

Transition of Urban Neighbourhoods: Case of Nagpur, India

Sarika Bahadure* and Tanushri Kamble

Abstract

Change is inevitable, but how this change affects the user, decides its success. Neighbourhoods are the heart of a city and transition in a neighbourhood reflects the city's transition. This study seeks to: 1) Understand the transition of the city Nagpur, India. It shows the transition that the city underwent using various maps as evidence. The exploration of the transition from the past to the present helped in understanding the morphology of the place. 2) Investigate six neighbourhoods from different parts of the city established at different times. Therefore, the neighbourhoods are selected based on their existence in a certain time frame. 3) Explore the residents' satisfaction by mapping the amenities and their opinion about the neighbourhood. The results show how the transition of a city takes place with changes in the administration and the needs of the people. The study provides a methodology for investigating the transition of neighbourhoods over a given period to the present. It also functions as a guide on factors that affect the transition of a neighbourhood. The socio-spatial exploration will guide the stakeholder through decision-making in urban planning.

Keywords: core city, neighbourhood, user-perception, urban transition, accessibility.

Introduction

Cities are continuously expanding to accommodate the growing population. The main reason for their growth is the availability of development opportunities in the social infrastructure (educational, health, and recreational facilities) (Davern et al., 2017), physical infrastructure (transportation, communication, and water) (McArthur, 2017), and economic prospects (commercialization, industrialization and surplus resources) (Yang et al., 2021). Hence, when planning policies are formulated, national and international communities recommend responding to all the domains of urban areas (Dhingra & Chattopadhyay, 2016).

There are many studies that focus on the city growth pattern and transition from the past to present but how this growth pattern impacts the urban neighbourhood needs investigation. Moreover, every city has a unique fabric, social composition, historic legacy, local aspirations, political influences, and economic distinctions (Dhingra et al., 2016). Hence, case-specific investigations are mandatory before framing policies. Looking at the long history of Indian cities, planners should consider the socio-cultural and historic transition in a place and community before imposing planning policies (Narayanan, 2014). Urban form cannot be studied in isolation from the intricate social factors (Lynch & Rodwin, 1958). Urban planning for historic cities requires a socially inclusive vision that should be place-based (Deakin, 2011). This is where micro or neighbourhood level planning shows its importance. This can help to eradicate any absurd imposition of national-level policies and make planning inclusive (Dhingra et al., 2016).

The study utilizes content analysis of historical and current maps to understand the morphological changes over the course of time. It further classifies the urban neighbourhoods (NBHs) as per their evolutionary stages. A user-perception study in the selected NBHs help us understand the success of NBH development in the present context. The objectives of the study, therefore, are: 1) to study the urban transition and its effect on neighbourhoods (old and new), and 2) to study if the transition affects amenities in neighbourhoods along with the perception of the residents of the quality of the neighbourhood.

Urban planning reforms in India mainly occur through various programmes and initiatives. The current government planning policies in India focus on the development of 100 smart cities. The intent of the smart city project is to provide sustainable living conditions and enhance the quality of living using smart technology (Kumar et al., 2018). The key areas of the smart city project include the provision of infrastructure in the city, especially the old city areas with compact development to drive overall economic growth towards sustainable development. Nagpur city is a part of this smart city development project. Hence, understanding how urban planning transitions have impacted the city in the past is required to advance the neighbourhood to the targeted level of smartness (Dhingra & Chattopadhyay, 2016).

Through the literature review (Chapter 1), the study first seeks to understand transition theories, the importance of a neighbourhood in transition studies, and how transitions have taken place in Indian cities in general. It then provides an overview of the studied city (Chapter 2). This is followed by the methodology used to study transition (Chapter 3). Then the results are discussed (Chapter 4) and, based on the study, the conclusions are presented (Chapter 5).

Literature review

Transition theories

Cities evolve in multiple ways and generate growth patterns. In 1925, Burgess proposed the first theoretical model based on a concentric circular growth pattern, where the innermost circle is the central business district (CBD) that is followed by a transition zone of mixed land uses (residential and commercial), the next ring forms inner suburbs for worker's residences followed by the outer suburb's for middle-class residences, and finally the commuter zone (Burgess, 2008). Similarly, in 1939 Homer Hoyt proposed the sector growth model, where growth tends to extend outward from the city centre primarily along transportation lines with specific clusters (Adams, 2005). The Axial growth pattern tends to grow along transportation corridors, such as highways, railways or water bodies (river/port) for ease of accessibility. The multiple nuclei model allows development across the city with focused growth centres. Smailes (1969) provides a generalized diagram that shows a typical growth pattern in Indian cities (Figure 1). It shows a typical congested area inside the old wall perimeter. As British rule was imposed, the formulation of colonies and administration were witnessed. A railway track separated the old and new settlements. Furthermore, as the city underwent transition with time, the area between old settlements and new colonies became filled with settlements. This was accompanied by sprawl that occurred in the surrounding villages.

There has recently been rapid growth in the area of transition studies (Zolfagharian et al., 2019). Transition studies have been applied in various fields ranging from geography, sociology, psychology, economics, management, political science, engineering and all fields responsible for shaping our built environment. Transition studies have contributed to the literature pertaining to such fields, and are mostly evidence-based approaches (Tranfield et al., 2003). A major contribution of such studies is in presenting evidence of historical transitions, and thereby the formulation of a governance framework. Transition studies can help in the transformation of our cities towards more sustainable, resilient, and more attractive places to live, especially through the conservation and urban regeneration of traditional neighbourhoods (Rey et al., 2022). Therefore, it is an effective tool for urban planning interventions.

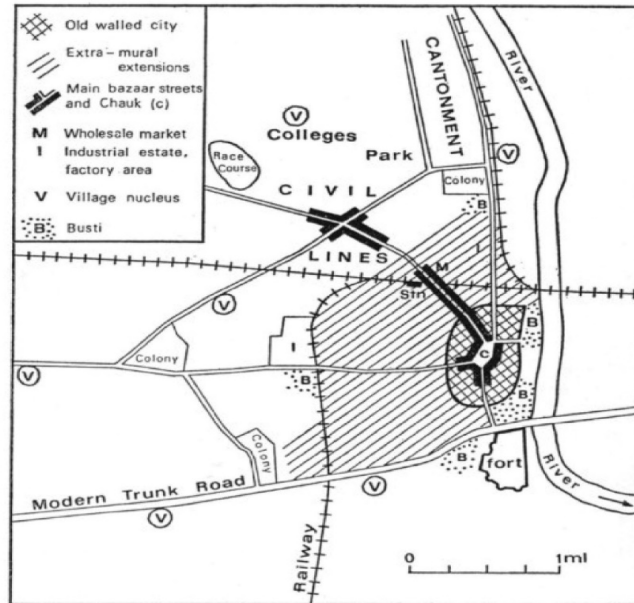


Figure 1: Generalized diagram of an Indian city (Smailes, 1969)

Neighbourhoods and urban transition

Neighbourhoods are the basic planning units of the urban environment that promote social interactions between residents. They provide both residential as well as non-residential functions using the built environment (Kay Saville-Smith, 2005) and connect communities and residences to the surrounding urban environment. Neighbourhoods are places where everyday practices materialize and residents share common experiences (Wilson, 2009). Hence, they are appropriate units for pragmatic interventions (Dhingra & Chattopadhyay, 2016).

Neighbourhoods are dynamic entities – they are the heart of the city and transitions in the neighbourhood reflect transitions in the city. The functions and needs are in continuous change from one neighbourhood to the next, one city to another, time to time, and according to the different social, environmental and economic roles of the diverse NBH inhabitants (Kay Saville-Smith, 2005). Each neighbourhood has some generic characteristics, which give identity to the neighbourhood. The neighbourhood can be defined through the following parameters: a) Spatial or physical features like population density, building density, travel times to various amenities, etc. (Ray, 2008); b) Uniquely associated activities within the neighbourhood like some land-use types or special features as in caste or occupation-oriented communities (Auerbach, 2017; Bahadure & Kotharkar, 2018); c) Interactions among neighbours (sense of belonging, social interaction and satisfaction) (Dempsey, 2008); d) Traditional self-governance, which decides lifestyle options (Cieslewska, 2010); and e) Boundaries delineated by the local authority (ward or block) based on population (Bahadure & Kotharkar, 2015; Kamble & Bahadure, 2021a; Kamble & Bahadure, 2021b).

Study area, Nagpur

Nagpur city is at the geographic centre of India and has good connectivity to other cities by air, rail and road. It lies at 21.15° North longitude and 79.09° East latitude and is 310 metres above sea level (NMC, 2012). The city is the 13th largest urban agglomeration in India (GoM, 2020).



Figure 2: Location of Nagpur in India

The city of Nagpur has grown from a group of small hamlets 300 years ago into a city of 2.5 million in 2011. The city has experienced huge transitions in throughout this period. It has been developed under different rulers since its formation. Tribal Gond King Bhakt Buland Shah founded the city in the 1700s, later in 1743 it became a part of the Maratha Kingdom under the royal Bhonsale dynasty. A century later, in 1853, the British East India Company took over Nagpur. The British Central government made Nagpur the capital of the Central Provinces and Berar by recognizing it as the administrative and institutional centre. Post-independence, Nagpur remained the capital city of the Central Provinces, which were merged in the Madhya Pradesh state. In 1960, Nagpur was merged with Maharashtra State along linguistic lines with the status of the winter or second Capital of India (Bhole et al., 2002). In 2002, Nagpur celebrated 300 years and remains a major administrative, political, cultural, scientific and educational centre (NMC, 2012). The city has witnessed many development activities in the past few decades. It is one of the best cities in India with a high level of liveability, greenery, public transport, and health care facilities.

The city was divided into 135 wards for administrative purposes with a similar population range of $15,000 \pm 1,500$, as per the 2001 Census. Wards vary in terms of characteristics like spatial distribution, development pattern, age, etc. These wards can be considered as neighbourhoods for the sake of this study (Kamble & Bahadure, 2021c; Ramachandra et al., 2018; Bhatta, 2009).

Methodology

The methodology can be divided into three parts (Refer Table 1). The first part studies urban transition with the help of maps and figures obtained from gazetteers and local planning authorities. It helps in studying the morphological transition in the urban area. The second part identifies neighbourhoods that evolved at different periods in the urban area and have distinct characteristics for further study. The third part involves analysing data from the identified neighbourhoods. This helped in understanding the current state of neighbourhoods concerning the availability of amenities and the perception of the neighbourhood residents. The data is collected through primary means (physical, socio-economic, and household survey), and secondary data

from the literature. The spatial study is conducted with the help of on-site surveys in 2016–2017. The land-use and accessibility of the amenities were mapped on a google image and digitized using the AutoCad-13 software. Access to various amenities is measured by the on-site survey and distances are marked using concentric circles on the map. The study of perception tries to understand the neighbourhood in terms of safety, satisfaction, and interaction. A household survey was conducted based on the perception of the residents on a 5-point Likert scale (where 1-strongly satisfied; 2-satisfied; 3-neither; 4-dissatisfied; and 5-strongly dissatisfied). Thirty household surveys were conducted in each neighbourhood to get an insight into the socio-economic status and perceptions of the residents towards their neighbourhoods.

Road and neighbourhood safety is studied in terms of parameters like natural surveillance, citizen safety, and safety from theft. Satisfaction is studied using parameters like neighbourhood quality, availability of amenities, a sense of belonging, residents' wish to move to another neighbourhood, and their participation in social groups. The study explains various parameters like transport, morphology, people, and their connections with the neighbourhood.

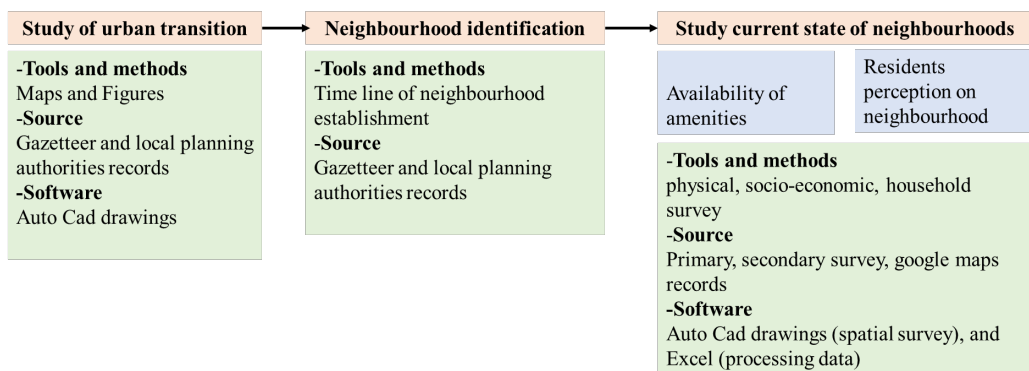


Figure 2: Methodology flow chart (prepared by the authors)

Results and discussion

Urban transition

Combing various maps showed a clear distinction in terms of the extent of urban areas at differing times. It shows how Nagpur has undergone transitions under Gond rule, Bhonsala rule, British rule, and subsequent urban expansions. The map shows the boundaries during Gond rule (1636–1743), Bhonsala rule (1743–1854) and British rule (1854–1947). Post-independence expansion of urban boundaries is shown for the periods (1947–1976), (1976–2000), and (2000–present). Figure 3 shows the timeline of the rulers and the periods for which the maps are studied; Figure 4 shows the boundaries during various rulers.

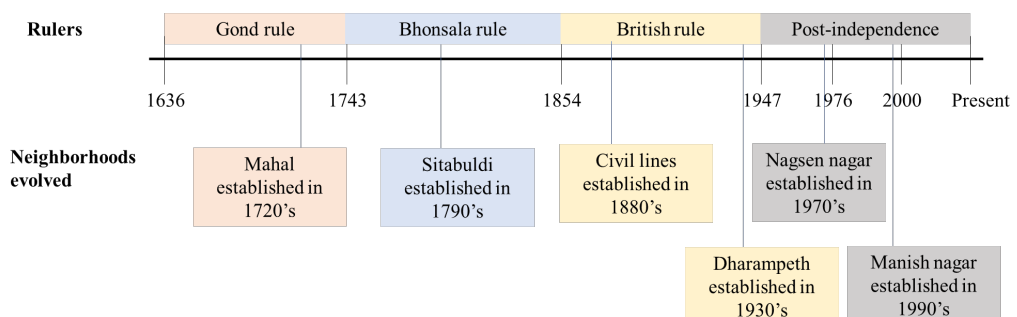


Figure 3: Timeline of various rulers and periods in the map study

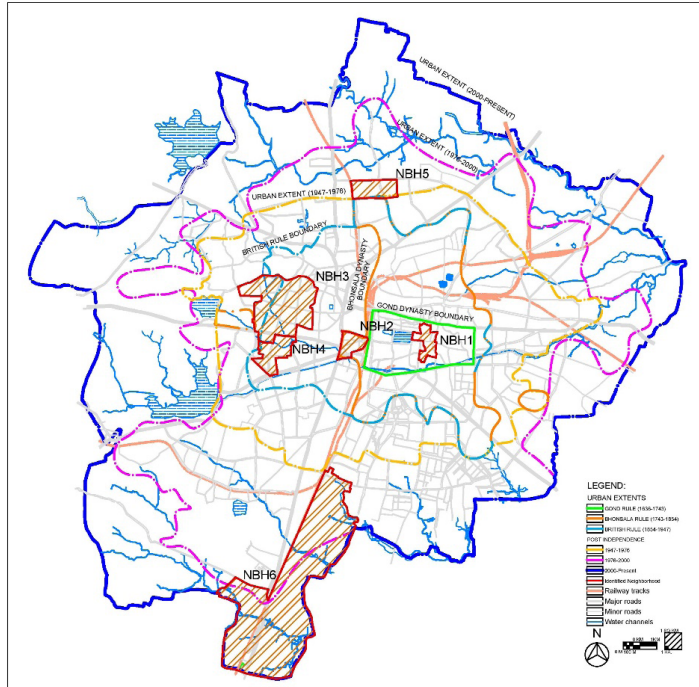


Figure 4: Nagpur map showing the extent of urban areas and selected neighbourhoods

Source: prepared by the authors

Neighbourhood identification

As the study is an investigation of transition, neighbourhoods were identified as per their existence in the changing time frame. The following six neighbourhoods are identified for the study: 1. Mahal (1720s); 2. Sitabuldi (1790s); 3. Civil Lines (1880s); 4. Dharampeth (1930s); 5. Nagsen Nagar (1970s); and 6. Manish Nagar (1990s). Table 2 presents the characteristics of the neighbourhoods, Figure 3 shows the years they were established, and Figure 4 presents the evolution of the city and the location of the neighbourhoods.

Table 2: Character of the neighbourhood

Neighbourhood (NBH)	Age (Years)	Population (2011)	Population Density (2011) pph*	Spatial Distribution/ Other Characteristics
NBH1- Mahal	300	14498	324	Core, Compact, Organic, Medium Rise High Density, Heritage and Retail Market
NBH2- Sitabuldi	200	10317	230	CBD, City Centre, Compact, Organic, Medium Rise High Density,
NBH 3- Civil Lines	140	12240	39	Administrative and Residential area in West, Planned Low Rise Low Density
NBH 4- Dharampeth	80	12343	158	Growth centre in West, Moderate dense, Low to Medium Rise Plotted Planned Development (larger plots)
NBH 5- Nagsen Nagar	50	18065	258	North Nagpur, Moderate dense, Low to Medium Rise Plotted Planned Development (smaller plots)
NBH6- Manish Nagar	30	33900	33	Sprawl growth in South Fringe Partly Planned and Partly Unplanned Sprawled Low Rise

Note: *pph (persons per hectare)

Source: prepared by the authors

NBH1 – Mahal

Mahal means Palace in the Indian language. Mahal had the fortified Palace of the Gond and Bhonsale kingdoms adjacent to each other. Currently, the partial footprints of the palace and gateway can be seen as most of them are in ruined conditions. During the Bhonsale dynasty, the city flourished, building new lakes, bauli wells, temples, and wadas (palatial houses) and promoting economic and cultural activities. Multiple occupations or caste-based self-sustained clusters (Chitnavispura, Telipura, Gavalipura, Kostipura, Kumbharpura, Mominpura, Dalalpura, Mangpura, Gondpura, Baraipura and so on) emerged in the vicinity of the Mahal area. Each of these areas previously had open space with a religious place for the congregation and interaction. Over time, people changed their occupation, encroached on streets, and open spaces.

NBH2 – Sitabuldi (Established at the end of the 19th Century)

Sitabuldi, which was on the west of the walled city, housed a fort. This was the Military Camp during the Bhonsale Period as it was on higher terrain. The British won a battle here in 1817. Gradually, the occupation and caste-based neighbourhoods started flourishing to the south of the Sitabuldi fort. At the beginning of the 20th Century, the British decided to expand the city to the South (Wardha Road) and Southwest (Amravati Road) maintaining Sitabuldi as the city centre. Post-independence, Sitabuldi became the CBD and retail commercial area of the contemporary city. Most of the residents migrated to new areas giving space for commercial activities. The East-West and North-South highway meet at the Zero mile, Sitabuldi is the geographical centre of the country, which was adjacent to the fort and the residential area. Currently, Sitabuldi acts as a major link for the movement of people and goods due to easy accessibility, the intersection of major thoroughfares, proximity to the railway station, metro and the intercity bus stand.

NBH 3 – Civil Lines (1880s)

The British acquired Nagpur, introduced railways, and made it the centre of new ideas. They built the new city to the west of the railway line and the old city remained untouched to the east of the railway line. They established their administrative units on Seminary Hill and residential area in Civil Lines. They planned areas with a well-defined land-use pattern using low-rise low-

density development on par with the garden city. Post-independence, Seminary Hill and Civil Lines continued to be the administrative centre with the government headquarters, offices and institutions. The old residential accommodation became the residences of government officers, and the adjoining areas were developed as the residential area for other government employees. This part of the city has good physical and social infrastructure with large open spaces.

NBH 4 – Dharampeth (1930's)

As mentioned above, the master plan by the British foresaw the expansion of the city. For this, a new growth centre was proposed in the southwest of the city at the junction of West High Court Road and Central Bazar Road at Bajaj Nagar, near Dharampeth. This area became the centre of the new city, Mahal remained the centre of the old city and Sitabuldi was developed as the centre of Nagpur city. The area had plotted development for the higher-middle and higher-income communities, most of whom migrated from the old city. The neighbourhood is planned based on British planning norms with plot sizes of more than 1,000 square metres, sufficient open spaces, gardens and playgrounds on par with the Dhantoli and Civil Lines areas. Gradually, it became a commercial, recreational and educational hub. Earlier, each plot had a bungalow surrounded by a lot of greenery, now these are changing to mixed-use high-rise towers. This change, which started on the major road, has percolated into the neighbourhood.

NBH 5 – Nagsen Nagar (1970's)

Post-independence, the increasing population due to migration demanded more residential space, so the city planning authority planned residential neighbourhoods as per the planning norms. Nagsen Nagar was one such neighbourhood that was planned with sufficient infrastructure facilities and enough accessibility to amenities and transit. The targeted income group was the economically weaker class (EWS) to middle-income group in North Nagpur.

NBH 6 – Manish Nagar (1990's)

The Nagpur development plan had a large green zone demarcation due to the presence of agriculture in the fringe, but now the area has been converted to non-agricultural use and developed as plotted layouts. On one side, neighbourhoods that were in vogue in the last few decades were planned, but sprawl and inorganic growth intruded towards the periphery green belt of the city. Leapfrog growth here left vast patches of vacant barren land. Manish Nagar is one such neighbourhood with huge patches of unutilized space, which are now being converted into layouts. Growth accelerated in the last decade due to the presence of an airport and newly developed Special Economic Zone and Multi-Modal International Hub Airport nearby, which increased the development potential of this neighbourhood.

Current state of the studied neighbourhoods

The neighbourhoods' current status and the prevailing concerns will now be presented. These will be elaborated through the land-use configuration, density distribution, peoples' perceptions and participation, community/ethnicity, and major concerns. This will help understand the present success and development of the neighbourhoods. For the neighbourhood studies, the most influential determinants are mobility behaviour and residents' well-being (Permentier, Bolt & Van Ham, 2011). This can provide information on the quality of the neighbourhood and further help in improving the deprived neighbourhood. So, at the end of this section, accessibility to the amenities and residents' perceptions of their neighbourhood will be displayed in a radar chart to identify the association of the residents with their neighbourhood.

NBH1 Mahal

Mahal (Figure 3) is the heart of the city with its history, culture, and past glory. It is a dense neighbourhood; a density of 347 pph (2001 census) has been reduced to 324 pph (2011 census). The presence of institutional open spaces are the only open spaces, so they are not significant at neighbourhood level. Gandhi Sagar Lake on the western side keeps the area cool. The area becomes most vibrant during festivals, but there is an increase in traffic congestion. In highly

congested stretches, to cross a distance of 200 metres it takes 10 minutes using two-wheelers and 15–20 minutes using four-wheelers.

Along with its historic importance, Mahal is also known for its retail markets meeting the need for groceries, clothing, restaurants, repairs, banking, and street and mall shopping. Commercial activities on the main road have started percolating into the inner streets congesting the narrow and organic streets. The floor space index (FSI) consumed is more than 2.0 due to high population and built-mass density. The plots are arranged organically adjacent to small lanes with no provision for parking inside the plot and secondary streets acting as parking space, increasing the burden on infrastructure.

There is a mix of Hindu (82%) and Muslim (18%) communities with further classification based on caste. The neighbourhood has very strong social bonding. Households, especially elderly people, have a strong sense of belonging compared to the new generations. Residents live here for a long time, they know each other and wish to stay. Natural surveillance is evident, and the areas are active even during the night time, so there are no major safety or security issues.

The major concerns in this neighbourhood are congestion, encroachment, inadequate transport, and sanitation infrastructure. In the rush for development and modernity, the traditional and cultural realm of the Mahal is missing.

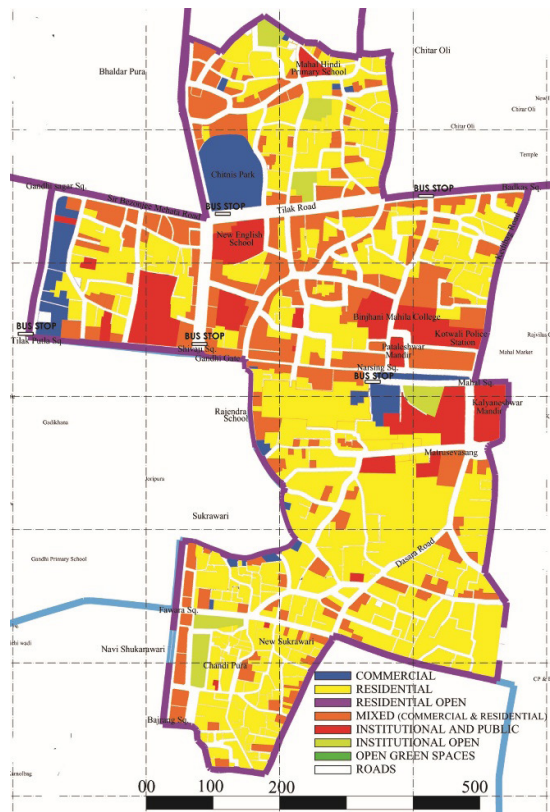


Figure 3: NBH1 Mahal, 2019

Source: Authors

NBH2 – Sitabuldi

Sitabuldi (Figure 4) previously had occupation (caste) based self-sustained clusters like Mahal. With the increasing commercial influx and high land-value, many residents have migrated to new

NBH3 – Civil Lines

Civil Lines (Figure 5) is a planned neighbourhood built during the British period in the pre-independence era. As per the 2001 census, the population density was 45 pph, which has reduced to 39 in 2011. It has public and administrative buildings in the eastern and central parts, residential and recreational facilities for government officials on the western side and a few pockets of non-government residential units to the southeast. It is the greenest part of the city with paved pathways, broad avenues and minimal encroachment. The neighbourhood is dominated by institutional and residential land use with less building footprint, leaving spaces for urban green areas. There are many educational and nationally reputed institutes like the National Fire Service College, National Civil Defence College, Judicial Officers Training Institute, South Central Zone, a cultural centre, etc.

There is a mix of communities as the residents employed in the government sector belong to different parts of the state and country. Few residents have settled in nearby residential areas after their retirement. Civil Lines is the most preferred destination for many residents in Nagpur due to its green environment and adequate infrastructure.

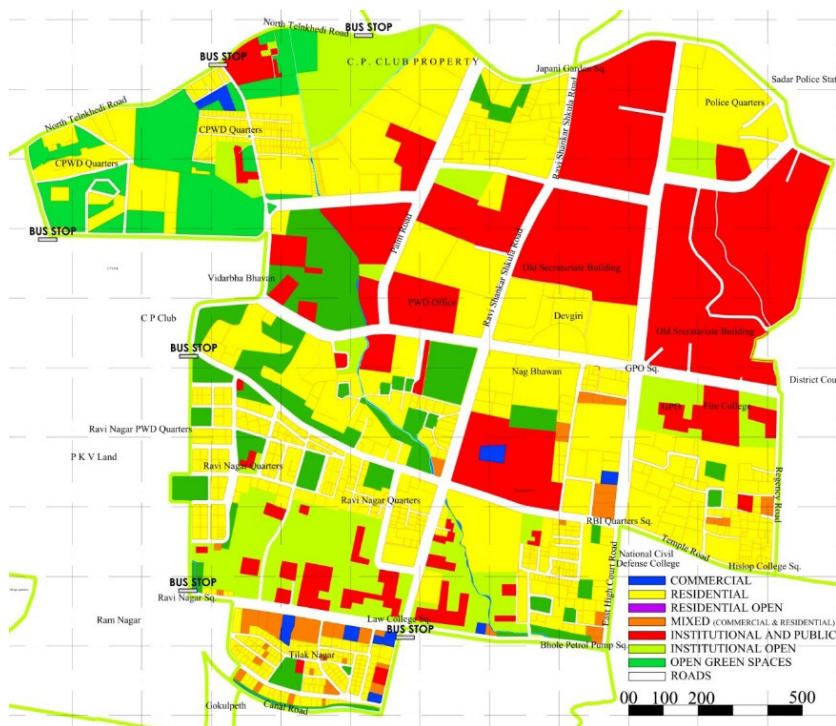


Figure 5: NBH3 Civil Lines, 2019

Source: Authors

NBH4 – Dharampeth

Dharampeth (Figure 6) has a density of 181 and 158 pph as per the 2001 and 2011 census respectively. The planned layout included large plots with a bungalow surrounded by a lot of greenery; this is now changing to mixed-use high-rise towers. This transition, which started along the major road, has started percolating into the neighbourhood. There are commercial centres (textiles, stationery, books, jewellery, etc.), restaurants, cinema halls, health facilities, educational institutes, along with residential use, and therefore various amenities are nearby. The neighbourhoods are safe except along the main road, which carries very high traffic volumes. Within the neighbourhood, noise pollution is less but the major roads have high noise levels. There are no major physical infrastructure issues (except parking on the major road).

The residents exhibit strong social bonding, as they have been residing there for a long time. They have a strong to moderate sense of belonging. In-migration is also noticeable as the conversion of residential plots to mixed-use and multi-dwelling apartments has increased the dwelling capacity.

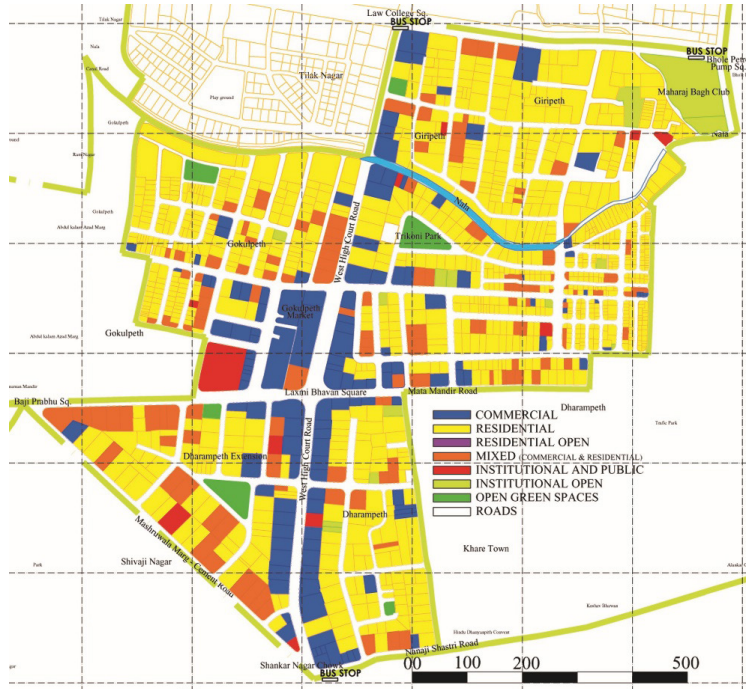


Figure 6: NBH4 Dharampeth, 2019

Source: Author

The residents have high car ownership compared to other parts of the city. The expanse of economic activities has drawn the workforce, so now there is a mix of income groups. The elite dominate the western and southern parts; the middle-income groups reside in the central market area, and the middle and lower-income group resides on the eastern side of Dharampeth, also known as new Dharampeth. A high number of residents have their workplace near their residence. The neighbourhood has a mix of Marathi, Punjabi and Dravidian communities.

NBH5 – Nagsen Nagar

Nagsen Nagar (Figure 7) is in the northern part of the city. As per the 2001 census, the population density was 230 pph, which has increased to 258 in 2011. Adjoining the Jaripatka neighbourhood is a flourishing market that provides easy access to retail for the residents. The neighbourhood has a few pockets of colonies developed by the Housing Board on both sides of the road (planned by the government for Economically-Weaker-Section (EWS), Low-Income-Group (LIG) and Mid-Income-Group (MIG)); the Higher-Middle-Income-Group (HMIG) plotted development is in the northwest of the neighbourhood. The plots on the main road are commercial at ground level and residential on the upper floors. Within the neighbourhood, public buildings, religious institutions, gardens and open spaces support the residential activities. Neighbourhoods have enough gardens and small open spaces at the cluster level.

The neighbourhood has a high percentage of the business community and this makes it vibrant and active even until late at night. Natural surveillance is present due to the diverse mix of income, tenure and housing. Many residents have their workplace nearby within a range of four kilometres. Residents have a moderate to strong sense of belonging. The neighbourhood has a mix of Sindhi and Marathi communities.



Figure 7: NBH5 Nagsen Nagar, 2019

Source: Authors

NBH6 – Manish Nagar

Manish Nagar (Figure 8) is a sprawling neighbourhood in South Nagpur. The area is developing at the fastest rate compared to any other neighbourhood in Nagpur. It had a population density of 15 pph in the 2001 Census, which doubled to 33 in 2011. The area between the Ring road and Beltarodi road divides Narendra Nagar from Manish Nagar. The northern part of the Narendra Nagar ward abutting the ring road has a very different character to Manish Nagar, so it is not included in the study area.

There is variation in the built mass throughout the neighbourhood. The major road has multi-storeyed buildings while other areas have sprawling low-rise residences and apartments. They lack basic social and physical infrastructure. There is a scarcity of quality education or health facilities nearby. Access to the water supply line, drainage line and solid waste disposal is inadequate. The road network is incomplete and does not provide access to all plots in the neighbourhood. Many roads lack streetlights. There are large open spaces throughout the neighbourhood, but the tree cover is sparse, and the open spaces are unorganized.

Residents are recent migrants from the core city and nearby region. There is a mix of ethnicity, religion and income groups. The residents have a moderate to low sense of belonging. Residents feel they are disconnected from other neighbourhoods and social life due to the absence of a close community. The building occupancy rate is less than fifty per cent. Amongst that, more than fifty per cent of residents are tenants who tend to move often. Surveillance is low here leading to a high theft rate.

Accessibility to amenities

The older neighbourhoods (NBH1 & NBH2) have good accessibility to all amenities except green spaces, as these spaces were occupied over time to accommodate the growing population (Figure 9). The planned NBH3 has good accessibility only to the green spaces. The planned new neighbourhoods (NBH4 & NBH5) have better accessibility than other neighbourhoods do. The sprawling NBH6 has poor access to most amenities. The most convenient access amongst all amenities is for shops followed by public services. Health and education facilities have moderate access. There is a disparity in access to green spaces.

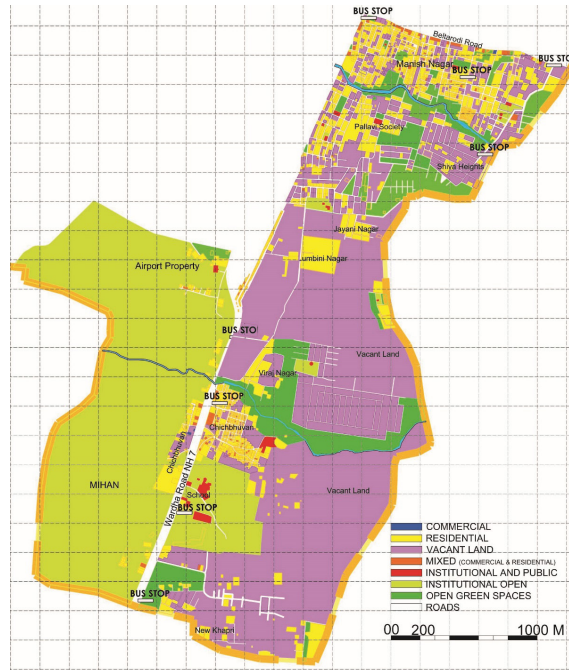


Figure 8: NBH6 Manish Nagar, 2019
 Source: Authors

Residents’ perception

Road and neighbourhood safety is studied in terms of parameters such as natural surveillance, personal safety, and safety from theft. Satisfaction is studied using parameters such as neighbourhood quality, availability of amenities, sense of belonging, residents’ wish to migrate to another neighbourhood, and their participation in a social group. Quality amenities within the neighbourhood satisfy the residents. Poor quality neighbourhoods lead to residents migrating to another neighbourhood. The sense of belonging seems to be highly related to the social parameters rather than the physical ones (Author & other, year). Overall satisfaction is above average for most of the parameters (Figure 10). The older neighbourhoods (NBH1 & NBH2) are safer with a high level of natural surveillance but have poor road safety. They interact and take active participation in social activities and have a wide social network in their neighbourhood.

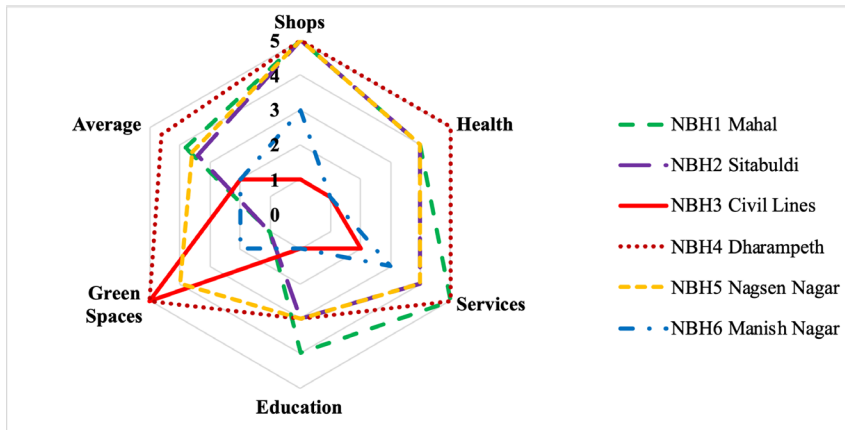


Figure 9: Accessibility to Amenities within neighbourhoods (1 is poor and 5 is good accessibility)
 Source: authors

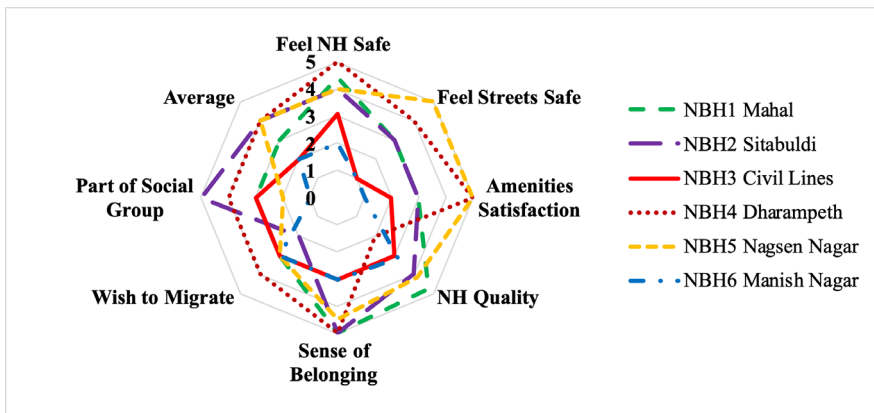


Figure 10: Residents' perception

Source: authors

Conclusion

Understanding how the city has transitioned from the past to the present helps to record the differing political, social, economic and technological needs at different times. Conducting investigations at neighbourhood level provides an opportunity to study them at micro-level and understand the reasons for the transitions along with their social implications.

While the city was undergoing transition, the diverse yet harmonious neighbourhoods were also evolving. The city expanded concentrically, and this expansion demanded the insertion of new neighbourhoods. The evolved neighbourhoods in Nagpur can be broadly identified based on characteristics such as: i) rooted caste or occupation – for example, the Pura's (mohallas or settlements) and Oli's (lanes/streets); ii) community with a strong sense of belonging – for example, the Bohra Muslim Mehandi-Bagh neighbourhood; iii) emerging neighbourhoods (layouts) in suburbs with no or little planning interventions; iv) income group housing – for example the EWS, LIG, MIG and HIG housing board colonies; or v) planned new housing projects – for example, the Pyramid and Sahara City. Each of these neighbourhood categories has distinct characteristics.

This transition study, which is a method that is gaining popularity in the research, helped in understanding: 1) Various notable changes in the city planning at different times. Although Indian cities are claimed to have evolved organically, they involve certain planning principles whenever a new neighbourhood is laid out, which may change according to time. For example, the focus of the planning during the Bhonsale period was a temple for religious activities, while during British rule, it was institutional buildings for administration. 2) Changes brought out in the original planning to suit the needs of the people. For example, even though old neighbourhood residents have a strong sense of belonging, many prefer to migrate as they face a poor quality of life because of congestion, poor infrastructure and a lack of open spaces. The high land values impose pressure to change the residential space in favour of commercial use. The neighbourhoods established during British rule show poor access to amenities and safety issues generated due to vacant streets and low-rise development resulting in intermediate scores. 3) The satisfaction level of people currently residing in the neighbourhoods. For example, even though the neighbourhoods have evolved from the past to the present, they retained their social and cultural traditions, which is remarkable for their existence. For instance, old NBHs are still very attractive and safe for the residents. Certain aspects should be safeguarded to maintain the charm of the place. 4) Factors that may alter the satisfaction levels. For example, old neighbourhoods need infrastructure upgrading and planning interventions that reduce the negative effects of high-density (Churchman, 1999). NBHs planned during British rule were made considering that it is for the elite class hence amenities like daily needs, and other amenities are poorly planned. This makes people perceive the NBHs average in terms of user-satisfaction. NBHs planned after independence and until the 2000's match with

today's technological progress and people's needs. However, newer the NBHs that are emerging due to urban sprawl need attention in terms of physical infrastructure. The correlation between urbanization and economic growth is well established (Shaban, Kourtit, & Nijkamp, 2020). This offers Indian cities an opportunity to improve the quality of life for urban residents. However, it depends on how the transition is designed and managed. A study such as this one that moves from the past to the present helps us understand the city as a whole and provides planning interventions for the future. Many researchers caution that transition in Indian cities is unplanned (Sankhe, et al., 2010), (Sharma & Sandhu, 2013). For a country with a vast history, such studies are required for planning the future growth of cities and retaining the inherent character.

The case study of Nagpur emphasises that although most Indian cities underwent a similar transition, they might show different characteristics by virtue of their planning, location of various amenities, establishment year, etc. Therefore, each city and every neighbourhood should undergo a transition study before any conclusions are made. This also emphasises that neighbourhood level policies should be an integral part of city planning, and they should vary in line with the location of the neighbourhood. It can also be seen that unlike other regions in the world, Nagpur residents had no issues with high density planning even though it had less open spaces. This is due to the social bond and cohesion that the residents have developed throughout the years and generations. Therefore, while understanding the dynamics of place, along with physical characteristics, many aspects may mediate the results. The study has explored a few of these while there is scope for future research to verify other aspects and their effects on urban transition.

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Sarika Bahadure is an Assistant Professor at the Department of Architecture and Planning, Visvesvaraya National Institute of Technology, Nagpur, India. She joined the profession in 1999 and since then, she is involved in teaching, research, and administration. Her research areas are Design, Sustainability, Materials, Construction, Urban Planning, Neighbourhood, and Pedagogy with more than 35 research publications.

Tanushri Kamble recently completed her PhD thesis at VNIT, Nagpur. Her research topic focused upon the sustainability aspects in urban neighbourhood. She has published her work in reputed journals and has received prestigious awards during her academic course. Her research interests include neighbourhood density, sustainability, and teaching pedagogy.

Appendix 1

HOUSE HOLD SURVEY for the research work on 'Neighbourhood Transition'

Date:

General information

Neighbourhood Name:

Name of the occupant:

Land use: Residential /Commercial /Mixed /Other..... Property- Owned/ Rented:

Plot Area: Built up area:..... Front Road/Street width:

Type of building (A/RH/B/O): Apartment/Row house/Individual multi-storey building with common wall/ Individual building/ Bungalow /Other: No. of floors:..... FSI Consumed:

Living since: 0-10 years 11to 30 year 30 to50 years more than 50 years

Building Age: 0-10 years 11to 30 years 30 to50 years more than 50 years

Open space around building (in m): front..... rear..... side1..... side 2

Condition of structure: Good Moderate Poor

Family Details+ Travel habits:

Member	Age	Sex	Education	Occupation	Income	School/ Work Place Distance	Mode	Time

Member: Head(H); Wife (WF); Son (So); Daughter (DA); DA in law (DL); Parent (PT); and Others (OS)

Age: 0-5 (1); 6-15(2); 16-24(3); 25-45(4); 45-60(5); 60 above (6)

Education: Primary (P); Secondary(S); Diploma (D); Graduate (G); Post Graduate (PG); Uneducated (UE)

Occupation: Service(S); Business (B); Retired(R); Nonworking (NG); Student (ST); House-wife(HF)

Monthly Income (Rs.): Below 10,000(1); 10,000 to 40,000(2); 40,000 to 70,000(3); 70,000 to 100,000(4); 100,000 to 200,000(5); and 200,000 above (6)

Mode: Walk (W); Cycle(C); 2-Wheeler (2W); 4-Wheeler (4W); Bus(B); and Others (OT)

Accessibility to Amenities and Residents' Perception (strongly satisfied to strongly dis-satisfied)

Type	Distance	Mode	Visit frequency	1	2	3	4	5
Shops (Daily Needs)								
Health/Hospital								
Services: Banks/ATM Post Office/Police Station, etc.								
Education								
Parks/Green Space								

Visit frequency: Daily(D); Weekly(W); Monthly(M); Quarterly (Q), Yearly (Y); and Never(N)

Vehicle Ownership in numbers: Cycle..... 2 Wheeler..... 4 Wheeler Others.....

Walkability

Your neighborhood encourages you to: a) walk/cycle; b) use 2- Wheelers; c) use 4-Wheelers; or d) others
Total distance (in meters) walk per day/week by each member of the family

Residents' Perception

	1	2	3	4	5	Elaborate the concerns or issues
Feel Neighborhood Safe						
Feel Streets Safe						
Amenities Satisfaction						
Neighborhood Quality						
Sense of Belonging						
Wish to Migrate						
Part of Social Group						

Any special feature or comment regarding Your Neighbourhood and/or travel habits:

.....

.....

Thank You for sparing your valuable time.