formation of Neighbourhood Blocks

Small lanes in a block are called kucha, gali, katra, wari or walan. Most of these small lanes have their own name and form a neighbourhood. In Fig.2., we see how 5 kuchas, 39 galis, 3 katras and 3 wari (or walan) are found within the research area. There is another type of neighbourhood block called a mohalla. Mohallas consist of kuchas, galis or katras and cover a larger area. One mohalla is found within the research area. Kuchas and galis are separated from the bazaar and public and religious facilities. Thus, not only is it untainted by foreign influence, it is also suitably developed to allow a detailed analysis of space formation and transformation.

2.1 Street System

Chawri Bazaar is part of the street between Jama Masjid and Ajmer Gate. Sita Ram Bazaar is part of the street between Turkman Gate and Lahori Gate. Mathia Mahal Bazaar and Bazaar Chitli Qabar are parts of the street between Jama Masjid and Turkman Gate. The streets connecting city gates with major urban facilities are major streets that form the main bazaars in Old Delhi. Churiwanar Street and Sarak Premnarayan Street are branch streets separated from the main bazaars. These streets are the major public streets within the research area. Lines of shops on both sides of Churiwanar Street form a local bazaar. There are also some shops along Sarak Premnarayan Street, but it is still just a street for public pass rather than a bazaar. There are many small lanes and dead-end alleys inside the blocks surrounded by bazaars and major public streets. The hierarchical nature of the street system is thus clear. Major trade roads comprising the bazaars are the most important streets, followed by smaller public streets, narrow lanes and finally dead-end alleys.

Fig.1. Map of Old Delhi and Research Area
Fig. 2. Formation of Kucha, Gali and Katra and Distribution of Urban Facilities in Old Delhi
2.3.2 Religious Facilities

Religious facilities in the research area include mosques and dargahs (tombs of Muslim saints), and Hindu temples and small shrines. Some big trees standing on the small lanes are worshipped by Hindus.

The distribution of religious facilities in the research area shows clear separation among religions (Fig.3). Mosques and dargahs are located in the east and northeast side of the area, while Hindu temples and shrines are located in the west and southwest side of the area. This separation indicates the separation of the Muslim and Hindu communities. The northeast corner of the research area is adjacent to Jama Masjid, which is the worship center of Muslims in Old Delhi. Its surrounding area is thought to be occupied by the Muslim community.

2.3.3 Commercial Facilities and Factories

Shops are mostly located along the main and local bazaars and surround the urban blocks (Fig.4). But in some very congested areas like around Jama Masjid or Chawri Bazaar, shops are even located inside the residential blocks. Shops occupy the ground floor of the building, while upper floors are reserved for the residential use. The shop spaces and residences are not connected inside. The entrance to the residences at ground level leads directly to the staircase, which itself is separated from the rest of the ground floor. A different ground-level entrance gives access to the shop area.

In contrast, small factories and workshops are generally not located along the bazaars but inside the neighbourhood blocks. Factories are gathered around Gali Chitra Darwaza (No.24 in Fig.2.) near Jama Masjid, and around kuchas and galis behind Sita Ram Bazaar.

There is a tendency for shops and factories selling the same product to gather in one place (Fig.4). Shops dealing with second-hand automobile parts are gathered along the bazaar that faces Jama Masjid Square. Shops and factories that specialize in paper products are collected along and inside the eastern part of Chawri Bazaar. Retail and wholesale shops selling paper products are located along the bazaar, while many small factories manufacturing notebooks, cards and business paper are gathered behind the bazaar. Along the western part of Chawri Bazaar, shops selling hardware, building material and plumbing metals can be found grouped together. ‘Chawri Bazaar’ means 'Lock Market' and its name is already shown on the 1850s map of Shahjahanabad. Original commercial items such as locks and doorknobs are still sold today in Chawri Bazaar.

Along Sita Ram Bazaar near the crossing with Chawri Bazaar, there are many small vegetable stalls. Cloth shops are collected in an area adjacent to this burgeoning vegetable market. Behind the bazaar, the kuchas and galis contain small factories of metal and press works.

Within Mohalla Pahari Bhojla, accessory shops dealing with beads and chains are collected along the street.

In other local bazaars, there are various shops for daily essentials.

3. Transformation of Urban Tissue

3.1 Map of Shahjahanabad around 1850

In a map of Shahjahanabad around 1850 (Fig.5), information such as palaces, gardens, street names, major buildings, the locations of wells and religious facilities are described in Urdu and Persian script. The cartographer and the exact date of the map are not known. However, we can say that this very detailed map could only have been produced after an extremely accurate survey. A strong possibility is that the British colonial administration ordered the making of the map after they seized Delhi in 1803. The map shows the urban situation before the Indian Mutiny in 1857. St. James’ Church, built in 1836, is on this map along with the locations of various wells. As the distribution of wells in Shahjahanabad was surveyed in 1843, the authors might surmise that the locations of wells in the map were based on its result. Thus, the authors can
estimate that this map was produced between the mid 1840s and 1857.

3.2 Transformation of the Street Pattern

The transformation of the urban tissue can be analyzed through a comparison of the present situation with the maps of the 1850s.

The street pattern of the research area around 1850 was nearly the same as that of today except at certain points (Fig.6., Table 1.). This means that the physical pattern of the urban tissue in Old Delhi (Shahjahanabad) was almost completed by the mid 19th century. Some areas where the street patterns were not the same as today were the sites of large havelis (palace or mansion) (Fig.7.). While some of the havelis are still remaining, many of them have disappeared. Their sites have been divided into smaller plots where new streets and lanes have been laid.

An example is Haveli Sohan Lal, which was once situated at the present site of Gali Lal Darwaza (No.9 in Fig.2.) and Kucha Sohan Lal (No.12). Haveli Sohan Lal occupied a large part of the site between Churiwalan Street and Sita Ram Bazaar. There were large house complexes that contained several courtyards. Now, the haveli complex has been removed and most of the site has been divided into small plots.

3.3 Location of Street Gates

Regarding the transformation of street gates, the following three kinds of gates can be observed.

1) Gates that existed around 1850 and still exist at the same location.
2) Gates that existed around 1850 but have since disappeared.
3) Gates not existing around 1850 but installed later.

Around 1850, street gates were located at almost all the bazaar side entrances leading to kuchas, galis and katras (Fig.8.).

Table 1. Comparison of the Street Pattern of Neighborhood Blocks with 1850s Map

| No. | Name of neighborhood block | Location in the 1850s site | Comparison of street pattern with 1850s map |
|-----|-----------------------------|-----------------------------|--------------------------------------------|
| 1   | Purana Gali                | Almost same as the map      |                                            |
| 2   | Gali Purana                | Almost same as the map      |                                            |
| 3   | Katroo Gali                | Almost same as the map      |                                            |
| 4   | Gali Vishnu More           | Almost same as the map      |                                            |
| 5   | Katroo Gali                | Almost same as the map      |                                            |
| 6   | Kutchi Darwaza             | Almost same as the map      |                                            |
| 7   | Gali Ram Darwaza           | Almost same as the map      |                                            |
| 8   | Kutchi Sohan Lal           | Almost same as the map      |                                            |
| 9   | Gali Ram Darwaza           | Almost same as the map      |                                            |
| 10  | Gali Sohan Lal             | Almost same as the map      |                                            |
| 11  | Gali Muzaffar Darwaza      | Almost same as the map      |                                            |
| 12  | Kutchi Sohan Lal           | Almost same as the map      |                                            |
| 13  | Gali Ram Darwaza           | Almost same as the map      |                                            |
| 14  | Gali Churiwalan            | Almost same as the map      |                                            |
| 15  | Gali Lala                  | Almost same as the map      |                                            |
| 16  | Gali Churiwalan            | Almost same as the map      |                                            |
| 17  | Gali Minto                 | Almost same as the map      |                                            |
| 18  | Gali Minto                 | Almost same as the map      |                                            |
| 19  | Gali Minto                 | Almost same as the map      |                                            |
| 20  | Gali Minto                 | Almost same as the map      |                                            |
| 21  | Gali Minto                 | Almost same as the map      |                                            |
| 22  | Gali Minto                 | Almost same as the map      |                                            |
| 23  | Gali Minto                 | Almost same as the map      |                                            |
| 24  | Gali Minto                 | Almost same as the map      |                                            |
| 25  | Gali Minto                 | Almost same as the map      |                                            |
| 26  | Gali Minto                 | Almost same as the map      |                                            |
| 27  | Gali Minto                 | Almost same as the map      |                                            |
| 28  | Gali Minto                 | Almost same as the map      |                                            |
| 29  | Gali Minto                 | Almost same as the map      |                                            |
| 30  | Gali Minto                 | Almost same as the map      |                                            |
| 31  | Gali Minto                 | Almost same as the map      |                                            |
| 32  | Gali Minto                 | Almost same as the map      |                                            |
| 33  | Gali Minto                 | Almost same as the map      |                                            |
| 34  | Gali Minto                 | Almost same as the map      |                                            |
| 35  | Gali Minto                 | Almost same as the map      |                                            |
| 36  | Gali Minto                 | Almost same as the map      |                                            |
| 37  | Gali Minto                 | Almost same as the map      |                                            |
| 38  | Gali Minto                 | Almost same as the map      |                                            |
| 39  | Gali Minto                 | Almost same as the map      |                                            |
| 40  | Gali Minto                 | Almost same as the map      |                                            |
| 41  | Gali Minto                 | Almost same as the map      |                                            |
| 42  | Gali Minto                 | Almost same as the map      |                                            |
| 43  | Gali Minto                 | Almost same as the map      |                                            |
| 44  | Gali Minto                 | Almost same as the map      |                                            |
| 45  | Gali Minto                 | Almost same as the map      |                                            |
| 46  | Gali Minto                 | Almost same as the map      |                                            |
| 47  | Gali Minto                 | Almost same as the map      |                                            |
| 48  | Gali Minto                 | Almost same as the map      |                                            |
| 49  | Gali Minto                 | Almost same as the map      |                                            |
| 50  | Gali Minto                 | Almost same as the map      |                                            |

Fig.5. Map of Shahjahanabad around 1850

Fig.6. Street Pattern in the Map around 1850 (Map Source: Ehlers, E. and Krafft, T. ed.(1993))
Other gates were located inside the neighbourhood blocks, particularly in the area around Jama Masjid. Street gates were located even at the ends of Churiwalan Street and Premnarayan Street, which are now major streets within the area. This indicates that those streets had a more domestic character around 1850 than today.

Among the street gates that existed around 1850, few remain along Chawri Bazaar and inside the blocks near Jama Masjid. The reason is adjudged to be that the residential character of those areas has given way to commercial and manufacturing interests.

In contrast, most of the gates in the area along Sita Ram Bazaar remain today, and some more gates have been added. This area retained its residential nature and developed further after the removal of large havelis.

Along Churiwalan Street and Premnarayan Street, old gates at the ends of the streets have been removed and new gates have been built at the entrances of kuchas, gallis and katras. This is because commercial activity penetrated into those public streets and required the removal of the end gates to allow unhindered transit of people and goods. New gates have been installed to maintain the security and privacy of neighbourhoods behind these streets.

3.4 Location of Water Facilities

Another map of Old Delhi drawn in 1867–68 shows the location of wells and religious facilities such as mosques, dargahs and Hindu temples. (Fig.9.)

Among the wells described in the maps of 1850 and 1867–68, very few can be found today.

An investigation of water sources conducted by the British authorities in 1843 showed that most wells contained dirty water.

The British therefore started the construction of a water supply system in Old Delhi sometime during the 1870s. The progression of the new water supply system meant that the location of many wells was changed.

3.5 Change in Location of Religious Facilities

Maps of 1867–68 show that the location of religious facilities was different from their present positions. Hindu temples were not found in the northern part of the research area. There were only mosques in this area. Most of the residents in this area were presumably Muslim due to the proximity of Jama Masjid.

In stark contrast, both mosques and Hindu temples were found in the southern part of the research area. It indicates that the Muslim and Hindu communities were mixed in this area.

But today, the locations of mosques and Hindu temples are clearly separated as mentioned above. This fact indicates the separate locations of the Muslim and Hindu communities.

So, there must have been a dramatic transformation
of the community structure in Old Delhi between the mid 19th century and the present.

One of the largest factors in this transformation must surely have been the separation of India and Pakistan in 1947, which led the mass exodus of Muslims to Pakistan and the mass relocation of Hindus to India.

4. Conclusion

In this paper, the authors have discussed the space formation and transformation of the urban tissue of Old Delhi. The major outcomes are as follows.

1) The hierarchical ranks of 'bazaars (major roads), smaller public streets, small lanes, and dead-end alleys' can be observed in the street system of Old Delhi.

2) Small lanes in the blocks are called kucha, gali, katra, wari or walan. Most of the lanes have their own name and form a neighbourhood block.

3) There is another type of neighbourhood block called a mohalla, which consists of some kuchas, golas or kotras and covers a larger area.

4) The size and density of the neighbourhood block vary in each kucha, gali or katra and no specific size or density predominates.

5) Street gates are located at many junctions with kucha, gali and katra for maintaining the security and the privacy of the residential neighbourhoods.

6) The distribution of religious facilities shows a clear separation between Muslims and Hindus.

7) Shops are generally located along the main bazaars and local bazaars, which are surrounding urban blocks. On the contrary, small factories are generally located inside the neighbourhood blocks. There is a tendency that shops and factories producing and selling the same product are located in one place.

8) The street pattern of Old Delhi around 1850 was almost the same as that of today. This means the physical pattern of the urban tissue in Old Delhi was almost completed by the mid 19th century.

9) The location of street gates has changed according to the character of the neighbourhood blocks. While residential neighbourhoods have retained street gates, commercial neighbourhoods have removed street gates.

10) In the late 1860s, the religious facilities of Muslims and Hindus were not located separately but co-existed in some neighbourhood blocks. This fact indicates that the Muslim and Hindu communities were once mixed.

The urban framework and major infrastructure of Shahjahanabad was constructed in a geometrical and axial form by Shah Jahan and his royal family in the first 20 years of construction (Fig.10.). And the rest of the urban space had been left for later developments. As a result of the historical accumulation of small-scale private developments and their transformation, the streets and urban tissues were formed in irregular patterns.

Some areas of what became Old Delhi existed before the construction of Shahjahanabad. Other areas arose as a result of the transformation of the palaces or havelis of nobles, high class officers and rich merchants. And yet more were formed by the collective habitation of the families working in similar industries.

The word kucha, the neighbourhood block based on a small lane, comes from Persian and mohalla is from the Arabic word mahalla. This indicates that the pattern of the urban tissue in Islamic regions had been introduced into the urban space of Old Delhi.

The words gali and katra are both Hindi. Neighbourhood blocks based on small lanes can also be seen in other cities in northwest India such as pol, khadki and wado in Ahmedabad (Gujarat / built in 1411) and rasta, marg, gali and gher in Jaipur (Rajasthan / built in 1727).

The urban tissue of Old Delhi can therefore be considered as the blended fabric of Islamic patterns and the indigenous patterns of northwest India.

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Endnotes
1 Historically known capitals are Lal Kot (c.1052), Qila Rai Pithora (c.1180), Siri (c.1303), Tughluqabad (c.1321), Jahanpanah (c.1325), Firuzabad (c.1354), Purana Qila (c.1533), Shergarh (c.1540), Shahjahanabad (1639) and New Delhi (1911).
2 22-30/AUG/1998 by Shu Yamane, Shuji Funo, Takashi Ikejiri and Osamu Yoshimura.
3 The word kucha is originally from the Persian language. Gali is from Hindi language.
4 Chenoy (1998), p.51.
5 British Library, Oriental and India Office Collections / India Office Records X/1659. According to Blake (1993), this map was made in between 1803 and 1842. The redrawn and translated version from the original map was published in Ehlers, E. and Krafft, T. ed. (1993). 
6 Jain (1994), p.83.
7 Churiwalan Street was formerly called Rasta Churiwala around 1850.
8 British Library, Oriental and India Office Collections, X/1666/1-4. According to Malik (1993), p.43, few Hindu temples and shrines were described in the map of 1850s probably for some political reasons. With regard to the distribution of religious facilities, the description of the map of 1867–68 drawn by the British is rather reliable.
9 Jain (1994), pp.83-88.

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