Urban planning ideologies, application and challenges of the New Delhi region

B. van Druten, P. Haring, J. Marchand, R. Pullens, A. Seweuster, W. van Waas, S. Wijsman

Eindhoven University of Technology
7QW3M0 Urban planet

Keywords; New Delhi, Urban planning, Social inequality, paradigm shift, democracy

Introduction

Looking at the New Delhi metropole region, a striking difference is seen in the urban fabric between Old and New Delhi. Old Delhi is extremely dense, grey and noisy with the buzz of the street shops. New Delhi, on the other hand, is the epitome of calmness. Green spaces and large streets dominate this part of the city, showing that these two parts of the city are polar opposites. Initially, the research proposal was to investigate how this difference in density developed over time and how this difference in density persisted, even after India's independence.

In addition, differences in attitude towards representability of spaces are also discernible. In which New Delhi is perceived as a green and lush environment full of private green spaces and grand public boulevards, whereas Old Delhi is a mix of chaotic, lively streets without a clear and organized layout. The public spaces in New Delhi were strictly planned and are to this day a representation of the grandeur of colonial times. Old Delhi has been "neglected" since the beginning of colonization, which is shown in the unplanned street patterns. The inhabitants of Old Delhi were allowed to build wherever they wanted, and the colonial officers did not interfere nor significantly help the relatively poor Delhiites. As the research progressed, the overarching research question gradually shifted towards:

How did the contrast between the poor and rich in Delhi develop over time and to what extent are they caused by (post)colonial ideologies?

This question better captures the intent throughout the series of papers, ranging from the conception of the plan, the realization and its final application to current issues. It is important not to resort to Western models of thinking and problem statement as the perceived difference density is not necessarily regarded as an issue by Delhiites. Rather, the persevering effect of planning practices contributing to social inequality, which was found to be a recurring theme throughout this research.

A series of three papers investigated the topic of inequality throughout three stages of the plan, which are bundled together in this booklet. The first paper addresses the origin of the plan for New Delhi as well as the accompanying ideology. It turns out that the difference in density was present ever since the plan was realized. This is the topic of the second paper, in which discrepancies between the original plan and its application are researched. Slight changes have since been made in terms of densification and more importantly, a transfer of power has occurred in which the Indian government transitioned from British imperialism towards a democracy. This, in turn, affected the planning policies of India and contemporary problems Delhi faces, which is the focus of the third paper. It elucidates the clash between the imported planning ideals from the Global North to Delhi's context, which instigated various severe inequality issues.

Methodology

In order to answer the overarching research question, each paper will present their own specific research question related to either the ideology of planning, the realization of the urban models in Delhi, or the current challenges Delhi is facing. This means that each paper will also use its own methods to answer these questions. However, all papers have used some overarching methods as well. In general, two methods were employed in all three papers, which are literature review and town plan analysis.

Doing literature reviews provided qualitative information concerning topics on a human perspective. For the first two papers, it mostly concerned actors, their opinions, contributions and their distinctive influence on the plan for New Delhi. It was helpful in analyzing its history as well. In the third paper, it provided information regarding specific issues troubling inhabitants.

The town plan analysis was employed for investigating cartographic material, thereby allowing for the allocation of changes in the general structure of the plans. Qualitative information could be mapped spatially as a means to visualize and analyze specific cases. Additionally, correlations in information found during the literature review could be attributed to the urban fabric in the mapping analysis. Moreover, dormant values encompassed in the urban fabric were uncovered in the analysis, thereby providing in more qualitative information furthering the overall analysis.

After writing the three papers, the overarching research question had to be answered. In order to properly do this, a section for overarching problem statement and aims was included, where the three papers are dissected and a setup is made for the concluding sections of the booklet, including a scenario analysis. Different methods were employed for generating scenarios. Since they were not part of the three papers, but rather of the overarching conclusion that will be presented later, this process is mentioned here briefly. First, the generation of scenarios started off by a brainstorm session. Each person separately prepared for this session by thinking of several ideas that could solve the pertaining solutions in Delhi, after which these were all discussed in a meeting. Second, two overarching themes were distilled from all possible solutions. These themes will be thoroughly discussed in the corresponding section. Finally, from each scenario the benefits and limitations were researched, which led to the final conclusion of the booklet.

Constituent influences in New Delhi's eclectic city model

R. Pullens, S. Wijsman

Eindhoven University of Technology
7QW3M0 Urban planet

Keywords; New Delhi, City Beautiful, Urban planning, Colonialism, Inequality

Abstract

This research departs from King's (2015) assertion that "colonialism has been a major historical force shaping settlements and cities" of which the spatial effects and implications on democratic aspirations can be perceived to this day. (p. 29). Imperial Delhi, known as New Delhi nowadays, was established under British colonial domination. It is therefore imbued with symbolism and spatial manifestations of the imperial power structure, which impedes the democratic aspirations of the city. The attitude developed towards dealing with the indigenous population resembles present day practices employed to marginalise the poor. A proper understanding of the historic origins of the city therefore aid in alleviating current problems that have persisted since New Delhi was established.
The spatial structure of New Delhi's plan is examined, as well as the ideological background that accompanied it. Lutyens profound knowledge of history and developments in urban planning has influenced New Delhi through various models of urban planning: The City Beautiful movement, the Garden City movement, Beaux arts as well as precedential plans for several cities throughout Europe. The resulting effect of each model will be pinpointed and explained by the lasting effect it were to achieve in terms of morphology.. Furthermore, this paper endeavours into unravelling New Delhi's origin within the colonial system as this explains the motives behind the plan.
An historical background is provided through a literature study. After which, literature was consulted to uncover actors' intentions in the precedential plans that influenced New Delhi. Urban morphology was researched in a town plan analysis and related in a comparative mapping analysis. The constituent influences for New Delhi's plan synthesised in the feat that its morphology, although attributed to the City Beautiful movement, deviate in terms of ideology as it refuses to adhere to the values of democracy. Instead, it conveys a message of ambiguity in which the colonial character is reinforced.

Introduction

Delhi suffers from a wide range of social, economic, environmental and quality of life related issues that are magnified in social exclusion and inequality. Severe air pollution affects the poor who cannot afford to pay for protective measures, whereas the wealthy can afford to leave the city. (Van Raaij, 2019;). Rapid population growth further aggravates social inequality as endogenous factor to climate change, because it is expected to additional stress Delhi's water availability (Heinrichs, D., Krellenberg, K. & Fragkias, M., 2013). Furthermore, the already congested transport system is too expensive for some, who prefer to sleep on the streets rather than returning home. This way, they can at least earn some money. (Speak, 2012).

Proclaimed quality of life rights of higher classes are at the expense of the poor, who are often criminalised. (Dupont, 2011; Truelove, 2011). The urban poor account for one third on a total of fifteen million people and nearly half of the housing stock was composed of illegal, informal development in 2000. (Truelove, 2011; Speak, 2012). Haphazardous and unplanned growth has been considered a threat

to Delhi ever since the first decade of independence. Ironically, the city relied on large populations of working class labourers for its development initiatives without the intent of housing them. "The building of planned Delhi was mirrored in the simultaneous mushrooming of the unplanned Delhi" (Baviskar, 2003,, as cited in Truelove, 2011, p. 146). "With every renewal of state's efforts to create infrastructure, thousands of migrants entered the city to work as laborers on its many development initiatives and often struggled to carve out livelihoods after the termination of temporary employment." (Truelove, 2011, p. 146). Dominant planning rationales exacerbated living conditions of the poor who dwelled in slums by evicting them to more peripheral, exclusively residential locations, where there is limited access to sanitation and clean water. Since the allocated plots are too small to accomodate the average household, economic activity at home certainly is impossible. This in spite of the desire for homegrown food for consumption or trade and a lack of opportunities to engage in paid labour elsewhere. (Speak, 2012). Furthermore, efforts to cleanse the city of squatter settlements for aesthetic purposes led to de-industrialisation of the city, limited working class employment in favour of the globally operating finance and service sectors. (Truelove, 2011).

These poignant living conditions form a stark contrast to the wealth of New Delhi, originally conceived as a suburban extension, provided for 30.000-57.000 inhabitants as addition to the old city, which by 1936 was estimated to house 100.000 more people than its capacity. (Gupta, 2005; Irving, 1981). Moreover, the partition of India initiated an influx of an additional 915.000 inhabitants to the capital in a timespan of ten years. (Gupta, 2005). The marks left on the city are perceived in the contrast between New and old Delhi, the former accounting for 3800 people per km2, as opposed to 23.000 people per km2 in the old city. (Government of India, 2011). The assessment to what extent planning policies for New Delhi exacerbated inequality problems is the essence of a series of three papers, in which this paper focuses on the conceived city model from the colonial era.

This paper departs from King's (2015) statement that "colonialism has been a major historical force shaping settlements and cities" of which the spatial effects and implications on democratic aspirations can be perceived to this day. (p.29). The purpose of this paper is to provide insight in the development of Delhi and its constituent influence on the present. Central is the question: To what extent did the values imbued in the plan for New Delhi influence equality issues observed in the present day? The plan was informed by early twentieth century notions of urban planning and is attributed to the City Beautiful movement. However, several other models of city planning were influential for its development, these are: the Garden City movement, Beaux Arts and multiple European precedents belonging to other planning rationales. One can therefore wonder whether the City Beautiful ideology was uphold and question: what did the resulting ideology convey? To attest prevailing inequality issues to imbued values from the colonial era, it is important answer the question: what influence did the merger of urban planning models have on the eclectic plan for New Delhi?

Existing research on New Delhi refrains from explaining New Delhi's planning model as constituted by various, sometimes conflicting planning ideals. It either reports on the development of New Delhi's plan, including the intention of the designers, or is elaborates on the different movements in urban planning. By synthesising these types of theory in a literature study, both constituent influences and substantive notions of their underlying principles come to the fore. Furthermore, a thorough mapping analysis of New Delhi is lacking in existing studies regarding this subject. The addition of mapping analysis to existing research serves as a means to translate the ideological influences spatially. Pinpointing morphology that was inspired by a certain model of urban planning allows for unraveling the eclectic nature of New Delhi. In addition, it helps uncovering where a certain urban planning model prevails and where it is dominated by others.

Incorporated values and ideals based history, from other cities, plans and movements will first be accumulated to reconstruct their influences on New Delhi. Once the broader notion of what constitutes to New Delhi's model is established, deviations in incorporated ideals will be elaborated upon. This paper starts by addressing the history of Delhi, which originated from the colonial power structure. It will be complemented by the correlation between colonist housing ideals and Garden City planning rationales. After which, Beaux arts planning ideals and European precedents will primarily be elaborated in the way they shaped the geometric nature of the plan. From a historical perspective, the importance of the Beaux arts, with its neo-baroque planning informed by Haussmann's boulevards in Paris and Rome's system of ordered vistas would both be reflected in the City

Beautiful movement as well as inspire the plan for New Delhi. The monumental grouping and organising scheme employed to convey the imperial power structure, however, was also inspired by the White City, Washington and Canberra as part of the City Beautiful movement. Discrepancies in ideology emerge in the evaluation with Chicago, from which this paper argues that the dormant values of New Delhi's plan suppress its ability to propagate democracy in the present day.

Methodology

In order to understand how New Delhi was conceived, it is important to investigate both its colonial history as well as planning history that informed design decisions. The former provides the motives for what was to be achieved and explains the reasons behind its overarching morphology, whereas the latter puts the plan in perspective regarding urban planning paradigms and ideals. This approach is loosely distilled from King's (2015) notion that town planning shaped by colonist ideology led to spatial implications impairing the transition from imperialism to democracy. This paper's timeframe is concerned with events occurring until New Delhi's plan was conceived in 1913, the other two papers from this series will continue to the present day. However, on occasion some events were portrayed occurring beyond the timeframe as outcome of processes already taking place. Three complementary methods were employed: a literature review, mapping analysis and comparative mapping analysis.

For Delhi's colonial history various sources of literature were used based on two types of content. The first type of sources provided information regarding Delhi's colonial history dating back to the Mughal or British imperial period that could be ordered chronologically. This allowed for insight in information gaps as impetus for further research. The focus was on qualitative, objective information. The second type of literature evaluated the intents of colonialism and especially the way Britain affected developments in India. Here, authors present their own reading of history and interpreted information to give value judgements. The historical overview is by no means an attempt to be exhaustive as it is only concerned with the overall intents.

This paper uses Irving's (1981) book Indian Summer in which he documented the entire planning process for New Delhi as framework for the planning ideologies. Irving elaborated on what plans, cities and ideals inspired New Delhi's planning committee, including what members of, the planning committee and the Viceroy defined as source of inspiration. It drew from primary sources and as such proves to be more accurate in its descriptions. Further research into the ideology of urban planning movements was required as Irving did not elaborate upon ideals other than those incorporated in the plan for New Delhi. For this purpose, Manieri-Elia's article, Toward an 'Imperial City': Daniel H. Burnham and the City Beautiful Movement, was used to position New Delhi in relation to other City Beautiful plans. This book provides a broad insight in the City Beautiful movement. For more specific information regarding a certain planning movement other literature was incorporated.

In addition to the literature, New Delhi's plan was analysed in a mapping analysis to uncover dormant patterns that are only observable through drawing them repetitively. Here, the information was split in several layers indicating a single subject each. This way, information could be combined and separated at will. In order to compare different cities and plans, the information was translated spatially in maps. A similar drawing style was employed, which helped observing parallels and discrepancies between plans. Differences in the base maps were muted by only incorporating the information that was available throughout the various cities. An unfortunate omission is that of the parks in Delhi, because they were not visible in the plan presented by the Delhi planning committee. Therefore the mapping analysis could only incorporate the attitude towards plot allocation and the governing structure of the plan. To conclude the comparative mapping analysis, the map for Delhi was coloured according to the distilled influences.

Rather than building towards a conclusion based on a hypothesis, at first, parallels between sources of information were sought. Only when the general structure of the argument presented in this paper was clear, sources were used in complementary manner to build towards a conclusion. This was done to avoid a confirmation bias and forced thinking beyond a Western context by looking into contemporary issues in Delhi. Taking King's approach to investigate spatial structures helped defining the scope to a manageable level. Conflicting information was found in the consulted literature, however, validity is warranted by checking whether the presented information is in-line with other sources. Discourses are presented where uncertainty arised.

Colonial history

Dynasties of conquest established fifteen cities predating current Delhi as augmentation of prestige, of which the first dated back to 1450 B.C. A dozen of cities were already in desuetude and ruin before the first Mughal emperor set foot in Delhi in 1526, which had been the capital of many prior empires. (Irving, 1981). Current old Delhi, Shahjahanabad, was established by the Mughal emperor in 1639 when the decision was made to relocate the capital from Agra. (Spear, 1937).

The Mughal empire, although of Muslim origin, displayed religious conciliatory behavior towards, amongst others, Hindus in its heydays, however successive emperors became increasingly intolerant against other religions. Moreover heavy taxation impoverished the farmer population eventually resulting in the (economic) decline of the empire. ("Mughal dynasty," 2018). Eventually, the empire collapsed and split up. Delhi was lost to the Marathas in 1759. (Capper, 1997). At the start of the nineteenth century, governance was superseded by the East India company. The British were invited as protectors of the crown by the Mughal emperor, who was losing the war to the Marathas. (Gupta, 2005).

The mutiny, also known as the united rebellion and the first war of Indian independence, spelled the definitive end of the Mughal empire. It was a period of rebellion against the British power in 1857 and was initiated by Indian soldiers, mostly Muslim, who disapproved of the violation of their religious sensibilities by British officers. The growing uprising attempted to re-install Mughal rule in India and gained support from the Mughal Emperor. British officials put an end to the uprising by slaughtering civilians indiscriminately, after which they conquered India. The British East India Company was abolished and superseded by direct control from London. After the mutiny, British officials developed a sense of racial superiority and depicted India as chaotic and dangerous, because the only way to avoid massacres between Muslim and Hindu communities was through Britain's exercise of power. (Chakravarty, 2005; Gupta, 2005)

This exercise of power was strengthened by the eviction of the Mughal emperor. It represented a change in relation between the two empires. Where British presence in India used to be of mutual benefit and under the approval of the Mughal emperor, it henceforth consisted of a British military presence by colonial subjugation. (Johnson, 2008; Ridley, 1998).

In the years succeeding the mutiny, the disastrous division of Bengal was met with resentment by the Hindu majority, whose political power was deliberately mitigated by the subdivision in east and west Bengal. Muslims on the contrary gained power through the political decision instigated by the previous Viceroy, Lord Curzon. (Irving, 1981; Johnson, 2008). The turmoil in Bengal would inevitably spell more trouble if action were to be refrained. A proposed alteration of the division, however, raised concerns about, once again, submerging a Muslim majority in a hindu province by modifying the division. It was therefore deemed 'impracticable' by Viceroy Hardinge as it would have infuriate the Muslims. Instead, political reforms were issued with urgency to disassociate central government from any single local government. (Irving, 1981).

As such, India's role within the British empire was subject to change. With the detachment of central and local power, Indian attention was directed towards provincial self-government, while Britain's domination was reinforced. The India act, issued to supervise India's transition towards independence, demanded British parliament to evaluate, on a ten year basis, to what extent India progressed towards responsible government. Nonetheless, the British proclaimed that their imperial role had not weakened, but rather changed to a role of educator. These liberal political reforms, with the intent to pacify Indians, reaffirmed the existing colonial order and power structure in a reconciliation of democracy with imperialism and were symbolised in Delhi as the imperial capital. (Johnson, 2008)

The position of Calcutta, which at the time housed the British seat of Government, had been up for debate since 1782. However, "Delhi's claim to replace Calcutta as the focus of British rule in India were promptly discredited by her role in the mutiny" (Irving, 1981, p. 16). Nevertheless, the debate was reinvigorated after 1902 and plans were made for the transfer of the capital as it facilitated the aforementioned changes in administration. The Viceroy, officials from the Indian Government and Indian princes all voiced that Delhi would be more befitting of a capital, because of its historical association to the ancient government of India. British officials also argued that Delhi's climate was more suitable to them than Calcutta's. (Irving, 1981). Furthermore, this move should be seen as conciliation to the Muslims. (Ridley, 1998).

The Durbar, an official ceremony held for the coronation Of King George V in India, signified the culmination of the political discourse. As the days of Britain ruling India seemed numbered, the royal visit should be seen as a trump card to salvage supremacy.

Expectancies of a grand political gesture to occur at the Durbar were justified when the King announced that the changes in administration and plans for the transfer of the capital. These plans had been made in secret with the intent to strengthen the impact it were to achieve. (Irving, 1981).

Part of these plans was a new expansion to Delhi, which was required to accommodate for the new administrative buildings as well as housing for the British elite. The New Delhi town planning committee was established in order to realise the expansion. and was commissioned with the choice of site and the general planning of the city. They would display an holistic approach to urban planning and were concerned with: water, drainage and sewage systems, preservation of existing structures, railway, tram and bus transit, arboriculture and recreation. This expansion plan, at first named Imperial Delhi, would later become known as New Delhi. It was officially inaugurated in 1931. (Irving, 1981).

Colonial 'advancements'

The introduced governmental apparatus in New Delhi conveys a sense of direct rulership, in which urban control is asserted from newly established municipal institutions. This is opposed to the typical British colonialist structure, which, according to King (2015), is characterised by indirect rulership. Herein existing, indigenous institutions are tasked with governmental functions. The capital thus, owed to its inherent particular institutional significance, favoured exercising power on an urban scale and was accompanied by a greater importance of architectural ideology than in an ordinary city. (Manieri-Elia, 1979). These buildings were meant to express British superiority through their form, size, scale and represent both cultural and social difference between the dominant nation and the indigenous population. (King, 2015).

Colonialism improved development of non-European countries through a focus on exploitable resources within the colonised areas. Liberal Britain favoured extensive, sparsely populated and underdeveloped regions in its colonisation, which had a positive contribution to socio-economic development of such regions. (Lange et al., 2006). Progress in modern infrastructure, such as: ports, roads, railways and telegraph lines was seen as advancement for India, although Johnson (2008) argues that it simply allowed for the British to further reform India's economy for their own benefit. Nevertheless, "many Indians persisted in equating it [British influences] with progress, optimistically anticipating an era of technical advancement and industrial prosperity." (Evenson, 1998, as cited in Gupta, 2005, p. 30).

Garden City movement

The Garden City movement, aimed at improving public health in the city, was based on Ebenezer Howard's book Garden Cities of Tomorrow, which was published in 1902. Lutyens, member of the New Delhi planning committee was previously commissioned for the Hampstead garden suburb, where he was introduced to Unwin's ideals as well. (Irving, 1981).

Hygiene was an important topic due to the situation in old Delhi, where cows were kept in the city's 'teeming' quarters "in the most insanitary conditions, crowded together, in unlit, unventilated and undrained sheds." (Thompson, unknown, as cited in Irving, 1981, p. 5) Furthermore, British settlers were regularly fellen tropical diseases. King (2015) further states that "erroneous belief that diseases like malaria were caused by impure air produced by noxious environmental conditions" and the indigenous population, informed the colonialist settlers' decision to segregate themselves. (p 33). Moreover, colonial dwellings were also located higher than their indigenous counterparts for the same reason. (Hall, 2014; King, 2015).

Functional zoning, advocated by Howard, was implemented; housing was separated from business and recreational use. The intention was to provide every class of inhabitant in recreational space. (Irving, 1981). Furthermore, residential areas were zoned based on race, employment rank and socio-economic status. The lowest ranking residents were to live closer to the old city and farthest away from the administration. Indian clerks and staff were housed in the more densely packed rectilinear grid or in the compounds surrounding the viceregal residence. (Hall, 2014; Irving, 1981) No attempt was made to integrate new Delhi with the old city. (Ridley, 1998). This should be seen as a concession to the elite, for whom sanitation and separation did not result from a democratic social reform agenda. (Gupta, 2005).

Further reinforcement of the imperial power structure was propagated in the allocation of subjugated Indian princes along avenues perpendicular to the one terminating at the viceregal residence. It thereby conveyed their inferiority to the British (see figure 1). Thus spatial stratification arranged residents in relation to the social and political structure of the city. (Irving, 1981; Hall, 2014; Johnson, 2008).

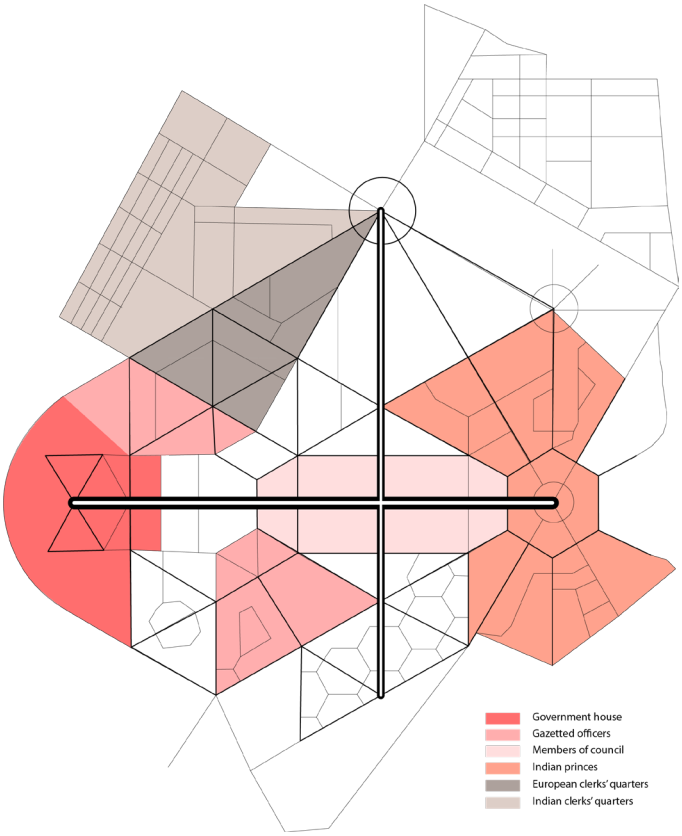


Figure 1: Social stratification occurred along the lines of a zoning scheme, which is depicted here. [Adapted from Ben-Joseph & Gordon, 2000]

Dwellings were detached, spaced out, allowing for extensive greenery to permeate into the residential realm. The planning committee considered parks and playgrounds the essence of town planning and recognised that: "care should be taken to provide ample air space and playing grounds for children near residences of minor officials and the less privileged." (Irving, 1981, p. 75). Nevertheless, the premises of the Garden City reflected through the bungalows were only for the (white) colonial settlers, the elite, thus neglecting the indigenous population. This feat was also emphasised in the provision of an Anglican cathedral. (Gupta, 2005; Stamp, 2012).

Irving (1981) contests the intent to create monumental boulevards sided with bungalows, arguing that they are the result of a stringent budget. This was evidenced in earlier plans that were considered too spacious in their layout and would have required five-storey high facades. Budgetary reasons and the needs of a modest government bureaucracy refrained the New Delhi planning committee from following through. In addition, Irving argues that dressing even one avenue with facades similar in height to the ones implemented in Paris was impossible, as the quantity of projected governmental buildings was insufficient. Hall (2014) nevertheless states that Lutyens plans were implemented regardless of the costs.

The symbolic representation of imperial power persevered after India's independence in the stratified city structure, where colonial hierarchies were perpetuated by migrants and the new native elite. Low income migrants tended to settle in the old City, whereas the elites would find their way in the colonial settlement. Contrasts in density persisted in absence of proposals for densifying New Delhi. (Gupta, 2005).

European precedents

Ideals distilled from European cities and precedential plans would be portrayed in successive urban planning movements as well as in the plan for New Delhi, owed to Lutyens profound knowledge of history and urban planning developments. Lutyens had visited Rome one week prior to his trip to Delhi, where the baroque network of vistas and the accentuated foci had an unmistakable influence in the avenues radiating in a tripartite fashion "linking empires past and present, and uniting the business and lives of the new Delhi's people with the Government of India." (Irving, 1981, p. 73). This motive was deduced from the Piazza del Popolo with its patte-dóie. (Irving, 1981).

Both Lutyens and Baker, fellow member of the New Delhi planning committee, were also particularly inspired by the Acropolis and Rome's capitol. Their location, raised up on an eminence gave it an awe-inspiring impression, further reinforced by their grouping. These principles would later be reflected in the design for Raisina Hill, where the Secretariat buildings are joined by the viceregal residence. The idea of ubiquitous views to and from his residence appealed to the viceroy. (Irving, 1981).

Lutyens was also acquainted with the plans to rebuild London after the great fire. The designs by Christopher Wren (Lutyens personal hero) and John Evelyn, both dating from 1666, shared the circumferential polygonal plazas in, which monuments were isolated, with outward radiating avenues in a spiderweb pattern. Methods for ordering contradictory grids and radial systems in complex patterns was also distilled from these plans. Baker later credited Wren's plan and L'Enfants plan for Washington as the germs from which New Delhi's plan developed. (Irving, 1981; Gupta, 2005; Stamp, 2012).

Beaux Arts

Beaux Arts, a neo-baroque planning model inspired by amongst others: Rome and Haussmann's interventions in Paris. Lutyens was well acquainted with Paris and Versaille from earlier visits. Although he was not associated to the Ecole des Beaux Arts, Lutyens did, in

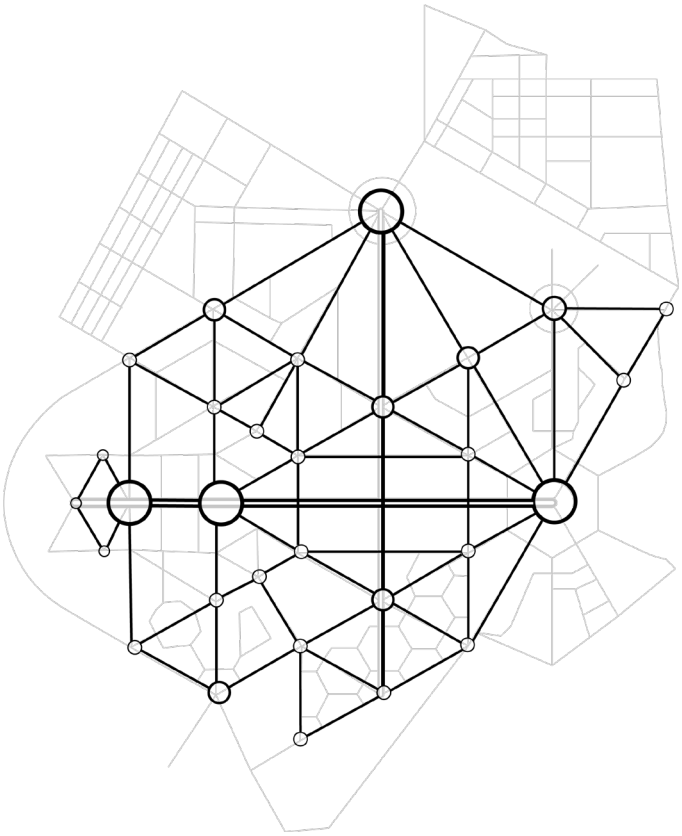


Figure 2: The network of ordered vistas consisting of mostly thirty or sixty degree angles and outward radiating avenues at important nodes.

compliance to the Beaux Arts, display a "transcendental fervor for geometric symmetry", which resulted in "Delhi's distinctive pattern of equilateral triangles and hexagons." (Irving, 1981, p. 67). These alien geometric patterns are a corollary of the triangles which together form these hexagons (see Appendix A.1 and A.2). Beaux Arts planning was reflected in axiality, symmetry and predilection for geometric precision, which is prevailing over any geomorphological condition. (Irving, 1981).

The hexagonal grid with terminal vistas showed minor distortions in detailed layouts. "Such departures, sometimes expressed in picturesquely curving secondary roads, were commonly the result of the 'endless features' - mosques and tombs - whose copious numbers Lutyens compared to motor cars in London." (Irving, 1981, p. 80).

Disagreement between Lutyens and Lanchester, fellow member of the New Delhi planning committee, already showed in earlier design schemes ranging from a more checkerboarded layout, initially conceived by Lutyens, to an alternative design with winding roads made by Lanchester. The Viceroy, however, deemed both to monotonous in their own way. His comments regarding central cruciform avenues leading along defined vistas would form the foundation for New Delhi's plan. (Irving, 1981). Their importance is further emphasised by symmetry (see Appendix A.3 and A.4). Any deviation from the strict pattern should therefore be attributed to Lanchester who later criticised the awkward alignment of several terminal vistas due to Lutyens prepossession in favour of exact 30 and 60 degree angles. Lanchester's "criticism reflected his essential philosophy of urban improvement, which, [...] evinces a preference for corrective surgery on existing fabric, rather than for wholesale redevelopment." Further implied by: "every necessary improvement should maintain the general character of the city." (Irving, 1981, p. 67). Lutyens attitude towards preservation, on the other hand, is that he had no interest in including minor monuments (without major reputation) that did not contribute to grandiose terminal vistas and could therefore not be a node within the hexagonal pattern. (Irving, 1981).

Moreover, Lutyens lacked interest in the broader scheme beyond the vistas, because the urban plan and seemed subservient to creating appropriate settings for his buildings. (Gupta, 2005). This attitude was displayed on multiple occasions, where initial sketches were used regardless of the site chosen by the committee. Change of site also meant a different relation between the scheme and the topography and within the urban plan. For instance, a preliminary design intended for a Northern expansion, which was discontinued due to its inability to accommodate future growth, provided elements that were later adopted in the final layout of New Delhi. An example of such is the ordering principle of an oval ring of buildings, which "constituted the focus for another series of radial avenues, in a pattern that would later find parallels at Prince's Park in the completed city." (Irving, 1981, p. 66). This is the eastern node in figure 2. The same was true for schemes for government's house. (Gupta, 2005).

City Beautiful

During the turn of the nineteenth to the twentieth century, Chicago was home to the largest production force, furthermore, a quarter or the world's railroads converged there. Manieri-Elia (1979) states that "in response to the needs of developing capitalism", Wall Street initiated the World's Fair, where it would serve as stimulus for industrial and commercial activity as well as increase real estate values. (p.15). Economy of design and efficiency of production would converge in the 'scientific' planning stimulated by the fair. To serve this purpose, the monumental buildings were erected from wood to allow for disassembly after the fair. (Manieri-Elia, 1979).

The White city

America pursued an autonomous Architecture, one that was no longer burdened by ties to Europe. It would come to be "an eclectic classicism, quite open to heretical motifs but conditioned by a supra-individual order that was reinforced by the consistent use of white" (Manieri-Elia, 1979, p. 19). American superiority was expressed, whilst simultaneously providing a means to prove itself qualitatively, stylistic grounds it shared with European architecture. This "classicism signified stability [...] and faith in the achievements of established institutions." (Manieri-Elia, 1979, p. 19).

For the purpose of this research, the White City is only of interest in terms of its ideology as the first plan to adopt City Beautiful planning. In which the employed monumental grouping resulted in the fact that "almost every municipal function was better performed because [they were] coordinated in a comprehensive scheme." (Manieri-Elia, 1979, p. 51). It suffices to state that similarities between the White City, Chicago and Washington ensue from their compositional schemes based on symmetrical orthogonal axis, complemented by diagonal vistas. Irving (1981) documented the influence of Washington and Canberra as source of inspiration for New Delhi, whereas Chicago will be briefly addressed to position New Delhi in relation to the City Beautiful as it is the pinnacle of Daniel Burnham's career as founding father of the City Beautiful movement.

Washington

Viceroy Hardinge was installed in Washington in his time as diplomat, which left him impressed with the American capital. During his stay he witnessed the revival L'Enfants plan for the city as proposed by the McMillan commission, tasked with its urban renewal. (Irving, 1981; Gupta, 2005). The commission, including Daniel Burnham, would set out to Europe on a study trip, where "the models of despotism and absolutism could be expropriated and adapted to modern, atemporal use". (Manieri-Elia, 1979, p. 56). The European origin of ideas and role of representing stability is similar for Washington and New Delhi. This is no wonder, since the Viceroy would later recall Washington as benchmark for comparable design decisions in Delhi. (Gupta, 2005). It is in the intermeshed grids with diagonal avenues that the primacy of City Beautiful planning is reflected (see figure 3). Manieri-Elia (1979) described Washington's condition at the turn of the twentieth century as follows:

"The basic conception of Washington had not changed since L'Enfant's plan; it was not a city of commerce but an abstract collective symbol. As the seat of power of a constantly changing dynamic society, incessantly in search of an impossible equilibrium, Washington still had to be an allegorical representation of stability". (p. 57-58).

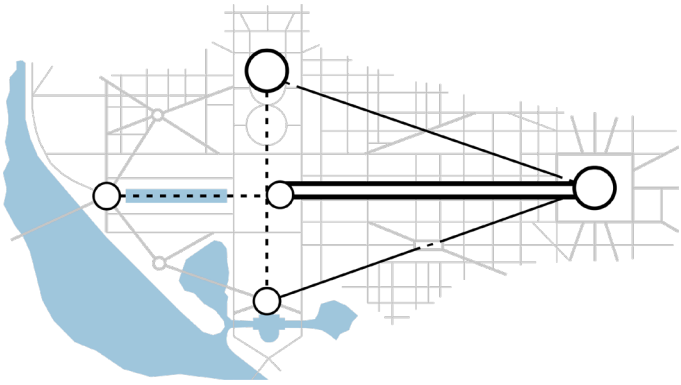


Figure 3: The abstraction of the 1902 map from the senate park commission depicts the patte d'oie, cruciform central axis and interconnected nodes as source of inspiration for New Delhi. Dashed lines represent vistas that are not encapsulated in the street pattern.

The remarkable correspondence in both compositional schemes based on two intersecting axes, in which even the points of departure and termination are equivalents. A parkway, as east-west axis, starts at the capitol and terminates at a monument along the river banks in both cities. The north-south avenue crosses a leafy center and coincides with a church, later promoted to cathedra in New Delhi, due south. (Irving, 1981; Stamp, 2012). Further parallels are in the "system of grand diagonal avenues and rond-points delineating giant hexagons, interlocked with a grid pattern; a commanding capitoline acropolis from which radiates a patte d'oie". (Irving, 1981, p. 83).

Canberra

Viceroy Hardinge requested the plans for Canberra which he would have liked to have had earlier in the design process. The plans were meticulously studied. (Irving, 1981). Similarities occur in the arrangement of the equilateral triangle at its center, constituent to half of the cruciform avenues in Delhi. The central processional avenue from the capitol in east - west direction, where it would serve as an uphill entrance to the viceregal residence and starting from the war memorial monument, serves as one side of the triangle. Connaught place, a square in front of the railway station and designated as business district is connected to the capitoline hill and serves as commercial axis. The aforementioned nodes form a triangle, of which the

sides, except for one, have a clear designation in terms of program, thereby bearing striking similarities to the scheme of Canberra (see figure 4). (Irving, 1981). Its importance is emphasised in the fact that the sides of this triangle are each employed as axis of symmetry (see Appendix A.3, A.5 and A.6).

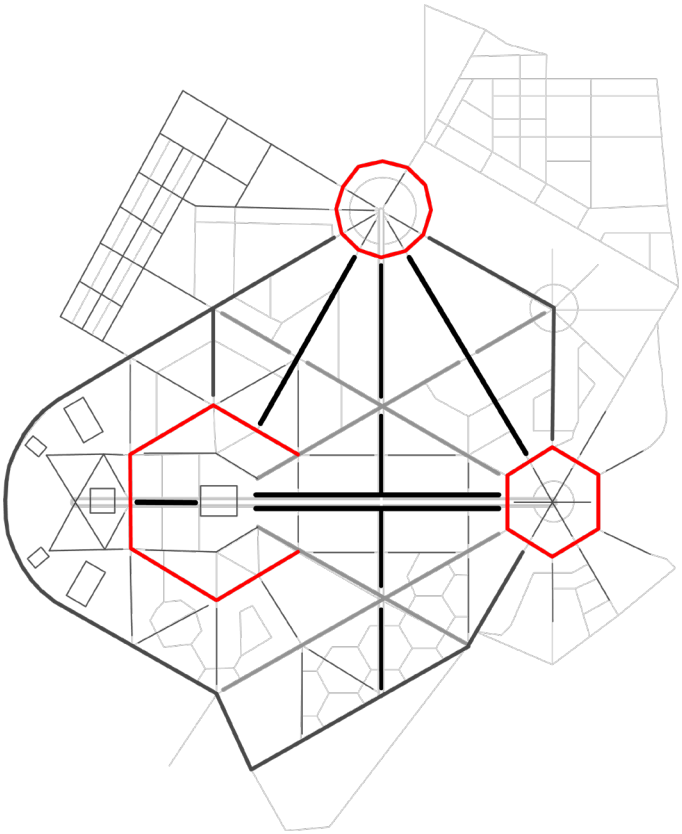


Figure 4: The layout of New Delhi inhibits Canberra's equilateral triangle with designated program.

Chicago

Chicago, at the forefront of the City Beautiful movement at the time of the World's Fair, was plagued with economic downfall during the first decade of the twentieth century due to the middle class losing faith in the socio-economic system. Myopic greed of the very rich sparked socialist reforms, represented in the class struggles led by the unions. The passing of the Hepburn Act allowed governmental control over the railroads and in turn affected bankruptcies amongst the railroads' big investors. The subsequent economic depression caused employment rates to plummet by menacing numbers. In a desperate attempt to regain its vanguard position held in the previous decades, the financial leaders of Chicago charged Burnham with the redesign of the city. (Manieri-Elia, 1979).

Burnham's plans for the city were finished prior to his encounter with Lutyens at a conference in 1910. (Irving, 1981). Unlike the plans for Washington, which only considered its urban center, the plans for Chicago were an unprecedented attempt at city planning on a metropolitan scale. It received an all encompassing network, radiating outward from the center, and was based on infrastructural motives prompted by highway and especially railroad lines. Absence of zoning laws, however criticised, were in accordance to the City Beautiful method in which only governable elements of the city were addressed, essentially limited "to the system of spaces and public works—streets, boulevards, squares and public buildings." (Manieri-Elia, 1979, p. 101). Dilapidated housing was ameliorated by means of boulevards to intervene in these areas. This type of urban planning should provide in spatial opportunities for good housing, regardless of income levels. Adequate housing for the poor could only be assured through inspection and enforcement of the housing code. (Wilson, 1989). Neutral spaces within the boulevard network provided generous construction potential within a grid system. Where the same types of streets were employed for rich or poor quarters, thereby serving democracy. Construction was a matter of speculation from private initiatives and accomplished two objectives: to increase real estate values and to stabilise the economy by offering employment for crowds of unskilled labour. (Manieri-Elia, 1979).

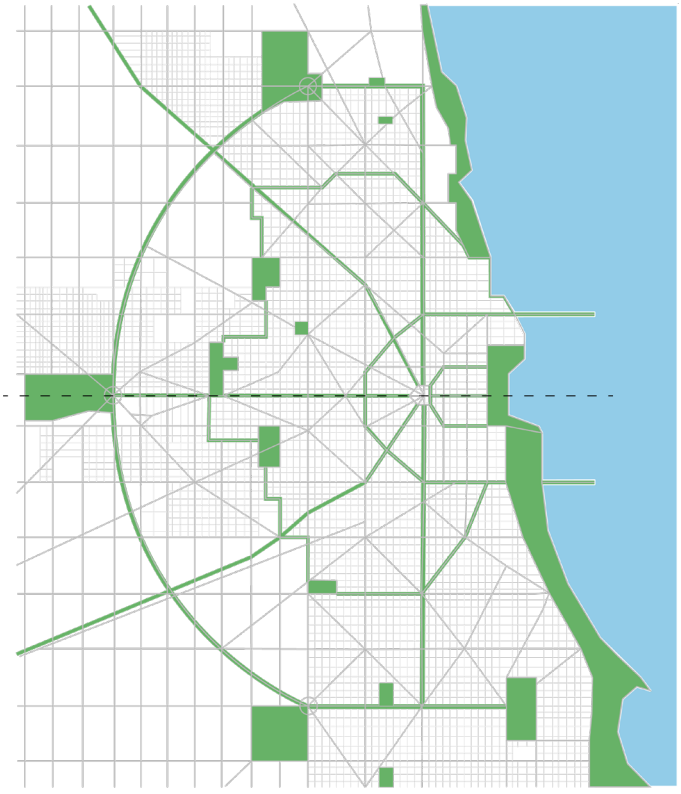


Figure 5: Burnham's scheme for Chicago inhibiting the park system, civic center and hierarchically superimposed grids.

The design inhibits superimposed grids on various levels of hierarchy, amongst which a park system was introduced by Burnham (see figure 5). He had collaborated extensively with Olmsted on the White City, but also on other parks predating the plan for Chicago. These parks were one of the most notable civic achievements, as places for the people to recreate. (Bachrach, n.d.). The parkways delineate various districts in a scenic drive and span all the way to a hypothetical periphery indicated by a circumferential semicircle. This motive was later introduced in New Delhi at the rear of the viceregal residence. Deprived land at the lake shores, formally allocated to railroads, was redeveloped to a lakefront park and incorporated in the park system. (Manieri-Elia, 1979)

The plan's classical style required for a uniform environment imposed order, which emphasised the monumental civic center. Further emphasis on the civic center was informed by a coinciding axis of symmetry on this focal point in spite of its decentralised location within the city. (Manieri-Elia, 1979; Wilson, 1989). Similarities to Delhi occur in the civic center, which was for both was cities placed in the center of the plan and emphasized by grand gestures.

Criticism regarding the park system, civic centers and public was directed at the overly concern with cosmetic display, whereas "the poor only occasionally could afford to 'escape from their squalid, confining surroundings to view the architectural perfection and to experience the aesthetic delights of the remote improvements.'" (Marsh, 1908, as cited in Wilson, 1989, p. 74). According to these critics, the improvements should instead be in the crowded districts in order to justify for the expenditure available only to the wealthy.They referred to German practices as preferred approach, where housing improvements raised "the character and quality of their inhabitants." (Wilson, 1989, p. 74).

Since grounds had already been broken for a city hall and courthouse, the plans should be seen as "a promise that reality would reshape and redimension, but that served, in the meantime, to mobilize popular enthusiasm for the inspiring objectives of beauty, order, and prestige."(Manieri-Elia, 1979, p. 85). As such, the City Beautiful movement was arguably about unification of separate forces in their shared goal to improve urban conditions. Exemplary were the grassroot driven civic improvement efforts practiced mostly by women clubs. Such initiatives focussed on small enhancements that were easy to implement, especially associated to furniture for public spaces. Their aim was "uplifting people morally for greater stability in society" by taking personal responsibility as citizen. (Szczygiel, 2003, p. 129). This stemmed from the conviction that environmental improvement could modify behavior in a positive manner. (Szczygiel, 2003).

Discrepancies

Whereas the plan for Chicago was intended to benefit the economy, the plan for New Delhi "was entirely devoted to administrative, political, and social functions with virtually no attempt made to plan for industrial development." (King, 2015, p. 34). Social struggles were neglected by Lutyens, who, as 'abstract geometrician', was devoid of human concerns. This is reflected in the intent not to address the environs of the old city. Baker on the other hand, displayed human sentiment which he envinced by stating that imperial rule should be of benefit to the subjugated Indians. (Hall, 2014; Gupta, 2005). He was convinced that Britain was responsible for raising the Indians "to standards and ideals befitting self-government. (Gupta, 2005, p. 45-46). However, Delhi's civic center was located amidst of elite housing, therefore one can speculate to what extent the indigenous population was actually affected. Lutyens voiced that he did not expect imperial domination to last. (Stamp, 2012). The transition towards democracy, already was already implied in the Indian self-government. Therefore the City Beautiful paradigm of environmental improvement as enhancer of the people is contradicted by addressing the civic center to the elite. Parks, as part of the paradigm, were provided in New Delhi, though the old city was deliberately neglected. Finally, there is a difference between imperialist housing and market speculation, in which the latter is constrained to a system of streets providing in equal spatial opportunities, whereas colonist housing presupposes an hierarchy in which the indigenous population is subordinated.

Conclusion

In comparison to other (American) City Beautiful plans, New Delhi proves to be of a more eclectic nature owed to the influences of the British Garden City movement and inclusion of imperialist ideals. The ideals from the Garden City movement coincided with the colonist housing requirements, where zoning was employed to ensure healthy living environs for the British. The whole was structured according to vistas as seen in the Beaux arts, to be dominated by a monumental grouping, of power, employed in the City Beautiful.

The synthesis of a wide range of urban models led to the detachment of values from the planning models they belonged to. Simultaneously, other, sometimes conflicting, values were imposed upon New Delhi. As such, it is only possible to fully understand New Delhi by first identifying the specific elements incorporated from each urban model and second to know which elements were discarded in the process. For instance, the exported City Beautiful ideology conceived as opportunity to further develop capitalism in an American context, is no longer reaffirmed. Whether for budgetary or ideological reasons — or even both — it is clear that the low density tree lined avenues sided with bungalows do not contribute to furthering industrial production nor commercial activity and it was never intended to do so.

Ambiguity surfaces in the omission of civic improvement endeavoured by the City Beautiful movement. A message of inferiority is conveyed to the indigenous population, in spite of the acknowledged incremental transition towards democracy. This was imbued in the urban fabric where the superimposed Viceregal residence and secretariats dominated as part of an overarching triangle, origin of radiating avenues and disrupter of fabric patterns. 'Petty' clerks and servants were housed in a lesser conceived grid, whereas colonists housing was juxtaposed in a supposedly superior triangular system (see figure 6).

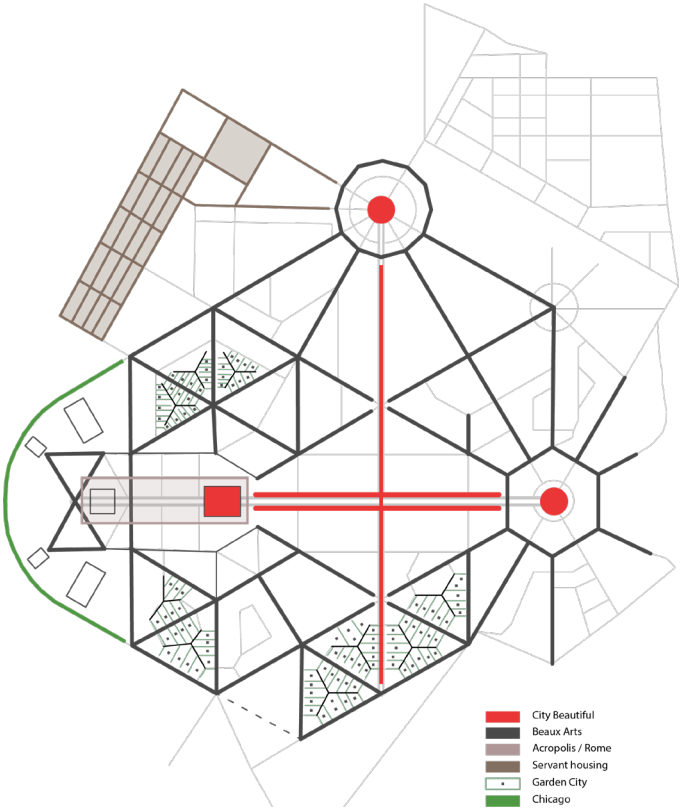


Figure 6: The eclectic plan of New Delhi transmits is prepossession with geometry owing from precedential urban plans.

Even though the urban morphology shows distinct similarities to the City Beautiful model which is normally associated with: "classically inspired, monumental architecture; wide, tree-flanked boulevards and large civic spaces; the grand urban axis punctuated with statuary, or obelisk", the attributed City Beautiful model as overarching principle only reflects part of the story. (Szczygiel, 2003, p. 107). Perhaps the design process pursued adopting foreign morphology to implement in Delhi's context, rather than taking values associated with the planning model into account.

In the end, the urge to represent power as means to create stability in turbulent times reinforced dependence on the British. Unlike Washington, similar motives of City Beautiful planning were employed to favour the imperial power structure, thereby impeding the democratic aspirations of the city, in spite of the forecasted increase of Indian self-government. This is expressed in the hierarchical streets system, which, especially in comparison with Chicago, was supposed to be indifferent towards social classes. Given the current context, the plan contributed to favouring the wealthy, even though methods to enforce beautification of slums were hardly unknown. The attitude practiced in which the less fortunate are marginalised by planning measures would prevail to the current day.

Lutyens supposed reluctancy to take costs into consideration shows a more perverse side to the story in which his favour for transcendental geometry prevailed over the needs to provide adequate housing as well as recreational space for every social class. The unaccounted growth of Delhi, after the capital was transferred, resulting in a higher housing demand, could not be alleviated within the urban fabric occupied by the wealthy (see Appendix A.7). New Delhi, conceived for an imperial political framework, while aware of its finitude, nevertheless a capital designed to suffice "only for present requirements, 'Lutyens had written his wife, would indeed be laying a dead hand on the future.'" (Simla, 1911, as cited in Irving, 1981, p. 71).

References

Augustyn, A. (2018). Mughal dynasty. *In Encyclopædia Britannica online.* Retrieved from: https://www.britannica.com/topic/Mughal-dynasty

Bachrach, J. (n.d.). *Daniel H. Burnham and Chicago's Parks.* Retrieved from: https://www.chicagoparkdistrict.com/sites/default/files/images/page/burnham.pdf

Bayly, C. (1988). *Indian society and the making of the British Empire.* Cambridge: Cambridge University Press.

Capper, J. (1997). *Delhi, the capital of India. New Delhi: Asian Educational Services.* Retrieved from: https://books.google.nl/s?hl=nl&lr=&id=aqqBPS1TDUgC&oi=fnd&pg=IA2&dq=capper+delhi+capital+of+india&ots=E69jjaoTCm&sig=kPBKgJ88Jn4ahYFZI2oqsIn48P8#v=onepage&q=1803&f=false

Chakravarty, G. (2005). *The Indian mutiny and the British imagination.* London: Cambridge University Press.

Dupont, V. (2011). *The dream of Delhi as a global city.* International Journal of Urban and Regional Studies, 36(6), 523-554

Government of India (2011). *Census of India 2011.* p. 60-81. Retrieved from: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=16&ved=2ahUKEwi_-J6Ww8DiAhXFsaQKHfZ8AeoQFjAPegQIAhAC&url=http%3A%2F%2Fcensusindia.gov.in%2F2011-prov-results%2Fdata_files%2Fdelhi%2F3_PDFC-Paper-1-tables_60_81.pdf&usg=AOvVaw3a1isoAgTPXlPdPc61InbD

Gupta, A. (2005). *Dominion Geometries: Colonial construction and Postcolonial persistence of the Imperial in the New Delhi Plan* (Master's thesis, Massachusetts Institute of Technology). Retrieved from:http://hdl.handle.net/1721.1/33413

Hall, P. (2014). *Cities of tomorrow : An intellectual history of urban planning and design since 1880* (Fourth ed.) [Fourth edition.]. Hoboken, NJ: Wiley-Blackwell. (2014). Retrieved from http://web.a.ebscohost.com.dianus.libr.tue.nl/ehost/detail/detail?nobk=y&vid=1&sid=9b4eb554-5858-43fa-835f-0300e57b40d9@sdc-v-sessmgr04&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ==#db=nlebk&AN=761791

Heinrichs, D., Krellenberg, K. & Fragkias, M. (2013). *Urban Responses to Climate Change Theories and Governance Practice in Cities of the Global South.* Internationan Journal of Urban and Regional Research, 37.6, 1865-1878. doi:10.1111/1468-2427.12031

Irving, R.G. (1981), *Indian Summer: Lutyens, Baker, and Imperial Delhi.* New Haven, Connecticut:Yale University Press

Johnson, D. (2008). *A British Empire for the twentieth century: The inauguration of New Delhi, 1931.* Urban History, 35(3), 462-484. doi:10.1017/S0963926808005737

King, A.D. (2015). *Colonialism and Urban Development.* In Miraftab, F. & Kudva, N. Cities of the Global South Reader. (pp. 29-39). London, England: Routledge. doi:10.4324/9781315758640

Lange, M., Mahoney, J., & Hau, M. v. (2006). *Colonialism and Development: A Comparative Analysis of Spanish and British Colonies.* American Journal of Sociology, Vol. 111, No. 5, (pp. 1412-1462).

Manieri-Elia, M. (1979). *Toward an "Imperial City": Daniel H. Burnham and the City Beautiful Movement.* In B. Luigia La Penta, The American City, From the Civil War to the New Deal. (pp.1-142). Cambridge, USA: Granada.

Ridley, J. (1998) *Edwin Lutyens, New Delhi, and the architecture of imperialism*, The Journal of Imperial and Commonwealth History, 26:2, 67-83, doi: 10.1080/03086539808583025

Speak, S. (2012). *Planning for the needs of urban poor in the Global South: The value of a feminist approach.* Planning Theory, 11(4), 343–360. https://doi.org/10.1177/1473095212440424

Spear, P. (1937). *Delhi a historical sketch.* London: Oxford University Press. (pp. 44-59).

Stamp, G. (2012) *New Delhi: A New Imperial Capital for British India*. The Court Historian, 17:2, 189-207, DOI: 10.1179/cou.2012.17.2.004

Szczygiel, B. (2003). *"City Beautiful" Revisited: An Analysis of Nineteenth-Century Civic Improvement Efforts.* Journal of Urban History, 29(2), 107–132. https://doi.

org/10.1177/0096144202238870

Truelove, Y. (2011). *(Re-)Conceptualizing water inequality in Delhi, India through a feminist political ecology framework.* Geoforum, 42(2), 143–152. https://doi.org/10.1016/j.geoforum.2011.01.004

Van Raaij, B. (2019). *Extreme luchtverontreiniging is in de Indiase verkiezingen nog steeds geen thema*. De Volkskrant. Retrieved on 28 May, 2019 from https://www.volkskrant.nl/nieuws-achtergrond/extreme-luchtverontreiniging-is-in-de-indiase-verkiezingen-nog-steeds-geen-thema~be37077e/

Wilson,W. (1989). *The city beautiful movement: Creating the north american landscape.* Baltimore: Johns Hopkins University Press.

Figures

Ben-Joseph, E. & Gordon, D. (2000) *Hexagonal Planning in Theory and Practice.* New Delhi, Lutyens and Baker [figure] Journal of Urban Design, 5:3, 237-265, DOI: 10.1080/713683965

Realizing New Delhi: power through planning

B. van Druten, P. Haring, A. Seweuster

Eindhoven University of Technology
7QW3M0 Urban planet

Keywords; imperial city, New Delhi, segregation, architecture, city planning

Abstract

Twenty years after the announcement of King George V that New Delhi would become the new capital of India, the jewel of the British Empire was finished. Numerous setbacks as the Great War, increasing political difficulties, nationalists disaffection, and personal vendettas did not withhold the plan from being realised. Through an urban historical narrative, this paper examines what the circumstances were during the realization and how the different actors shaped the imperial Delhi plan. This paper illustrates how New Delhi was realized and how the imperial ideals were manifested.

The imperial aspirations of the British Empire are evident throughout the whole plan and the aim of the plan was to build a truly modern city with big buildings massed together, a busy heart, smaller private residences screened by parks, with at its heart the central avenue gradually ascending towards the capitoline hill. Here the Government buildings and the Secretariat buildings would 'command, like an autocrat with two fists' over New Delhi and India. The imperial scheme further revealed itself by symbolic and physical separation in the land use and zoning principles. During construction there was an ongoing discussion between conservative and liberal imperialists about how the imperial ideals would be manifested. It resulted in a mixture of respect for the Indian context and power play and domination over the natives. When finished, circumstances had changed and after a couple of years surprisingly little was needed to convert the imperial city into the new facade of the Indian democracy. Throughout the whole process of design, construction and use of the plan, the needs of the local people of Old Delhi where not considered. This caused segregation of poor and rich and a big contrast between Old Delhi and New Delhi.

Introduction

When in 1911 King George V announced that Delhi would be the new capital of British India, an opportunity arose to create a truly imperial, planned city (Gupta, 2005; Stamp, 2012). The creation of the capital could be seen as an unfaltering determination to maintain British rule in India (Metcalf, 2002). After the announcement the Delhi Town Planning Committee was appointed and the two architects Edwin Lutyens and Herbert Baker, two long time friends, had the task to design a new administrative and residential district which would articulate the imperial ideals of the British (Hall, 2014; Stamp, 2012). Despite numerous setbacks as the Great War, increasing political difficulties, nationalist disaffection in India, and severe economic crisis, New Delhi was finished within 20 years. However, in retro-perspective, the new capital would mark the beginning of the end for the British (Gupta, 2005; Metcalf, 2002; Ridley, 1998).

The shift of the capital raised an important question of how the British Empire would be represented in stone. The location of New Delhi provided a great opportunity for imperial architecture. As the king himself said that the planning and design of the public buildings

would be crafted with the greatest deliberation and care, so that the new creation may be in every way worthy of this ancient and beautiful city. However, there was no consensus as to what style of architecture this would bring and as it turned out different interests and different conceptions of architecture struggled to shape the design and the imperial ideals of the new capital. This sparked the most problematic debate between the conservative and liberal imperialists who held different visions on how the imperial ideals would be articulated in New Delhi (Gupta, 2005; Metcalf, 2002; Stamp, 2012).

Eventually the imperial memory became manifested through the overwhelming scale with strategically placed buildings at the termini of hexagonal axial geometry. The city beautiful movement arrived in India, emphasizing with every architectural gesture and symbol that this was an imperial city, the capital of British India (Irving, 1981; Stamp, 2012). Ironically, when in 1931 the capital was completed, the British Empire was in a steady state of decline and were ready to grant India their independence. India would become a democracy and the imperial city would become the face of the new Indian democracy. Once the colonial hold was broken, the hierarchies and segregations were simply taken over and perpetuated by the new native elites. This dominance is something that is still evident in contemporary New Delhi and attributed to the large differences between Old Delhi and New Delhi (Gupta, 2005; Metcalf, 2002; Stamp, 2012).

Through an urban historical narrative, this paper investigates what the circumstances were during the realization and how the different actors shaped the imperial Delhi plan. Therefore, the research question will be as followed: how was New Delhi realized and how were the imperial ideals manifested?

The structure of this paper is as follows. Firstly, the methodology will explain how the research has been conducted and how the urban historical narrative emerged. This is followed by the result section. Through literature research and analytical mapping this section follows the actors and narrates the story of how New Delhi was realized. The actors on stage are introduced and are given a brief introduction. Then the formation of the city plan is discussed. Whereafter the debate on how the imperialist vision would be manifested through architecture is highlighted. Finally, the diffuse circumstances when the plan was finished are addressed. The paper ends with a conclusion pointing out the contrast between the poor and rich due to how the imperial ideals were manifested.

Methodology

This paper is part of a combined research that contains three papers which explain the New Delhi plan from ideology and realization, until contemporary New Delhi. The focus in this paper lies on the realization and the practical aspects of the plan, rather than on the ideology. Through a historical narrative the process of decision making is examined. The focus of the research was between 1911 and 1931. Because this paper was part of a course, there was a time limitation of eight weeks in which this research had to be done.

To answer the research question a combination of methods was used. Literature review and town plan analysis were used to analyse the plan and the design steps, but also to find the story behind the decision making progress. To create a qualitative framework which explains the application of the plan both methods were complementary.

Literature review is used to construct a historical narrative that is needed to understand the time and place when the plan was constructed. During the research multiple sources of information were used to give a complete picture of the circumstances. Multiple sources of literature were used and a critical review of all the information was necessary to subtract the useful information, since some of the sources told the same story in a different manner.

The town plan analysis gave insight into how the plan was implemented in the landscape and which design decisions were considered before coming to the final plan. The town plan analysis provided qualitative information about the design. The historical maps that gave insight into the design decisions are based on the analysis of Gupta (2005). The different design phases tell the story about the topics of consideration and what the design committee found to be more important. These plan analysis supported the historical narrative that was created during the literature review.

Results

Through an urban historical narrative, this part examines the struggles faced during the construction of Imperial Delhi. It tends to illustrate critical decisions that were influential in shaping New Delhi. After the Delhi Town Planning Committee was appointed the debate on the location of the new imperial capital could begin. During the design phase there was an ongoing discussion on how the imperialist ideals would be manifested. Ironically, when the plan was finished it was left in diffused circumstances and new powers were soon to set stage.

Actors

At 15 December 1911 it was announced by King George V that Delhi would be the new British capital in India and, remarkably considering the circumstances, within 20 years New Delhi was completed (Gupta, 2005; Stamp, 2012). Numerous setbacks as the Great War, increasing political difficulties, nationalist disaffection in India, and severe economic crisis back in Britain didn't withhold the plan from being realised. India, and in particular the New Delhi plan, was the jewel of the British Empire, so it was essential not to been seen to abandon the project (Stamp, 2012).

After the announcement of King George V two political figures were appointed to oversee the design, construction and execution of the new capital. Lord Crowe, the British Secretary of State for India, and Lord Hardinge of Penhurst, the Viceroy of India. Both remained in constant touch with each other, however as it turned out Lord Hardinge emerged as one of the key influences of the master plan. Hardinge was impressed by Washington DC and repeatedly adopted ideas of the American capital for comparable decisions in imperial Delhi. Due to his strong preferences and ideology he was often a difficult client to the architect. Hardinge was in favour for an imperial design that incorporated the Indian aesthetic (Gupta, 2005; Metcalf, 2002).

By 1913, the Delhi Town Planning Committee was appointed by Hardinge and the India office and it consisted of Edwin Lutyens (architect), Herbert Baker (architect), John A. Brodie (municipal engineer), Capt. George Swinton, and others. Henry V. Lanchester was appointed as an advisor to the committee.

Lutyens, who established a good relation with the Viceroy, managed to emerge as principal architect, despite the fact that he had never designed a large public building let alone cities or townships (Gupta, 2005; Stamp, 2012). Lutyens came to India with the grandiosity of Rome and Paris in his mind and lacked an interest in the greater plan beyond ensuring the views towards and from his buildings. Indian architecture seemed to Lutyens 'all pattern' and 'veneered joinery'. He dismissed the Eurasian hybrid Gothic and the Indo-Saracenic buildings. In his mind, only Classical architecture could represent the British Empire and be adaptable to various climates (Gupta, 2005). Given Lutyens struggle with politicians, demands for economy, rapidly changing political context, those who were opposed to the whole idea of New Delhi, and the collaboration with his friend Herbert Baker, it became not only 'great architectural drama', but a tragedy in many ways (Stamp, 2012).

Herbert Baker, an old time friend of Lutyens, joined the capital project on Lutyens' recommendation (Stamp, 2012). Baker always believed in the importance of content in art, unlike Lutyens who was fixated on abstract and geometrical elements. Baker wrote "It [Imperial Delhi] must not be Indian nor English, nor Roman, but it must be Imperial." He saw Imperial Delhi not solely for the benefit of Britain but rather as an opportunity to raise the people to British standards and ideals thereby befitting self-government (Gupta, 2005). In contrast to Lutyens, Baker believed in creating a British Imperial stamp on Delhi which was sensitive to the local context and had recognizable Indian elements (Gupta, 2005; Stamp, 2012).

Henry Vaughin Lanchester is probably the least credited of the plans contributors, however he was responsible for introducing numerous ideas who were first rejected by Lutyens and later adopted by him in his plans. Lanchester believed that every necessary improvement should maintain the general character of the city. Hardinge described Lanchester as "by far the most practical and sensible (Gupta, 2005)."

The city plan

Before the planning started there were two principal matters to be settled; the site and city plan of the new city, and the architectural style of the government buildings (Stamp, 2012). This chapter will discuss the site and the city plan and the next chapter will go in depth about the architecture. For the settlement of the plan there were two possible locations seriously considered (Irving, 1981). Both locations were separated from the old city because of health problems, but were hold close enough to express the power of the British Empire over the old city. The first location was the ridge to the north of the old city, an area which used to be a battleground when the British in 1858 recaptured Delhi. The second location was to the southwest of Old Delhi. This was an area that permitted a long wide east-west avenue on the slope of Raisina Hill to express power over the old city. Also, the old military camp was situated here, giving it a strategic advantage (Ridley, 1998; Stamp, 2012). After a two-month site study exercise, the committee eventually chose the second location for its 'aspects, altitude, water, health, virgin soil and views'. By March 20 in 1913 the final plan with its characteristic hexagonal and triangular pattern was approved (Gupta, 2005). Before the final plan was chosen it went through multiple design phases of which the most important are described below.

Phase 1

In the first design phase, the scheme is based on a principle axis running from the Government house, located on the Malcha hill, towards the Jama Masjid, India's largest mosque. This axial view was there to express to continuity of the previous Mughal Empire (Gupta, 2005; Metcalf, 2002). Along the axis the most important buildings were located. This proposal was rejected by the Viceroy because of the orthogonal structure was similar to 'the normal layout of cantonments and civil stations in India (Gupta, 2005).

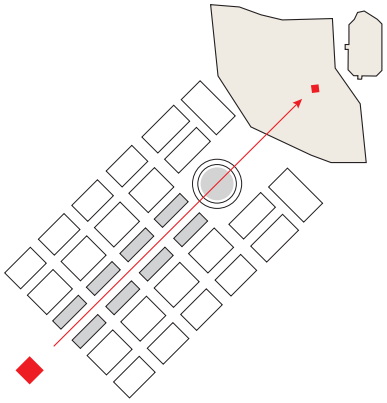


Figure 1: Orthogonal plan, with the main axis running towards the Jama Masjid

Phase 2

In the second phase the Government house was still located on the Malcha hill, with the main axes still running towards the Jama Masjid. The difference with this plan is the introduction a cross axial plaza and to secretariat blocks along the axis. In this plan there was more sensitivity towards historical monuments and landmarks. To create variety, the concept of curved streets was borrowed from London and especially Regent Street (Gupta, 2005).

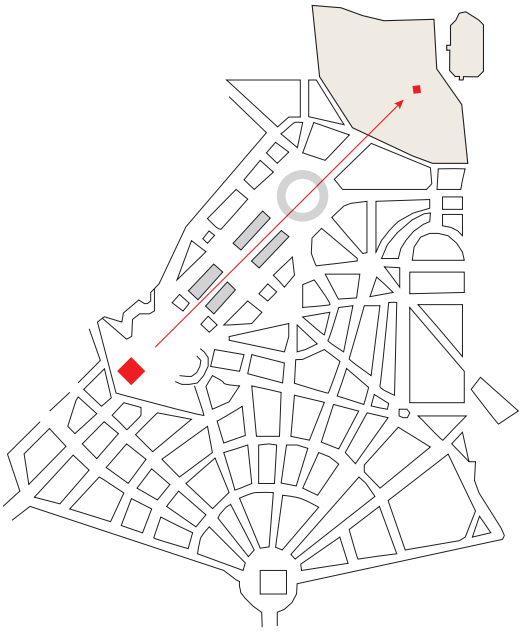


Figure 2: Curved street pattern with the axis running from the Government house towards the Jama Masjid

Phase 3

The axis running from the Malcha hill towards the Jama Masjid would not only cost 180,000 pond, but it would also mean that the 15,000 residents located in the village of Paharganj should be relocated. This expensive expropriation as Hardinge called it, was avoided by rotating the main axis 45 degrees. This meant that it would now run form the Malcha hill toward the ancient fortress of Indrapat (Gupta, 2005).

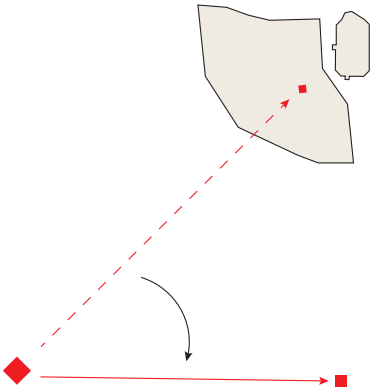


Figure 3: Rotating the main axis towards the Indrapat and the village of Paharganj

Phase 4

Lutyens originally suggested a grid pattern with radials for New Delhi, as it is seen in New York and Chicago. The grid pattern was not suitable for the indian climate because of the sand storms. A grid would only enhance the storm instead of decreasing it. Roundabouts where applied with larger high elements like trees inside them to reduce the sand storms (Gaw, 2018; Hall, 2014). Six secretariats were placed in front of the Government house. Hardinge was against the six secretariats in front of the Government house and the too many curved streets (Gupta, 2005).

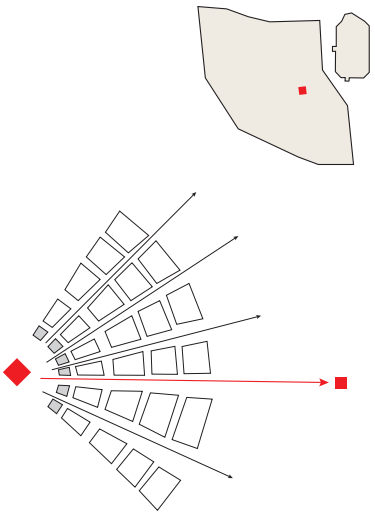


Figure 4: Curved street pattern with different axis

Phase 5

During a visit in July 1912 Hardinge came upon Raisina Hill, a potential site for the government house. According to Hardinge the Malcha hill was 'far too distant'. He suggested that the Government house would face east on the rear of Raisina Hill so it would dominate the cityscape (Gupta, 2005).

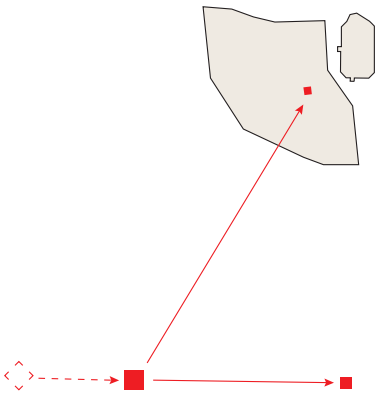


Figure 5: Relocation of the Government House from the Malcha hill to the Raisina hill

Final phase

The plan ultimately has the same kind of organizing principles as Rome, Paris and Washington (Ridley, 1998). However, it is more based on a geometrical lay out (Hall, 2014). A train station and a large commercial building were planned at the northern end of a cross axis. The Government house was moved back to make room for two Secretariat buildings along the axis (Gupta, 2005).

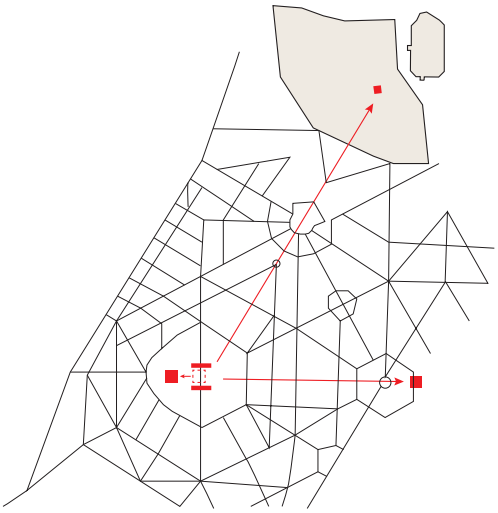


Figure 6: Hexagonal plan with the Government house and the Secretariat buildings

The final plan with its characteristic hexagonal and triangular pattern based on the ideology of City Beautiful planning principle was now emerging (Gupta, 2005; Hall, 2014). The layout consisted mostly of thirty-and-sixty degree angles, with on the intersections roundabouts and in the center a main axes, with its focal towards the capitoline hill where the Government buildings and Secretariat buildings 'commanded, like an autocrat, with its two fists' over New Delhi and India (Gupta, 2005). Further down the main axes, at right angles with the central vista was the Queensway. Towards the north the Queensway terminated at the proposed railway station - which never got built - and in the south it terminated at the Anglican cathedral. The Queensway was envisioned as a processional route for visitors moving from the railway station to Raisina Hill. The junction with Kingsway formed an 'intellectual plaza' with civic buildings. The railway station was later removed from the design due to costs and it became the Connaught Place which was designated to become the city's commercial center (Gupta, 2005; Stamp, 2012). The aim was "a truly modern city with big buildings massed together, a busy heart, and the smaller private residences screened by parks which would serve as lungs (Irving, 1981)." The Imperial scheme revealed itself by symbolic and physical separation in the land use and zoning principles. The status of any particular accommodation was communicated by: elevation, distance from the Government House, size of compound, size of dwelling, width of road, name of are, number and index of housing type, quantity of vegetation and presence of various facilities (Gupta, 2005; Hall, 2014). Also, due to its vast dimensions New Delhi has been described as the first city designed to the scale of the motorcar. Because of the lack of robust public transportation it was harder for the native population, who couldn't afford a car, to access New Delhi. Which in return contributed to the imperial image of New Delhi and caused further segregation between the rich and poor (Gupta, 2005; Metcalf, 2002).

The architecture

As discussed before, there were two principal matters to be settled before the construction started; the site of the new city, and the architectural style of the government buildings. The second matter, the architectural style turned out to be much more problematic (Stamp, 2012). It also sparked the ongoing battle between the conservative and liberal imperialists. The liberals showed more respect for the Indian context while the conservative camp focused on their elitist agenda of power play and domination over the natives (Gupta, 2005). Hardinge, was in favour of a Indo-Saracenic style - a style which drew elements from native Indo-Islamic and Indian architecture, and

combined it with Gothic revival and Neoclassical style (Metcalf, 2002; Stamp, 2012). Baker and Lutyens were on opposite sides while Lutyens was in favour of Classical architecture, Baker opted for a fusion between indigenous architectural forms and European Classicism (Gupta, 2005; Metcalf, 2002). This chapter further discusses the architectural style and the battle it provoked by hand of the most important buildings in New Delhi.

Viceroy House

Despite Lutyens favour for classical architecture and his ignorance of local forms and building traditions he eventually incorporated many Indian elements in his design for the Viceroy House(Gupta, 2005). Lutyens had numerous discussions with Lord Hardinge over the question of style and had a hard time deciding which style to prefer. In his first trip to India Lutyens wrote "I do want old England to stand up and plant het great traditions and good taste where she goes and not pander to sentiment and all this silly Moghul-Hindu stuff (Metcalf, 2002)." Eventually, Lutyens did create a hybrid for the Viceroy House. He adopted Mughal elements and used Hindu details. He managed however to keep Classicism principles almost intact while incorporating Indian elements who were barely noticeable due to the scale, setting, horizontality and geometricized proportions of the building. Lutyens did this mostly out of fear of losing the project, rather than an acquired taste for the Indian aesthetic. Therefore, these elements were not used literally but merely attached to an European building (Gupta, 2005; Metcalf, 2002; Stamp, 2012).

Figure 7: Classical style of Viceroy's house (Dexter, n.d.)

Secretariat Buildings

Beyond the forecourt of the Viceroy to the east on the central axis, were two symmetrically arranged Secretariat buildings who were the work of Herbert Baker. He rejected the prettiness and decorative value of the Indian ornament however het did appreciated the functional content and uses them effectively to address local climate issues in his buildings (Gupta, 2005; Stamp, 2012).

Figure 8: Combined style of Secretariat building (Jones, 2008)

It is also the Secretariats buildings who caused the great fall out between two former friends (Hall, 2014; Ridley, 1998; Stamp, 2012). Lutyens intended that the Viceroy's House should be visible from the along the east-west axial. The radial should have risen with a constant gradient, so that the Viceroy's House should always be visible (Hall, 2014). But in the design of Baker, he raised the ground between the Secretariat buildings hereby blocking the axial view of the Viceroy's house. Lutyens discovered this only when it was too late. Lutyens campaigned to have the approach changed, arguing that this fault would destroy his concept. He took the matter to the king, but with no result, the decision was already made and it was too expensive to return (Hall, 2014; Ridley, 1998; Stamp, 2012). Whether the 'fault' was an honest mistake or intended by Baker, it led to a long estrangement between the two architects (Ridley, 1998; Stamp, 2012).

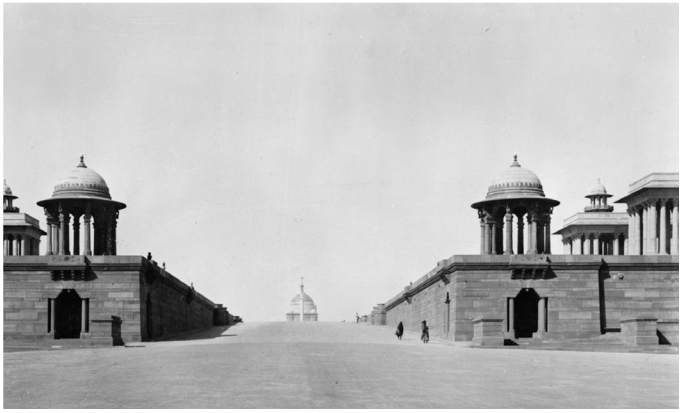


Figure 9: Obscuring the view of the Viceroy's palace (Hall, 2014)

All India War Memorial & King George V Memorial Canopy

At the east end of the Kingsway, the central axis, Lutyens designed the All India War Memorial Arch. In 1920, the capital committee approved his design that commemorated the 13,516 British and Indian soldiers who fell in the third Afghan war of 1919. The 'India Gate' as some called it, was an impressive portal true in its forms to Lutyens' European Classicism ideals. Although the monument was a memorial it also celebrated the ideal and fact of British rule over India.

In 1936, five years after the completion of the capital, and in the year of King George V his death, Lutyens designed a memorial to George V. A tall attenuated arched and domed canopy, framed by the memorial arch looking towards the capitol complex. It was revealed in 1939, just before the outbreak of another world war, and it was the finishing touch on the symbolic territoriality and power of imperialist design. However, after the independence of India the Memorial of George V was taken down, leaving an empty canopy behind.

Contemporary New Delhi

When Imperial Delhi was finished in 1931 after 20 years a lot has changed. The plan was released in confused circumstances (Byron, 2010; Stamp, 2012). In London, at the same time of the opening, the discussion of Indian self-rule was ongoing. The British Empire was in a steady state of decline and they were ready to wash their hands off the situation which would grant India their independence (Gupta, 2005). Today it seems ironic that New Delhi was the beginning of real self government, instead of the imperial power it was designed for. The capital and its identity, geometry, architecture and symbolism was given away by the British and the inherent symbolism of scale, power and rule would be reinterpreted with the start of a new democratic era. Surprisingly little was needed to convert the imperial city into the capital of the Indian Republic and imperial ideals was soon to become the facade of the Indian democracy (Byron, 2010; Gupta, 2005; Hall, 2014; Stamp, 2012).

Nowadays the plan had seen many additions and changes but the seperationist planned agenda with strict zoning and land use remains present. Many of the ideas from the plan have remained inherited (Gupta, 2005; Stamp, 2012). The streets and axes are still highlighting the most important buildings. The central avenue, the previous Kingsway now called Rajpath, and the Raisina Hill with the government buildings, remain largely unspoiled (Stamp, 2012). However, the plan did got much denser which is visible along the Rajpath. Along this axis a lot of commercial buildings, offices and government buildings were added and it remained its statue as one of the most important axes.

Conclusion

The aim of New Delhi was to become a truly imperial city for the British empire. The plan, that was based on the city beautiful movement, radiates the dominance of the British colonists. The imperial aspiration became evident throughout the whole plan. Even the choice of location was based on an expression of power. The most important government buildings, Viceroy's house and the secretariat building, were placed on top of the capitoline hill to 'command, like an autocrat with two fists' over New Delhi and India. The location also permitted the dominant long wide east-west avenue on which the other government buildings where located. The other expression of power in the plan where the zoning principles. The further away from the main axis and the lower the altitude, the less important the accommodation was. The servants were placed the furthest away near the old city.

During the construction of the plan there was an ongoing battle between the conservative and liberal imperialists. The discussion was mainly about the expression of power in the architecture styles and the city plan. While the liberals wanted to incorporate the indian context, the conservative camp focussed on the power play and domination over the natives. The architects Baker and Lutyens where on opposite sides. Lutyens was on the conservative side and in favour of European Classicism, while Baker was on the side of the liberals that opted for a fusion between the indigenous architectural style and the European Classicism. The discussion resulted in a mix of both styles throughout the whole plan.

By the time the plan was finished in 1931 a lot had changed. The British empire was in a state of decline and the discussion of Indian self rule was ongoing. The British were ready to wash their hands off the situation and India soon became independent. Once the colonial hold was broken, surprisingly little was needed for the new Indian government to convert the imperial city into the capital of the Indian Republic. The existing hierarchies and segregations were simply taken over and perpetuated by the new native elite. The government used the buildings and the plan to express their own dominance and power over India. The imperial ideals with its symbolism of scale, power

and rule became the facade of the Indian democracy. During the whole period of design and construction of New Delhi the needs of the local native people in Old Delhi were not considered. The differences between rich and poor became bigger and bigger and the problems of the poor were continuously ignored. During the design period, the British colonists were more interested in the question on how to express their power than in considering the needs of the local inhabitants. The Indian government, in turn, has maintained these ideals and expression of the plan, thereby widening the gap between rich and poor.

References

Byron, R. (2010, August 23). *1931 January: 'New Delhi, the first impression' by Robert Byron.* Retrieved 6 June 2019, from Architectural Review website: https://www.architectural-review.com/buildings/1931-january-new-delhi-the-first-impression-by-robert-byron/8604927.articlehttps://doi.org/10.1179/cou.2012.17.2.004

Gaw, M. L. (2018, January 3). *Lutyens's Delhi and City Planning.* Retrieved 24 May 2019, from https://yak.wheretherebedragons.com/2018/01/lutyenss-delhi-and-city-planning/

Gupta, A. (2005). *Dominion Geometries: Colonial construction and Postcolonial persistence of the Imperial in the New Delhi Plan.* Massachusetts Institute of Technology, Cambridge, Mass.

Hall, P. (2014). *The City of Monuments - The City Beautiful Movement: Chicago, New Delhi, Berlin, Moscow, 1900-1945.* In Cities of Tomorrow - an intellectual History of Urban Planning and Design since 1880 (4th edition, pp. 212–222). Blackwell Publishing.

Irving, R. G. (1981). *Indian Summer: Lutyens, Baker and Imperial Delhi.* New Haven: Yale Univeristy Press.

Metcalf, T. R. (2002). *New Delhi: The Beginning of the End.* In An Imperial Vision - Indian Architecture and Britain's Raj (pp. 211–239). New York: Oxford University Press.

Ridley, J. (1998). *Edwin Lutyens, New Delhi, and the architecture of imperialism.* The Journal of Imperial and Commonwealth History, 26(2), 67–83. https://doi.org/10.1080/03086539808583025

Stamp, G. (2012). *New Delhi: A New Imperial Capital for British India.* The Court Historian, 17(2), 189–207. https://doi.org/10.1179/cou.2012.17.2.004

Figures

Figure 1 till 6 - Based on the drawings of **Gupta, A.** (2005). *Dominion Geometries: Colonial construction and Postcolonial persistence of the Imperial in the New Delhi Plan.* Massachusetts Institute of Technology, Cambridge, Mass. P. 50-53.

Figure 7 - Dexter, S. (n.d.). *Understand Edwin Lutyens in 5 buildings.* Retrieved 20 June 2019, from Phaidon website: https://www.phaidon.com/agenda/architecture/articles/2017/march/29/understand-edwin-lutyens-in-5-buildings/

Figure 8 - Jones, L. (2008). *North Block* [Photo]. Retrieved from https://www.flickr.com/photos/ljonesimages/3012901642/

Figure 9 - Hall, P. (2014). *The City of Monuments - The City Beautiful Movement: Chicago, New Delhi, Berlin, Moscow, 1900-1945.* In Cities of Tomorrow - an intellectual History of Urban Planning and Design since 1880 (4th edition, pp. 218). Blackwell Publishing.

Old Delhi and New Delhi: Clashes and current challenges

J. Marchand, W. van Waas

Eindhoven University of Technology
7QW3M0 Urban planet

Keywords; New Delhi, Old Delhi, postcolonialism, modernist ideology, world-class city, physical segregation

Abstract

The contrast between Old Delhi and New Delhi in terms of crowdedness, green, building quality and exposure to air pollution could hardly be more pronounced. While Old Delhi is an ancient city, New Delhi was planned by the British to dominate the city of Old Delhi in geographic and organizational ways. Most of the problems in Old Delhi have its roots in neglect during the British rule. Since Indian independence, a lot of segregation has occurred so that various problems are most pronounced in low-income areas. This paper investigates to what extent the problems in Delhi are caused by (post-)colonialism by outlining the developments and planning ideologies in Delhi over time. We find that Delhi's planning ideologies have largely been, and still are, based on Western, modernist ideals. Initially, this was mainly in the form of command-and-control in a state-planned economy; more recently, beautification ideals in combination with neoliberal policy have been implemented. This discourse of beautification can be seen as a new form of physical segregation as Delhi strives to be a world-class city in which there is no place for the poor. Because of this, the needs of the poor are not addressed. In this light, the modernist planning ideals in Delhi have been and are still highly problematic.

Introduction

The contrast between Old Delhi and New Delhi could not be more pronounced. Old Delhi is a city of bustle, with streets full of rickshaws, winding streets, and street markets filled with color, movement, and noise (Pugh, 1991: 367; Figure 1). In New Delhi, on the other hand, a planned calmness, grandeur and green dominate, with avenues lined with five-star hotels, government buildings and bungalows (Pugh, 1991: 368; Figure 2). While squatter settlements do exist in New Delhi, there are few of them, as the government tries to keep the grandeur unstained.

Old Delhi was found as the city of 'Shahjahanabad' in 1639 as the capital of the Mogul empire, which is still reflected in its vernacular buildings and streetscape; in contrast, New Delhi was conceived in 1911-1931 as a British imperial project to express the grandeur of the British Empire, in a City Beautiful inspired plan. New Delhi was planned to dominate Old Delhi not only in an organizational but also in a geographical fashion, being located on a hill overlooking Old Delhi. While India has been an independent nation for over seventy years, it seems that the inequality and subsequent segregation that was inscribed into the design of New Delhi is still in existence.

For this reason, a plethora of problems is more pronounced in the poorer and higher density areas of Old Delhi than in the lush green areas of New Delhi. First of all, Delhi has the worst air quality of any city in the world (van Raaij, 2019b). The air quality is slightly worse in Old compared to New Delhi, so that poorer Delhiites are exposed to worse air (Garg, 2011). At the same time, because of their economic situation, they have less access to healthcare, so that their

disproportionate exposure is even more problematic (Garg, 2011). Secondly, some of the buildings in Old Delhi are overcrowded which creates a risk of poor ventilation, which is also associated with increased child mortality (Gupta, Jamwal, Kumar & Gupta, 2012). Thirdly, New Delhi bolsters more (private) greenery than Old Delhi (Grover & Singh, 2015), which is associated with various positive social and health impacts (e.g. Kuo, 2011), a lot of which cannot be accessed by the inhabitants of Old Delhi. Fourthly, the quality of the homes in New Delhi is far higher, while some in Old Delhi still lack access to sanitation and live in small rooms without windows, and about 100,000 people were still sleeping in the streets of Old Delhi in the mid-1990s (Dupont, 2000a).

As these issues are becoming problematic, a solution has to be found. However, it is important to not resort to postcolonial thinking, as this could problematize vernacular practices or planning as 'backwards'. This means that one cannot apply Western models of problem stating or problem solving through urban design. There are many practices in place that shape a city's culture, bustle and employment opportunities that would be considered problematic through a Western lens. At the same time, infrastructure such as railroads and major streets that have been developed in colonial times shape the urban fabric of the city (King, 2015), which cannot be easily altered once it has been constructed. Therefore, the urban structure as designed by the British is the urban structure the population and the government have to work with while simultaneously finding solutions to solve the problems that are interconnected with the different urban fabrics. In fact, much of the problematic, post-colonial planning in Delhi has occurred since Indian independence, where Western planning models showed to be maladaptive to the Indian context.

Using a postcolonial lens, this paper will investigate how urban planning and development ideologies resulted in the accumulation of political, socio-economic and demographic problems in the city of Delhi. Therefore, this paper will investigate the following:

"To what extent are the contemporary, segregation-related problems in Delhi caused by (post)colonial ideologies?"

This research question will be addressed by analyzing the developments in Delhi since the conception of New Delhi.

The structure of this paper is as follows. First, the methodology will clarify how this research has been conducted. Furthermore, the methodology introduces several theories. These theories will be used throughout the research as lenses for looking at the historic unfolding of the problems in Delhi. This is followed by an extensive results section which describes the most important findings of the cartographic and literature research on Delhi per time period, starting in 1930 up until the present day. The paper ends with a conclusion pinpointing how the main problems in Delhi are rooted in interventions stemming from (post)colonial ideologies.

Methodology

In order to understand the discrepancies between contemporary Old Delhi and contemporary New Delhi, a historical analysis of the changes in both areas is pursued. In other words, physical and social changes in both areas and the surrounding context are described in a synchronous manner, to build a narrative of the changes in Delhi over the years. In order to do so, both cartographic and written materials are analyzed, as these convey complementary messages. On the one hand, cartographic material shows physical changes at a level of detail that cannot be captured in words. On the other hand, written material is necessary not

Figure 1: Chandni Chowk street in Old Delhi (Wired, 2015)

Figure 2: Aurangzeb Road, one of the most expensive areas in New Delhi (Shukla, 2008)

only to understand the reasons behind the observed changes in the physical structures but also to observe socio-economic, demographic, political and religious developments that cannot be or is not always captured in cartographic material. Not only factual maps are of interest, but also plans of what should be in the future, as these highlight planning discourses, convey power, and inherently exacerbate or alleviate inequalities (Manderscheid, 2011).

Specifically, historical maps and plans, starting from the conception of New Delhi, to contemporary maps and plans were analyzed and re-mapped where necessary. Simultaneously, the literature about these physical changes was reviewed, in which the maps are explained and the plans are scrutinized. This literature is a combination of social sciences literature that addresses socio-spatial and socio-economic problems through the analysis of power and politics, as well as the spatial planning literature. Furthermore, the literature on (post)colonialism was consulted, to analyze how imperial ideas shaped and still shape developments in Delhi, India, and the Global South in general.

Rather than simply outlining the historical developments in Delhi, these developments are analyzed through the lens of power and politics. In other words, the paper outlines the developments not as neutral events, but rather as moments of action in which some actors have more agency than others, which can potentially result in inequities.

Next to outlining these moments of agency, discursive trends are also highlighted, in order to show whether decisions were influenced by (post-)colonial and/or modern, post-modern or anti-modern modes of thought (see also Latour, 2012, for a discussion of modernism) and planning. We follow Watson's (2009: 2261) loose definition of modernist thought and planning here, being based on 'master planning' towards efficiency, modernization, and aesthetics. The creation of different zones (mono functionality), the separation of both built functions and traffic, and the creation of green, modern open built environments are all indications of this modern form of planning (Watson, 2009: 2261). Essentially, the application of the Western modernist urban planning in the post-independent Global South is an indication of post-colonialism (Watson, 2009).

After analyzing the developments in Delhi and how they are related to contemporary problems, the paper was structured in essential periods which are significantly different in terms of its problems, planning and discourses: a pre-independence period (up to 1947), a postcolonial period (1947-1962), the modernist period of the first Master Plan (1962-1990), the desire to become a world-class city (1990-2009), and the contemporary moment (2009-present). In the next section, the developments in each of these periods is outlined.

Colonial Delhi

The creation of New Delhi led to congestion in Old Delhi in two ways. Firstly, parts of Old Delhi were overlaid with the plan of New Delhi, so that these inhabitants were displaced and their lands were seized (Priya, 1993). Secondly, during the construction of New Delhi, little to no attention was paid to the conditions in Old Delhi, which was stagnant for over twenty years, despite an increasing population and thus density. By the 1930s the conditions were mostly dilapidated and unsanitary, much more than before the construction of New Delhi, leading to the area being defined as a slum (Priya, 1993).

These problems were acknowledged only 5 years later when the conditions had become even more problematic (Priya, 1993). The Delhi Improvement Trust (DIT) was created in 1937 by the British to decongest Old Delhi and administrate the land use. However, the DIT turned out to be mostly administrative and the newly developed areas were only inhabited by the middle- and upper-class, which consisted of the British and the native elite. In fact, only 300 families were rehoused from the slums until 1950 so that Old Delhi grew ever denser and become more and more dilapidated (Priya, 1993). Rather than being assisted, the poor were seen as a problem that had to be removed, while the British and richer native Delhiites physically separated themselves from them.

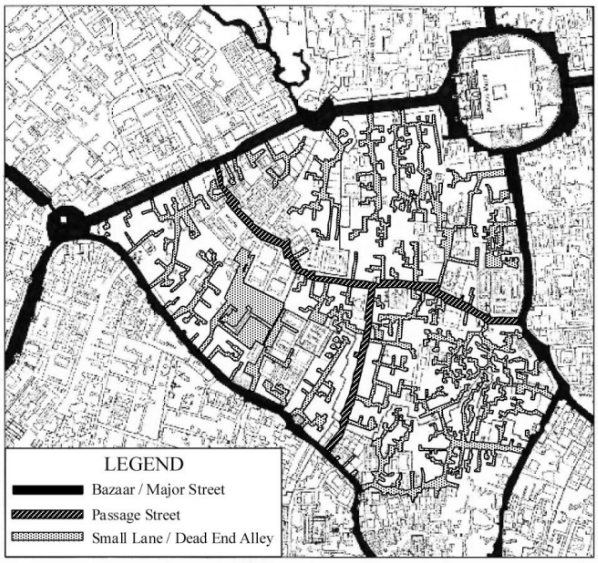


Figure 3: The area near the Jama Masjid (located in the above right corner) in Old Delhi around 1850 (Ehlers and Krafft, 1993)

While a detailed map of Old Delhi in the first half of the 20th century is not available, the spatial structure had hardly changed from 1850 (Yamane, Funo & Ikejiri, 2008). For this reason, the zoomed-in drawing from 1850 (see Figure 3) gives an accurate representation of the spatial structure of Old Delhi at the micro scale. This means that the densification during the construction of New Delhi is not captured in the map, as this did not change the street pattern significantly (Yamane et al., 2008).

Postcolonial Delhi

Towards independence in 1947, a partition of British India on the basis of religion was advocated for by many, which led to the eventual partition of British Raj into India and Pakistan, including East Pakistan which later would become Bangladesh. This came along with a mass displacement of seven million inhabitants in from Pakistan to India and vice versa. In Delhi, 327,000 Muslims left for Pakistan, and 495,000 Hindus and Sikhs left Pakistan for Delhi (Singh, 2018). Since Delhi, the postcolonial capital of India, had a population of 900,000 Hindus, Sikhs and Muslims, this meant that almost half its population now consisted of newcomers (Singh, 2018). The partition came along with significant violence, so that 20,000-25,000 Muslims in Delhi were killed by Hindus (Zamindar, 2010; Hameed, 2017), and in 1951 the remaining Muslims mostly lived in Old Delhi, constituting a discriminated minority group (Hameed, 2017; Gayer & Jaffrelot, 2012).

Figure 4: Dense building structure in Old Delhi

Since Old Delhi was already too crowded to accommodate this influx of refugees, as seen in Figure 4, they were housed in temples, schools, camps and military barracks (Singh, 2018) as well as wooden shacks built around the Red Fort and rehabilitation colonies around the city (Bhatia & Kumar, 2014). On the other side of the city in the green and widespread New Delhi, the Rashtrapati Bhavan (previously the Governor-General's Palace) became the residence of the Indian President Jawaharlal Nehru. More government buildings were built, and government housing was provided south of Lutyens' Bungalow Zone. British buildings were appropriated for Indian government purposes, and colonial symbolism such as the statue of King George V were removed to make place for a new identity (Sharma, 2017). For the mostly upper- and middle-class Pakistani refugees housing was provided, while simultaneously arriving poor rural native Indian refugees were largely ignored and did not get housed (Priya, 1993), enforcing the already existing segregation even more.

With the rapid population growth, the pressing need to (re)house refugees in combination with a lack of attention paid to Old Delhi during colonial times resulted in unhygienic conditions and a consequent outbreak of Jaundice in 1956 (Hameed, 2017). The need for planning was tackled by the Delhi Development Authority (DDA) and a development plan to address the problematic issues of high density and health problems. Simultaneously, work on a master plan was started, which was finished by 1962.

Modernistic Delhi and its Master Plan

Delhi's 1962 Master Plan (Figure 5) was very modernistic in nature. According to the plan, Old Delhi was to be decongested and partially redeveloped in the style of British town plans of the 1930s (Pugh, 1991; Priya, 1993; Datta, 1983; Sundaram, 2009; Hameed, 2017). Rehousing was to occur in satellite towns and a kilometer-wide green belt was to be constructed around the urban limits to prevent the city to merge with surrounding cities (Priya, 1993).

The government decided that the DDA needed to be the monopolist player on the land market, in order to limit speculation. However, in practice, the DDA drove up land scarcity by not supplying enough and consequently auctioning the land to the highest bidder, in order to make a profit. This way, the lower- and middle-class were left out (Pugh, 1991). The money gained through these practices was used to develop new services in the newly constructed areas based

on British town planning ideals, such as kindergartens, shops, schools and health centers (Datta, 1983).

At the same time, there no attention was paid to the provision of these services in the existing urban areas or slums (Datta, 1983; Pugh, 1991). Rather, the slums needed to be cleared, following the modernist ideal of a beautification (Datta, 1983: 6-7; Priya, 1993). Population growth was to be controlled, slums were to be cleared, and socially 'backward' practices were to be ruled out (Tarlo, 2003). While clearance was on paper only to happen when alternatives would be available, in practice, many slums were cleared without rehousing (Hameed, 2017), showing the lack of possibilities and attention for the poor in favor of the beautification of Delhi. The problems of the poor were not addressed but rather physically displaced out of sight of the upper and middle classes.

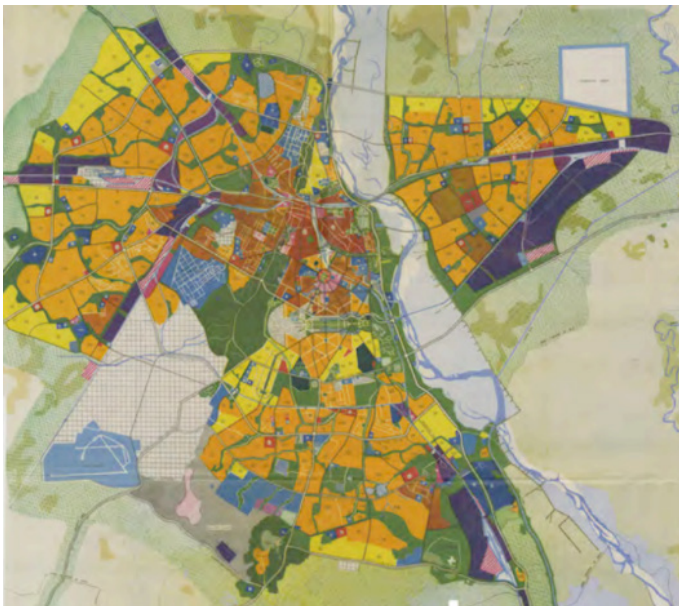


Figure 5: Land use in Delhi 1962's Master Plan (Hameed, 2017)

The focus on providing high-quality rather than large-scale housing in combination with rapid urbanization resulted in a lack of housing provision; by 1970 the need for housing had increased from 150,000 to 380,000 (Priya, 1993). As the poor were excluded but still required housing, they had developed new slums around the city. Furthermore, in Old Delhi, the number of commercial establishments increased by 700% from 1961 to 1982 (Bose & Sarkar, 2002). The population only declined slightly in the same time, resulting a large increase of crowdedness; for this reason, the upper-class started moving out to low-density areas such as New Delhi (Gayer & Jaffrelot, 2012; Dupont, 2000b), which increased the New Delhi density from 25 to 32 inhabitants per hectare (Datta, 1983), which still stood in stark contrast with Old Delhi and its 740 inhabitants per hectare (Dupont, 2000b). Significant rehousing occurred in the period of 1975-1977 (the "Emergency") where 700,000 Delhiites were forced out of their homes and sent to the resettle at the outskirts of the city (Tarlo, 2003). These were areas with lack of proper sanitation endangering health (Priya, 1993), as there was no proper sewage treatment available and many families did not have a toilet. This led to outbreaks of cholera and other diseases that result as a lack of hygiene (van Raaij, 2019a & 2019b; Priya, 1993). Furthermore, these areas also suffered from a lack of employment, resulting in either long-distance commuting or a drop in family-income (Misra, 1986), reinforcing the existing inequality.

The development of housing without public transportation infrastructure or jobs resulted in heavy commuting, which to this day is a major cause of Delhi's high concentrations of particulate matter, CO_2 and NO_x and consequent smog. Many Delhiites have lung diseases and cardiovascular diseases causing premature deaths, especially among the low- and middle-income groups who cannot afford air pollution masks or healthcare and live in badly insulated buildings or dwell along polluted streets (WHO, 2018; van Raaij, 2019b).

By 1981, only half of DDA's projects had been realized (Batta, 1983) and the population growth being 3,5 million rather than 500,000 meant that Delhi was more crowded than ever, despite the intentions of decongestion (Priya, 1993; Dupont, 2000b). The pursuit of modernity thus came along with substantial inequality (Tarlo, 2003).

From the 1980s onwards, not all slums were cleared, but some were to be improved so that basic amenities were provided in these areas, the lands could still be cleared by the DDA at any time (Priya, 1993). The poor were still seen as a plague and a threat that could cripple the cultural and historically important city, thus they needed to be disciplined in order to progress towards the desired, modern future of the city (Priya, 1993; Hameed, 2017): The poor were to be developed for the city, instead of developing the city for the poor (Priya, 1993).

This way, the actual needs of the lower-class were still being ignored and stigmatized. The number of squatters and total population kept doubling, which did not help in solving the slum problem (Dupont, 2000b).

Delhi as a world-class city

In the 1990s, India started to open up its economy. In this period, the discourse of a 'world-class city' started to take hold (Dupont, 2008). For this reason, a new slum policy was introduced. The percentage of slum dwellers in the total population had increased from 5% in 1951 to 18% in 1991, which would further increase to 27% by 1998. Two different slum strategies were used, depending on the situation. In land that would not be used in the next 15-20 years, slums would be upgraded by implementing basic amenities (Dupont, 2008). Furthermore, a policy of regularization was pursued, which enabled informal settlements to obtain a formal status after which they had to conform to building codes and tax payments, in exchange for basic services. However, this formal status did little in making actual changes to the neighborhood conditions (Hameed, 2017). At the same time, occupied land that was required for projects was evacuated (Dupont, 2008).

In practice, however, very few slums were upgraded (Dupont, 2008). Rather, many squatters were rehoused some 30 kilometers out of the city, on the outskirts (Dupont, 2008). Khosla and Jha (2005) pointed out that this is an economically undesirable thing to do, especially because many of the squatters contribute to the informal sector of the economy, which is easily overlooked. Moreover, the new slums did not have an existing economy, making that it was neither attractive nor financially viable to live there. However, 65,000 families were resettled in the period 1990-2007, essentially increasing the segregation by trapping them further into poverty (Dupont, 2008).

In preparation for the Commonwealth Games in 2010, the Yamuna river banks were cleansed and zoned for a recreational green belt (Hameed, 2017). This is in line with the aspiration of "Clean Delhi-Green Delhi" by the court. However, to achieve a green Delhi, the slums around the banks had to be cleared, evicting the poor from their houses, under the argument that the Yamuna river was polluted (Dupont, 2008). If they were able to afford it, the families could buy plots of land 40 km from their old locations, but had to deal with overcrowded and paid sanitary facilities (Hameed, 2017).

Essentially, the discourse of beautification is a reiteration of the modernist discourse of the first masterplan. However, the command-and-control nature of the masterplan was gradually abandoned, as more neoliberal forms of planning were introduced in the 1990s (Dupont, 2008).

In 2009, a master plan for 2021 was drafted, which

Present-day and future plans

continues the aspiration for Delhi as a world-class, global (smart) city (DDA, 2007; Figure 6). In the plan, squatter settlements are still seen as bad neighborhoods that need to be disciplined and cleansed from the poor. In fact, the plan reiterates much of the beautification discourse of the 1990s, including the discourse of the unauthorized (Hameed, 2017). The dichotomy of slum upgrading and slum removal based on the desire to develop the land and create a green belt is still included in the plan (Dupont, 2008).

Again, the problems are categorized as a lack of proper housing by authorities. Class segregation and minorities are ignored, while these are the ones that suffer from the problems mentioned in a disproportionate way compared to the middle- and upper class (Hameed, 2017). The slum regulation policies of the 1990s are seen as failures, but many are reused in the new Master Plan (Hameed, 2017; Dupont, 2008). Reallocation and cleansing is still happening, and alternatives need to be present for this to be allowed (Dupont, 2008). In other words, inhabitants are still not 'pulled' towards better locations, but are rather pushed away by modernistic planners. At the same time, areas such as Old Delhi are still is the core of the urban economy. This has resulted in increased commuting by motorized vehicles which comes along with heavy pollution and many traffic accidents (Tiwari, 2002).

Since the air quality guidelines presented by WHO in 2006, more attention is given to the hazard air pollution presents for the population. In 2018, Delhi scored highest average yearly particulate matter concentration with 113.5 µg/m3 in the world, compared to the accepted standard of 10 µg/m3 (IQAir, 2018). The air pollution caused by traffic is being reduced by the increased use of cycle rickshaws: tricycles in which people can be transported, essentially being cycling taxis (Bose & Sarkar, 2002). Their growth is rapid and still rising. However, most of the time, rickshaws are used by people with high income. This further excludes the poor: they cannot afford air pollution masks to protect their health.

There are initiatives from the inhabitants themselves: educating their children, producing motor helmets that filter particulate matters, etc. But they see that this is only a temporary fix, and they hope that the root of the problem will be tackled (van Raaij, 2019b). However, it seems that this will not be happening soon, as pollution of air and water are not included in the election campaigns (van Raaij, 2019b). In a city with a rising population, especially in Old Delhi, it is important to tackle these problems as soon as possible in order

to prevent falling behind. In fact, falling behind in terms of meeting the needs of the population is exactly what happened for almost the last century. For this reason, the problems in Old Delhi are substantial.

At the same time, it is important not to frame Old Delhi as being underdeveloped or inferior to New Delhi. While the DDA frames Old Delhi are seen as "dirty, unhealthy and too crowded" and calls for reorganization and cleansing (Dupont, 2011), its bustling street attract hundreds of thousands of Delhiites to work and live there. Essentially, the DDA still reflects the postcolonial tendencies of the early 60s, as the DDA considers New Delhi pristine and presitiguous, while Old Delhi is seen as problematic. The result of this is that a part of the population is not wanted, be it the natives or the poor (Dupont, 2011).

Conclusion

Segregation in Delhi has become ever more widespread, as several areas are designed to be concentrated with lower classes, in conditions of poverty with substandard schools, poorer health, and lesser infrastructure (Ministry of Minority Affairs, 2006). Similarly, Old Delhi has problems related to high densities as well as health and air pollution, while New Delhi is profiting from green areas, low densities and many public services (see Figures 7 & 8). Decongestion has not proved successful in the past, since the poor never had a proper alternative to live and work. The designed satellite towns they were supposed to rehouse in did not provide enough pull-factors such as proper housing, good employment and community feeling. Instead, the cleansing and rehousing process was always based on push-factors, so that rehousing was largely involuntary.

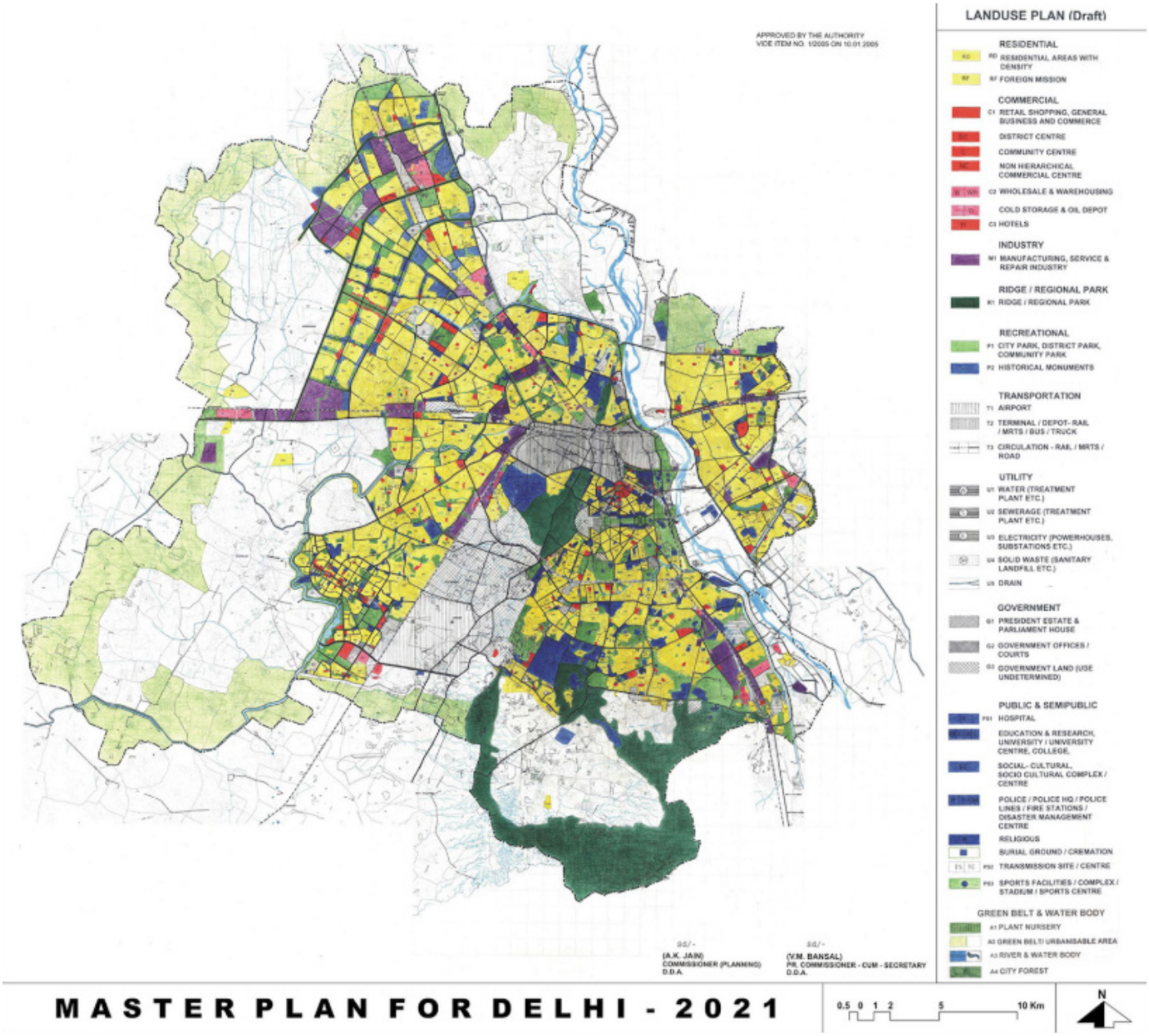


Figure 6: Land use in Delhi 1962's Master Plan (Hameed, 2017)

The lack of employment in the satellite towns also led to high air pollution in Delhi because of high traffic density (Tiwari, 2002), decreasing the health of the poor. It seems that the government is not concerned about the pollution of both air and water, as these themes are not included in the election campaigns (van Raaij, 2019b). This is worrying, since Delhi is growing fast.

The discourse of the unauthorized has found a new discourse alongside it, namely the discourse of a 'world-class' or 'global' city, in which there is no place for slums (Hameed, 2017; Dupont, 2011; King, 2015). New Delhi is profiting from the competition towards a world-class city: luxury hotels, gated communities for the high-class and business centers, and many Western inhabitants opening the city towards becoming global (King, 2015).

In Delhi, the poor are removed from the equation by simply cleansing out their slums instead of providing the poor with opportunities. The urban plan of Delhi has proven to be rooted in (post)colonial and modernist way of thinking: the city needs to be beautiful and developed. The problems (= the poor) need to be removed from sight, but because of the constant exclusion of the poor, this has become difficult as the number of slum dwellers kept increasing. Every action to solve the problems of inequality has come too late, being a form of symptom control rather than real solutions. This way, Delhi has become a city where the poor and their problems are not addressed, but are rather provided with piecemeal solutions and kept segregated from the 'beautiful' areas in Delhi.

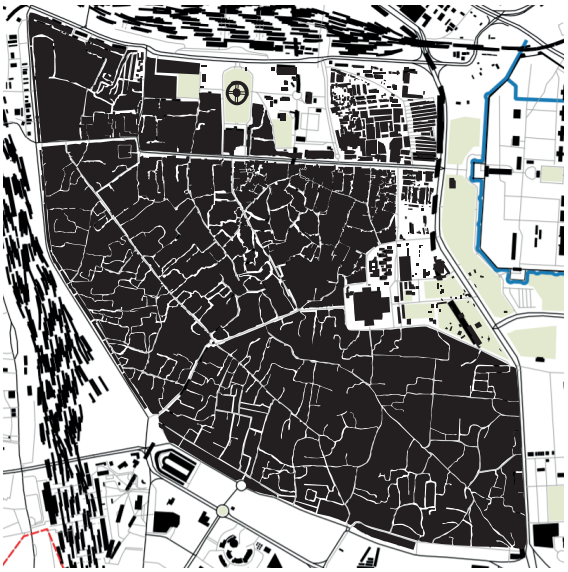


Figure 7: Dense building structure in Old Delhi

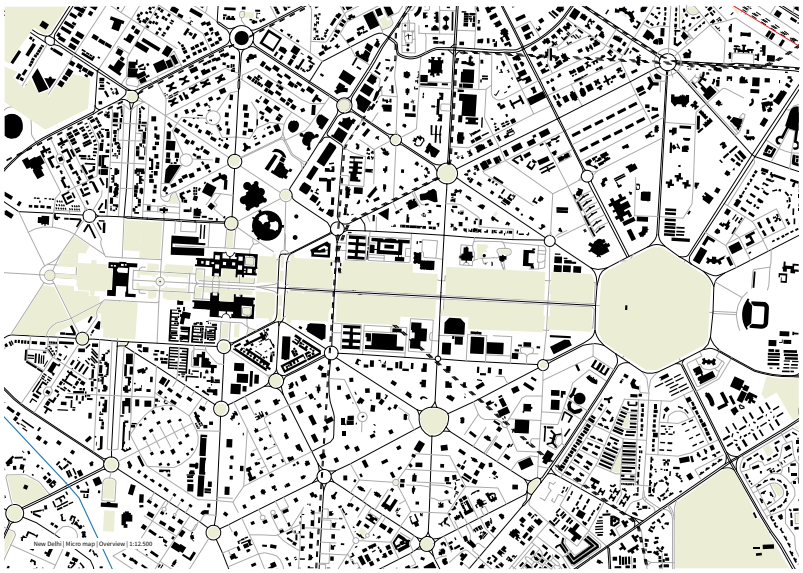


Figure 8: Widespread building structure in New Delhi

References

Bhatia, S., & Kumar, A. (2014). *History and Town Planning in Delhi. Slideshare.* Retrieved from https://www.slideshare.net/shrutib26/history-town-planning-of-delhi

Bose, R., & Sarkar, P. K. (2002). *The role of cycle rickshaws–low cost means of transport in old part of a city. In Urban Mobility for all.* Proceedings of the 10th International CODATU Conference.

Datta, A. (1983). *Delhi. Cities*, 1(1), 3-9.

DDA (Delhi Development Authority). (2007). *Master Plan for Delhi - 2021.* (Incorporating modifications up to 31st March, 2017). Retrieved from https://dda.org.in/tendernotices_docs/may1/MPD-2021_31.03.2017260417.pdf

Dupont, V. (2000a). *Mobility Patterns and Economic Strategies of Houseless People in Old Delhi.* Delhi, Urban Space and Human Destinies, Delhi: Manohar, 99-124.

Dupont, V. (2000b). *Spatial and demographic Growth of Delhi since 1947 and the Main Migration Flows. Delhi,* Urban Space and Human Destinies, Delhi: Manohar, 229-240.

Dupont, V. (2008). *Slum demolitions in Delhi since the 1990s: An appraisal.* Economic and Political Weekly, 79-87.

Dupont, V. (2011). *The dream of Delhi as a global city.* International Journal of Urban and Regional Studies, 36(6), 523-554

Ehlers, E. and Krafft, T. (1993). *Shahjahanabad/Old Delhi: Traditional and Colonial Change,* Franz Steiner Verlag, Stuttgart.

Garg, A. (2011). *Pro-equity effects of ancillary benefits of climate change policies: a case study of human health impacts of outdoor air pollution in New Delhi.* World Development, 39(6), 1002-1025.

Gayer, L., and C. Jaffrelot. (2012). *Muslims in Indian Cities: Trajectories of Marginalisation.* Columbia University Press.

Grover, A., & Singh, R. (2015). *Analysis of urban heat island (UHI) in relation to normalized difference vegetation index (NDVI): A comparative study of Delhi and Mumbai.* Environments, 2(2), 125-138.

Gupta, S., Jamwal, D. S., Kumar, D., & Gupta, S. K. (2012). *Morbidity among under five children in a rural area of Jammu.* JK Science, 14(2), 85.

Hameed, Y. (2017). *Master Plans and Patterns of Segregation Among Muslims in Delhi.* Critical Planning, 23.

IQAir. (2018). 2018 *World Air Quality Report: Region & City PM2.5 Ranking.* Retrieved from https://www.airvisual.com/world-most-polluted-cities

Khosla, R., & Jha, G. (2005). *Economics of resettling low-income settlements (Slums) in urban areas: a case for on-site upgrading.* South Asia Network for Economic Research Institute (Ed.). New Delhi: Centre for Urban and Regional Excellence.

King, A.D. (2015). *Colonialism and Urban Development,* In: Miraftab, F. & Kudva, N. (Eds.) Cities of the Global South Reader. London: Routledge

Kuo, F. E. (2011). *Parks and Other Green Environments: Essential Components of a Healthy Human Habitat.* Australasian Parks and Leisure, 14(1), 10.

Latour, B. (2012). *We have never been modern.* Harvard University Press.

Manderscheid, K. (2012). *Planning sustainability: Intergenerational and intragenerational justice in spatial planning strategies.* Antipode, 44(1), 197-216.

Ministry of Minority Affairs. (2006). *Sachar Committee Report - High-Level Committee For Preparation of Report on Social, Economic and Educational Status of the Muslim Community of India. Ministry of Minority Affairs, Government of India: New Delhi.* Retrieved from http://nagarikmancha.org/images/1249-Documents-SacharCommitteeReport.pdf.

Misra, B. (1986). *Public intervention and urban land management: the experience of three metro cities of India.* Habitat international, IO(1/ 2), 59-77

Priya, R. (1993). *Town planning, public health and urban poor: Some explorations from Delhi.* Economic and Political Weekly, 824-834.

Pugh, C. (1991). *Housing and land policies in Delhi.* Journal of Urban Affairs, 13(3), 367-382.

Sharma, M. S. (2017, September 2). *What statue-topplers around the world can learn from India. The Times of India.* https://timesofindia.indiatimes.com/india/what-statue-topplers-around-the-world-can-learn-from-india/articleshow/60341750.cms

Shukla, S. (2008, November 17). *Aurangzeb Road, New Delhi* [image]. Flickr. Retrieved from https://www.flickr.com/photos/siddharthashukla/3560931828

Singh, S. (2018, April 24). *Capital gains: How 1947 gave birth to a new identity, a new ambition, a new Delhi.* Hindustan Times. https://www.hindustantimes.com/delhi-news/capital-gains-how-1947-gave-birth-to-a-new-identity-a-new-ambition-a-new-delhi/story-e0GfoFrhwStTU2910v5DrJ.html

Sundaram, Ravi. 2009. *Pirate Modernity: Delhi's Media Urbanism.* Routledge: London.

Tarlo, E. (2003). *Unsettling memories: narratives of the emergency in Delhi.* University of California Press.

Tiwari, G. (2002). *Urban transport priorities: meeting the challenge of socio-economic diversity in cities, a case study of Delhi, India.* Cities, 19(2), 95-103.

Van Raaij, B. (2019a, April 12). *Stemmen trekken met een wc-offensief.* De Volkskrant. Retrieved on May 19, 2019 from https://www.volkskrant.nl/kijkverder/v/2019/stemmen-trekken-met-een-wc-offensief/

Van Raaij, B. (2019b, May 12). *Extreme luchtverontreiniging is in de Indiase verkiezingen nog steeds geen thema.* De Volkskrant. Retrieved on May 17, 2019 from https://www.volkskrant.nl/nieuws-achtergrond/extreme-luchtverontreiniging-is-in-de-indiase-verkiezingen-nog-steeds-geen-thema~be37077e/

Watson, V. (2009). *Seeing from the South: Refocusing urban planning on the globe's central urban issues.* Urban Studies, 46(11), 2259-2275.

WHO. (2006). *WHO Air Quality Guidelines: Global Update 2005.*

WHO. (2018, May 2). *Ambient (outdoor) air quality and health. World Health Organization.* Retrieved on May 20th, 2019 from https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health

Wired. (2016). *Old Delhi Street.* Reddit. Retrieved from https://www.reddit.com/r/india/comments/3o7wyi/wired_old_delhi_street/

Yamane, S., Funo, S., & Ikejiri, T. (2008). *Space formation and transformation of the urban tissue of old Delhi, India.* Journal of Asian Architecture and Building Engineering, 7(2), 217-224.

Zamindar, V. F. (2010). *The Long Partition and the Making of Modern South Asia: Refugees, Boundaries, Histories.* Columbia University Press. p. 247. ISBN 978-0-231-13847-5.

Overarching problem statement and aims

Although public transport continues to be of importance to mitigate congestion and target social inequality, poverty traps may address monofunctional neighborhoods, past studies have shown how incomplete execution, absence of intermodal connections, political discourses and conflicting interests impaired development. The misconception that dedicated bus lanes reduced mobility for the population was propagated in false information by people who perceived diminishing space for the car as reduction of mobility. The same is true for improved sanitation, which is deemed unhealthy by those who defecate in open air. Finally, water provision is not addressed as illegal tapping of water by those without access to drinking water is seen as the issue and should be mitigated by law enforcement, which is considered to be the real solution, rather than solving the actual problem of insufficient access to water.

Delhi's inequality issues prove to be more elaborate than the difference between Old and New Delhi, therefore it is a pointless exercise to solve this inequality arbitrarily within New Delhi. Instead, a citywide strategy should be adopted which is not so much about urban fabric as it is about alleviating inequality issues prominent on a personal level. Symptomatic top-down treatments, exaggerating exclusion of the poor, have shown to be prevalent in employed policies. The focus should, therefore, be on a bottom-up approach in an attempt to incrementally improve living conditions of the poor, whilst addressing the prevalent manners in which this urban class is marginalized. Solutions should serve as a means to redistribute amenities, wherein the wealthy should also benefit from paying for improvements targeting the poor. Such solutions concern issues that all Delhiites are faced with, but especially affect the living conditions of the poor.

Possible solutions, strategy and final scenario

Solving Delhi's inequality issues will not happen overnight. After speculating about possible scenarios and strategies, five general solutions emerged. These were divided into two programs: a Housing Program and a Public Program. Furthermore, a distinction is made between solutions that are applicable in current urban areas and new developments.

Housing program

The housing program is concerned with improving dwellings by means of two proposed solutions: upgrade buildings to minimum standards and social housing regulations by the government. First, upgrading buildings to minimum standards should be pursued to ensure proper living conditions for every inhabitant in existing neighborhoods. This means that each person must have a minimum amount of space and (reliable) access to water, electricity, sanitation, and so on. These measures ensure that existing infrastructure can be optimised, instead of demolishing existing buildings. The government should be made responsible for realizing this rather than the poor themselves, who do not have the means to do so; if this is not the case, the poor will be said to not have met the goals and will be stigmatized and/or relocated.

Second, new developments should be in compliance to proposed governmental regulations concerning social housing. These developments should also conform to the minimum building standards and should strive to include a mix of social housing and regular housing. Essentially creating a mix of upper, middle and lower class citizens as opposed to current monofunctional suburbs (including New Delhi).

Furthermore, new developments inevitably have high density and should be combined with local amenities and diverse employment opportunities for every social

Table 1: Solutions are allocated to a housing program and public program with their area of effect.

	In current urban areas	For new developments
Housing program	**Upgrade buildings to minimum standards** *(Min amount of space per person, water access, electricity, sanitation, etc.)*	**Government social housing regulation** *(Rich pay for the poor and also benefit themselves)*
Public program	**Recreational (public) green** *(New Delhi green becomes public)* **Community buildings and public spaces** *(Place where the local problems can be identified and solved locally)* **Public spaces and facilities** *(Water points, markets)*	

class.This includes office spaces, bustling market squares and all sorts of provisions for a service economy. The private sector should realize these developments. It essentially allows for developers and the upper class inhabitants to subsidize minimum standards of living for the poor, thereby creating a micro-welfare state through real estate opportunities. It is important to note that corruption plaguing the Indian government will most likely impair governmental developments.
There are several projected benefits, not only financial viability ensured for both the rich and the poor, it will simultaneously be inclusive and abolish segregation. Use of the private sector will make it economically efficient, and mixed land use will reduce commuting and thereby reduce air pollution.
However, a severe limitation is that upper class residents might not want to live in the same area as the lower class, similarly to the already existing segregation. This is potentially reinforced by the existing caste system. For this reason, problems may occur in financing the houses for the poor. On top of that, the idea of a welfare state might not be acceptable in an Indian context. Furthermore, office buildings and markets tend to group together naturally, essentially forming a zoned space for these activities. This proposal seeks to spread out these amenities, which might not be economically possible.

Public program

The Public Program consists of three solutions that will all be implemented in current urban areas and new developments. First, more public green spaces must be realized. Under current conditions, this could be realized by opening the New Delhi private green spaces for the inhabitants of Old Delhi as well. It would provide health benefits to the less fortunate, who may otherwise not have access to it. Secondly, public spaces must provide water points so that every person has the possibility to access water, thereby also avoiding extortion by those in power (with access to water). Furthermore, open markets in more diverse spaces may increase mixed use throughout the city and corollary provide more employment opportunities.

Finally, implementing community buildings and public spaces empowers locals to identify their problems and solve these locally, which is of utmost importance. This plan will be executed by designating a community building for every neighborhood. It could be situated in existing buildings or be supplied by new ones. In these community buildings many activities can take place free of charge, including courses, classes, discussions and parties. Furthermore, it should be a place for information resources, both digital and analogue. Essentially, it should be a building for and by the community.
Benefits will include that it is an accessible, natural gathering space which should be able to accommodate everyone. The support of residents is a prerequisite in order for this proposal to succeed. If an existing building is used, government financing to facilitate the community building is minimised. Furthermore, it can be maintained by the community itself through volunteers.
However, there are also some limitations in the omission of improving living conditions for the poor by the government. The government may only provide in knowledge and financing. Instead, a paradigm change has to happen where the poor are not identified as the problem, but rather part of the solution; they are the ones who need to receive help. Finally, the rich could put pressure on the government not to facilitate the poor, which will have negative impact on this proposal.

Conclusion and limitation

In this series of papers, the persevered attitude of neglecting the poor has been elucidated. They are seen as the problem and as a result, they are segregated from the more wealthy inhabitants, instead of helped. This should be changed by stimulating a paradigm shift, which could be initiated through community planning by showing the city the important contributions of the poor that already benefit the wealthy. The scenarios developed in the previous section could help realize this strategy.
Since a Western perspective was harnessed to identify these and other problems to which solutions are proposed here, they might not represent what Delhitiis consider the actual issues they need to face. Moreover, since no actual field research was executed on location, the problems and strategies in this paper might not be viable in the real context. Care should be taken not to understate the actual problems and the unforeseen obstacles along the way of overcoming these problems.

Appendix A

A.1: Hexagons

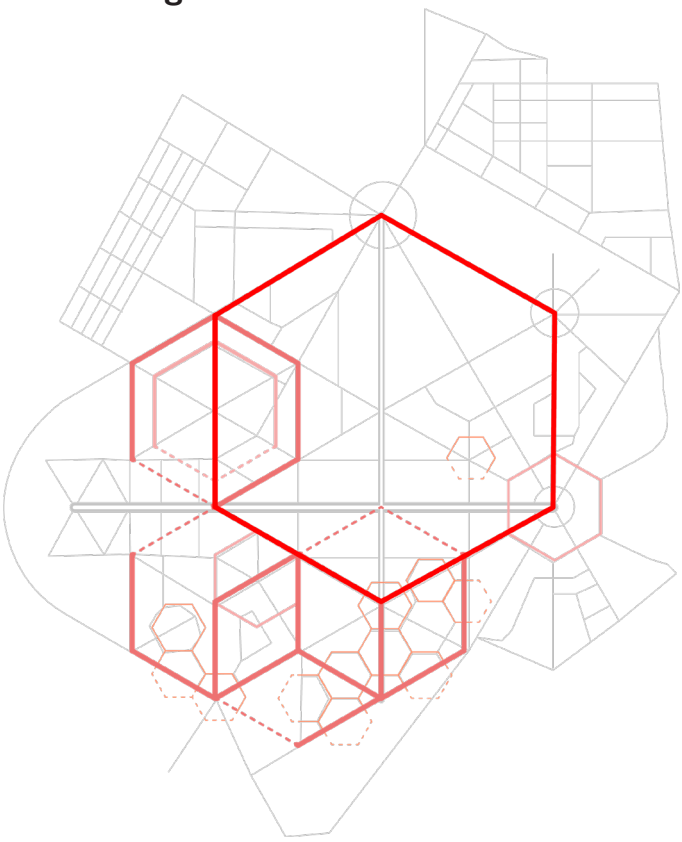


Figure A.1: The hexogonal nature of the plan is encompassed on several scales; it serves as structuring aspect on city level to organising groups of bungalows on neighbourhood scale.

A.2: Triangles

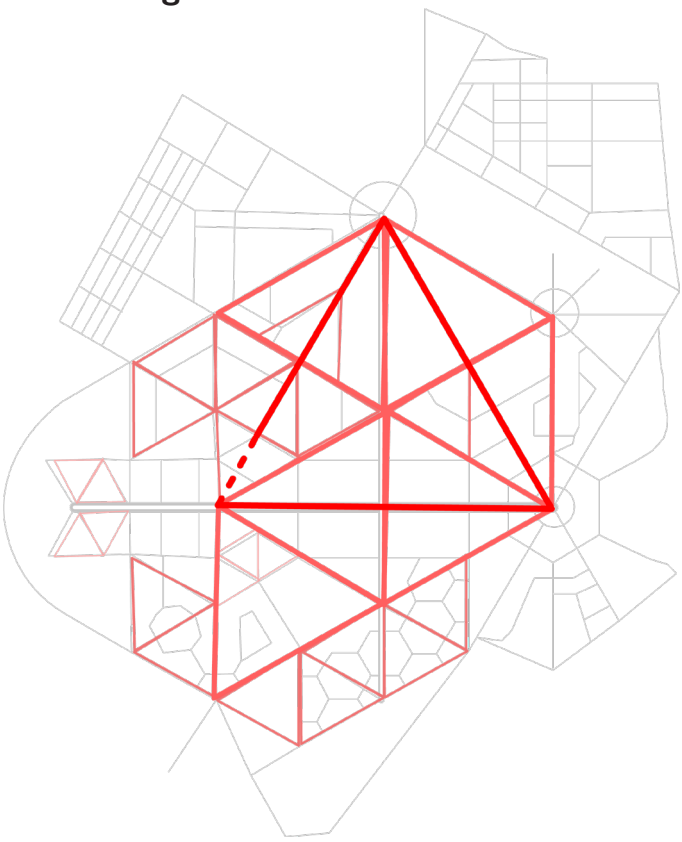


Figure A.2: New Delhi is structured by triangles and comprises of several (partial) hexagons as a result.

A.3: Symmetry 1

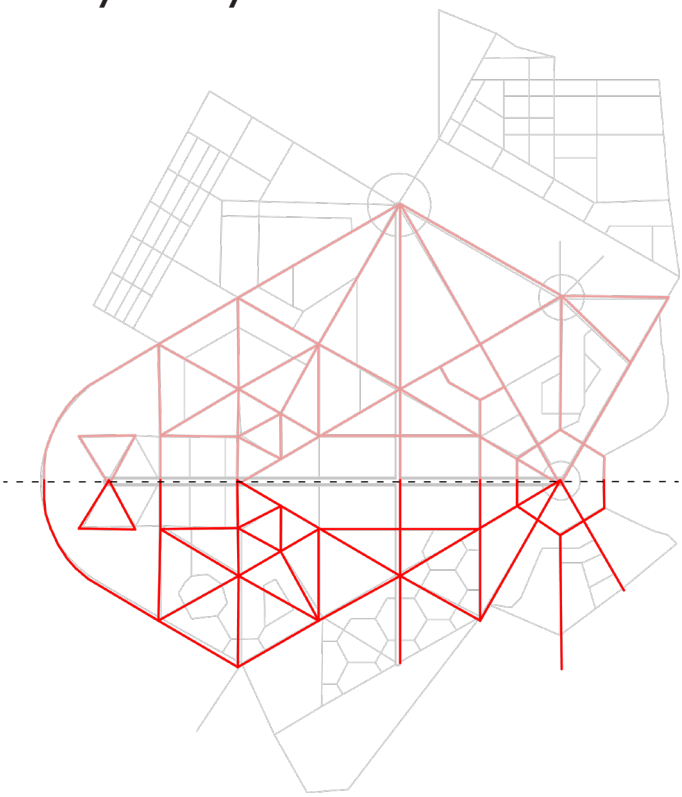


Figure A.3: The prosessional avenue terminating at the Viceregal residence is also an axis of symmetry.

A.4: Symmetry 2

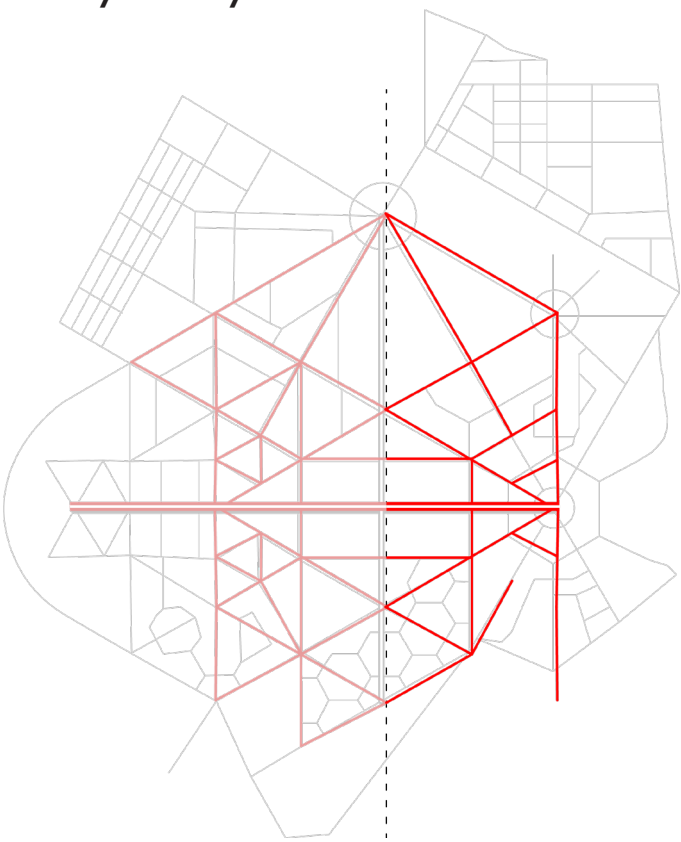


Figure A.4: The central axis between Connaught place and a cathedral down south is of a symmetrical nature.

Appendix A

A.5: Symmetry 3

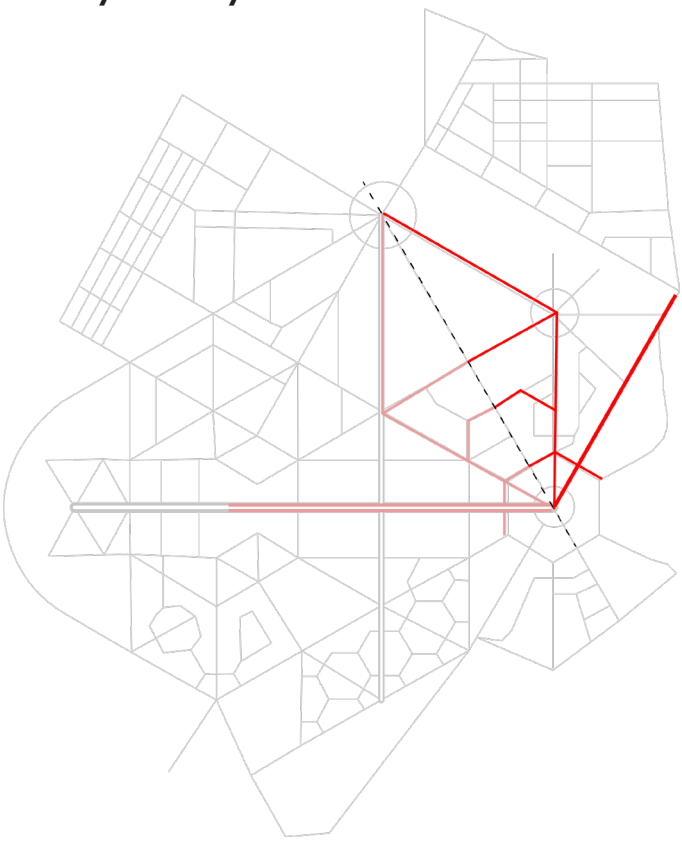


Figure A.5: Symmetry is employed along the sides of the overarching triangle.

A.6: Symmetry 4

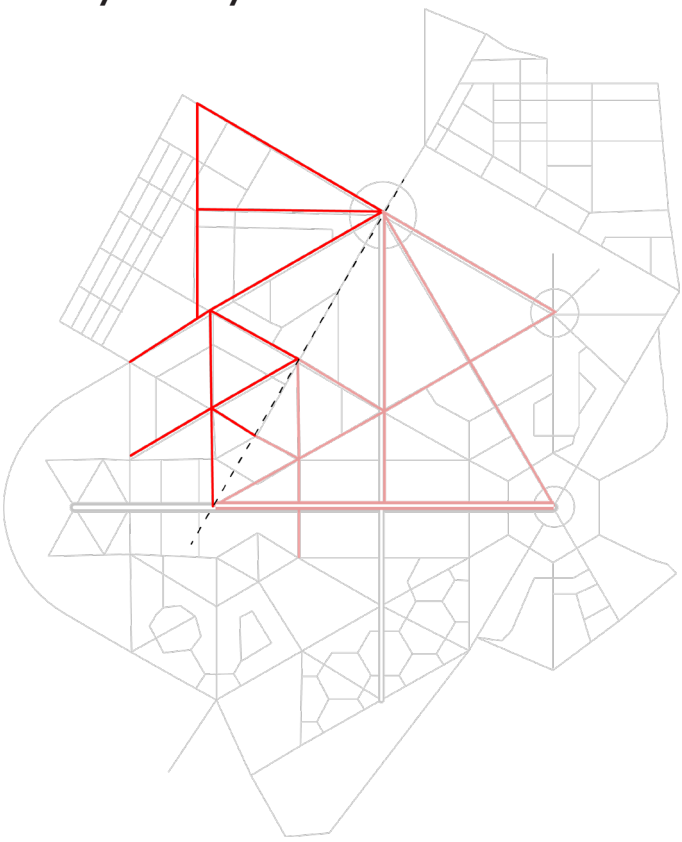


Figure A.6: The avenue designated for commercial use forms an axis of symmetry.

A.7: Plot division

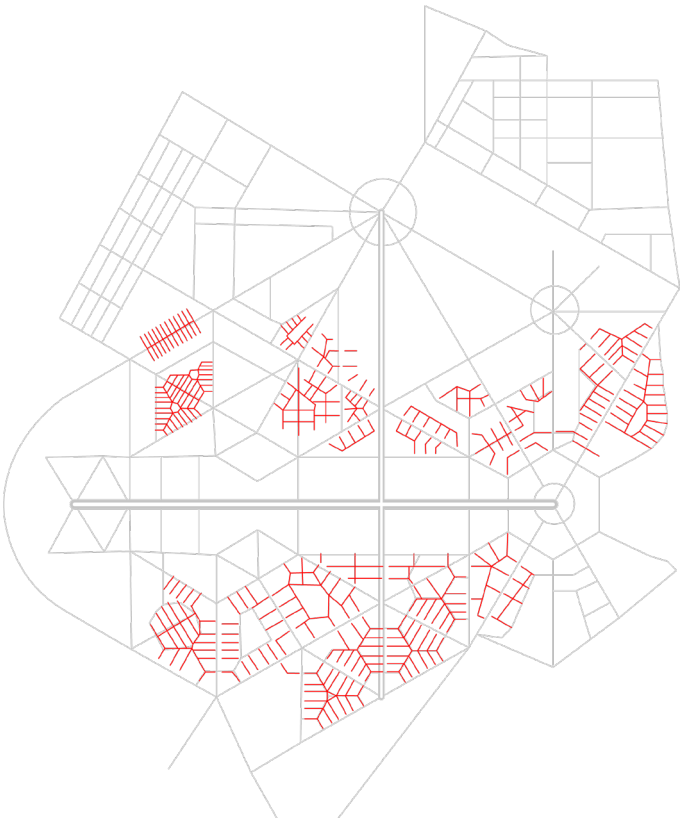


Figure A.7: The plot division occupies a large portion of the plan . It is designated to bungalows and particularly favours hexagons in the south.

Appendix B

B.1: Densification

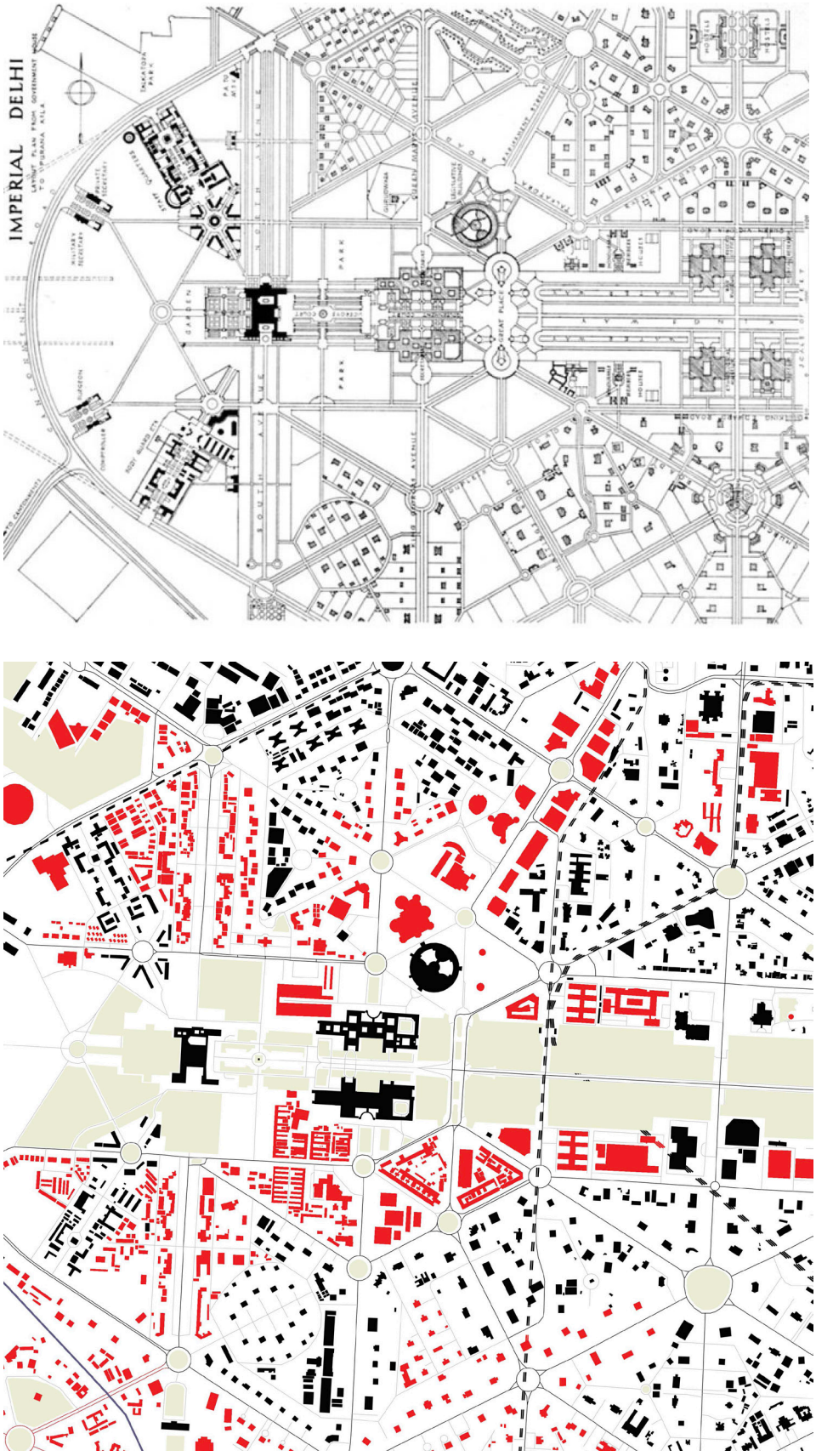


Figure B.1: Densification of the New Delhi plan; red are the new added buildings.

Appendix B

B.2: Axis

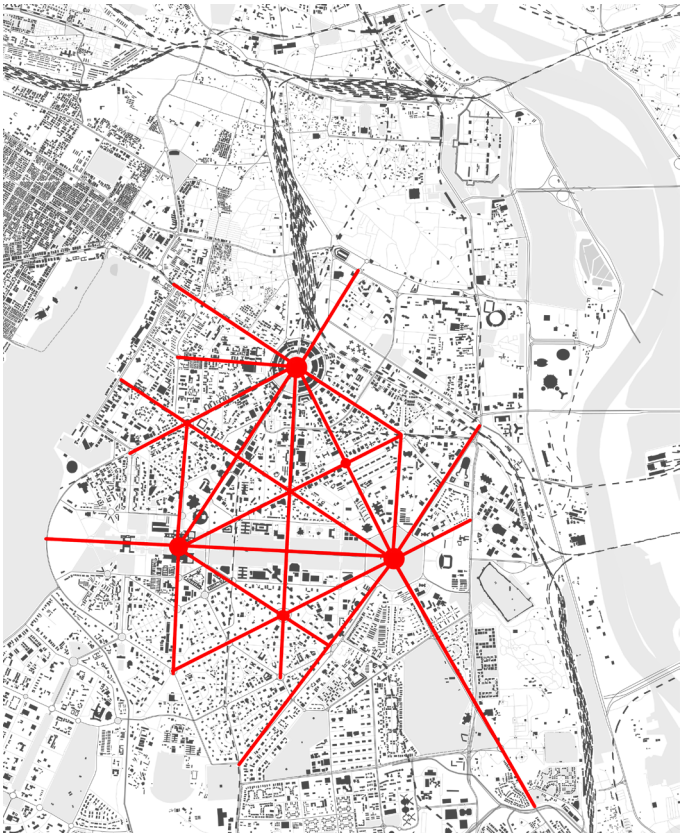


Figure B.2: The axis in the New Delhi plan.

B.3: Triangles

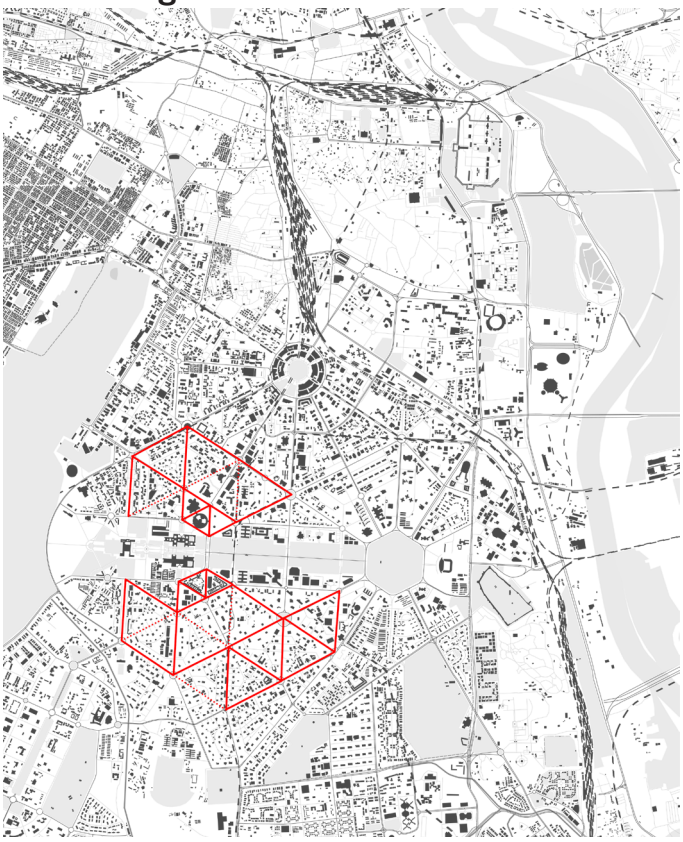


Figure B.3: Triangles in the plan.

B.4: Hexagon

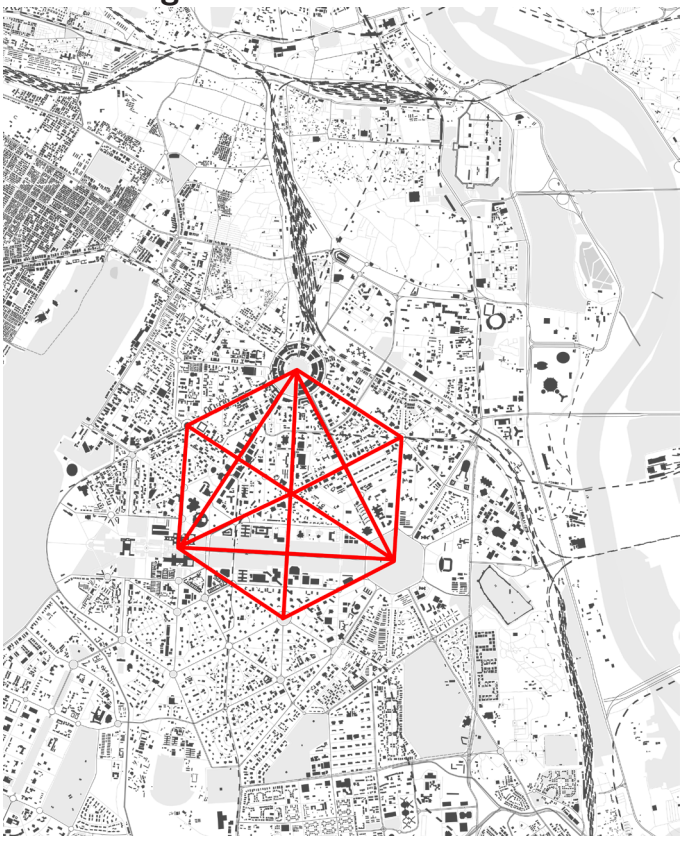


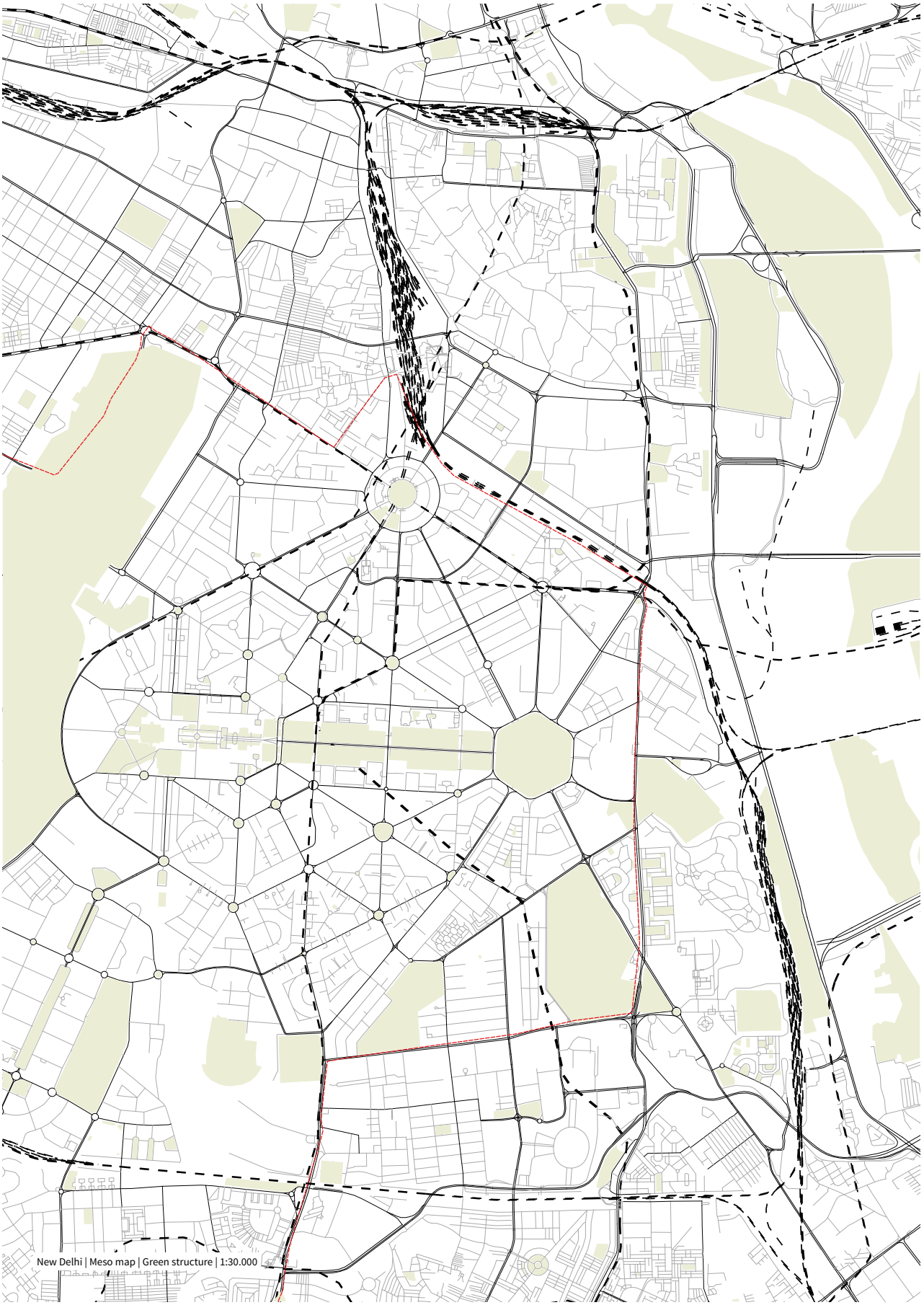
Figure B.4: The ordening hexagon.

B.5: Symmetry

Figure B.5: Symmertry in the plan, mirrored in the main axis running from east to west..

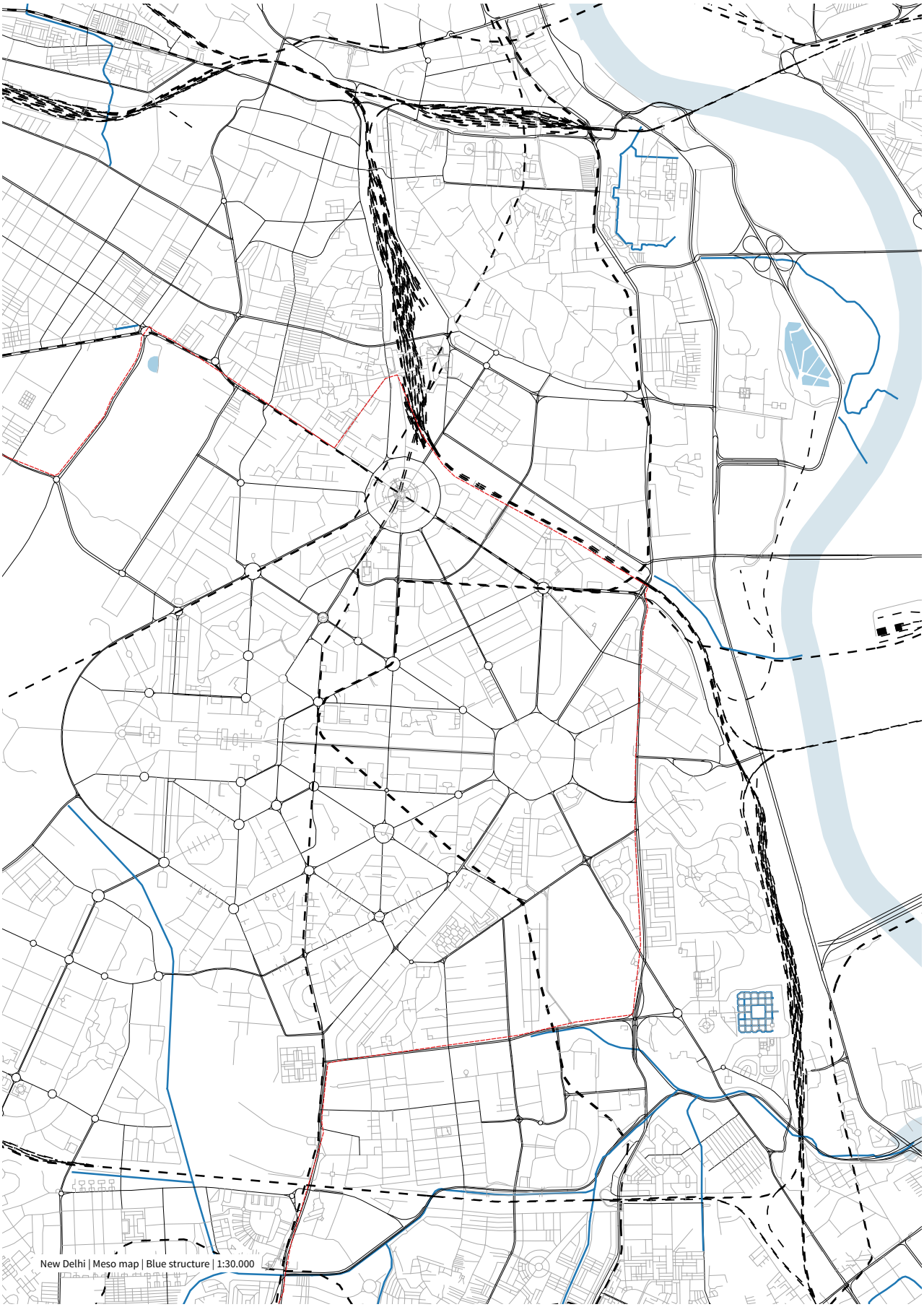
Appendix

Meso - Green Structure



Appendix

Meso - Water ways

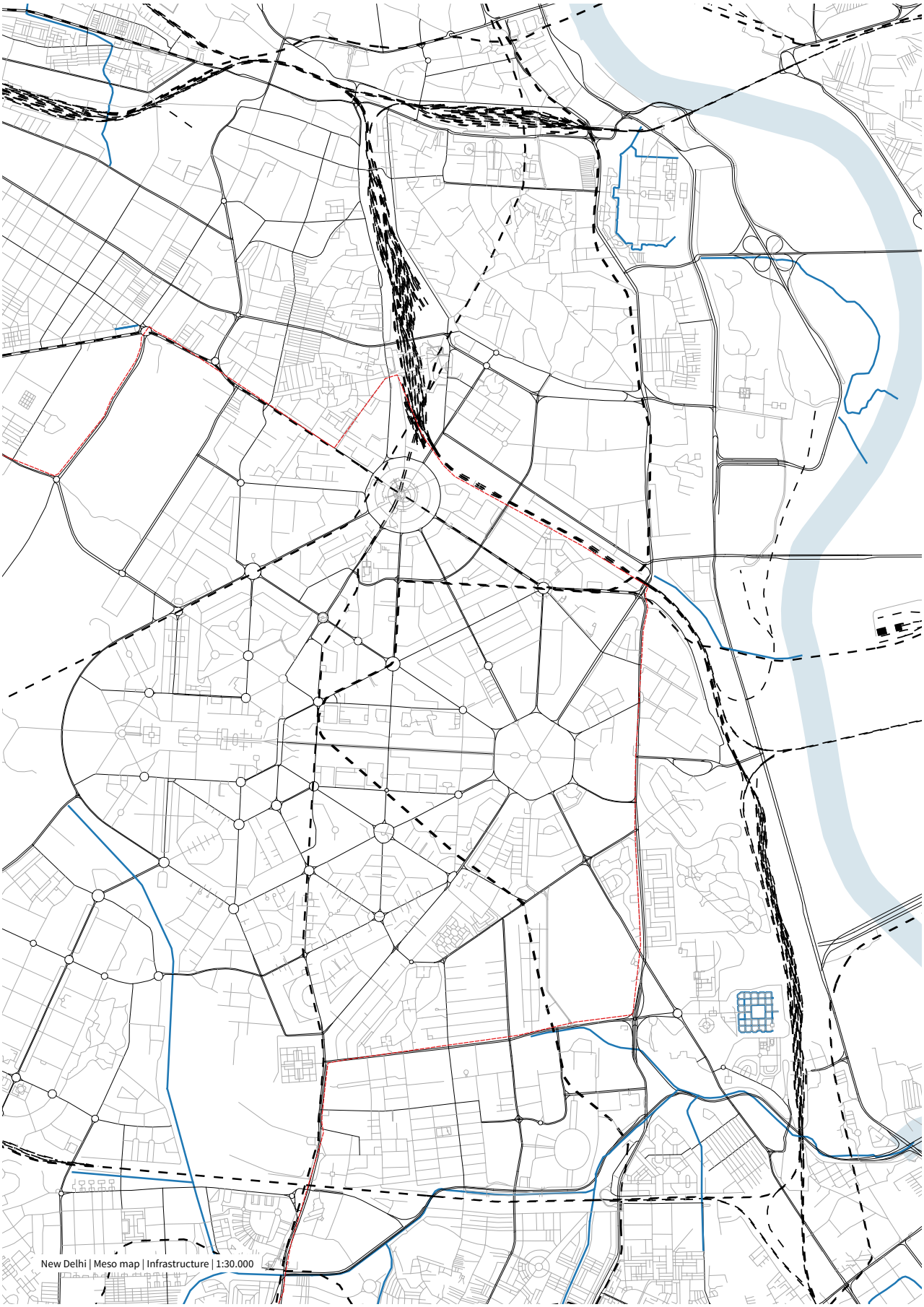


Appendix

Meso - Building Structure

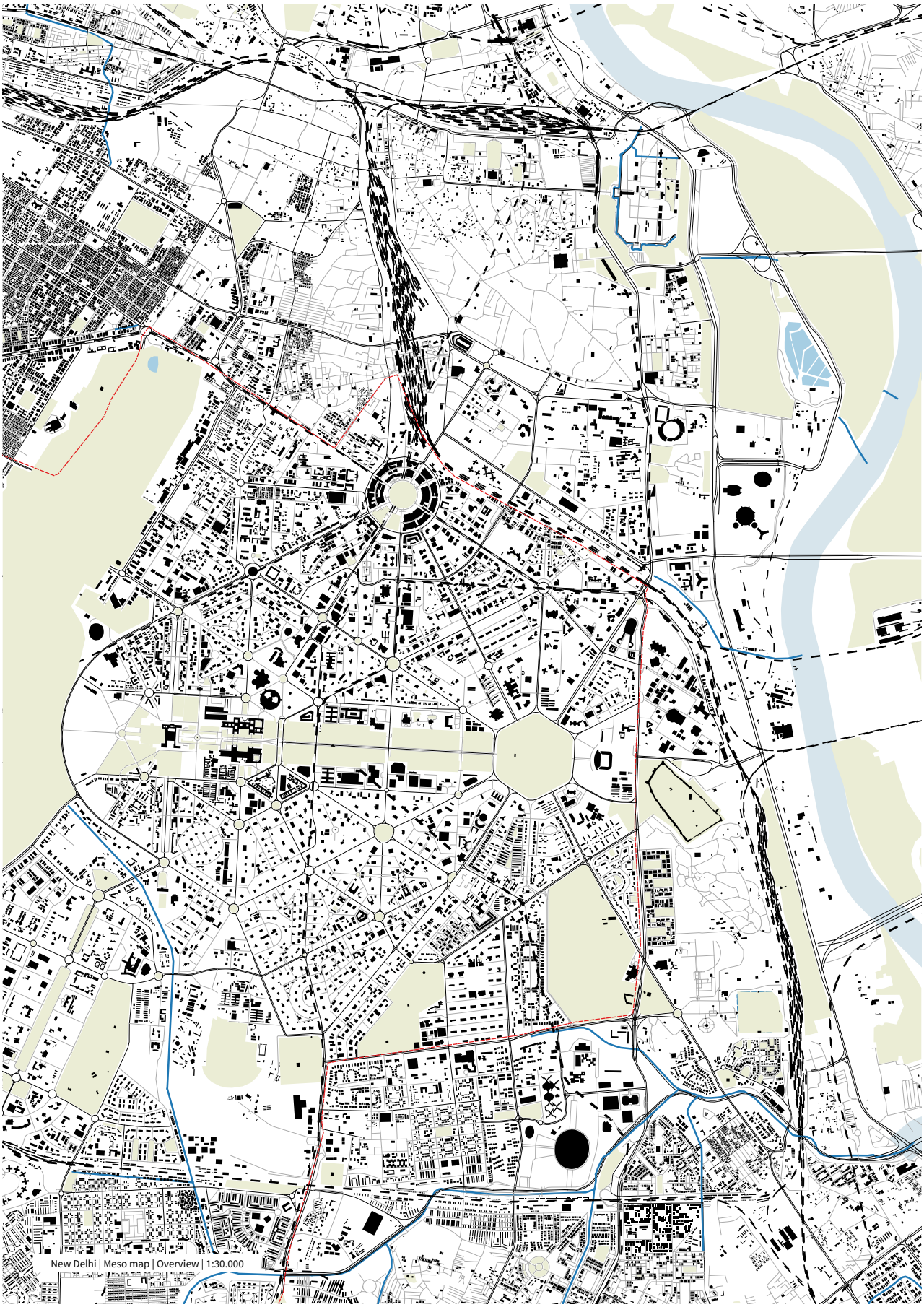
Appendix

Meso - Infrastructure



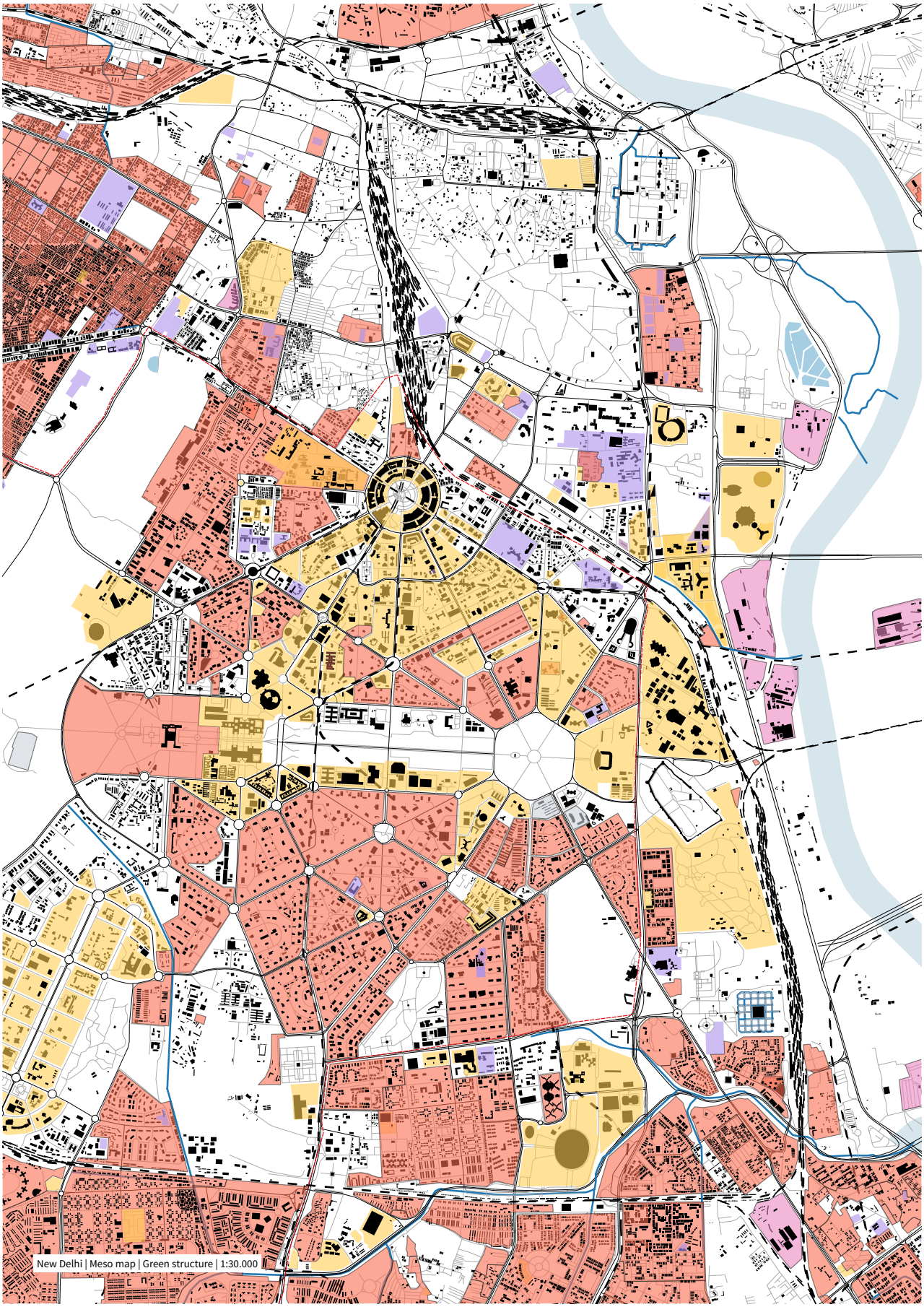
Appendix

Meso - Overview



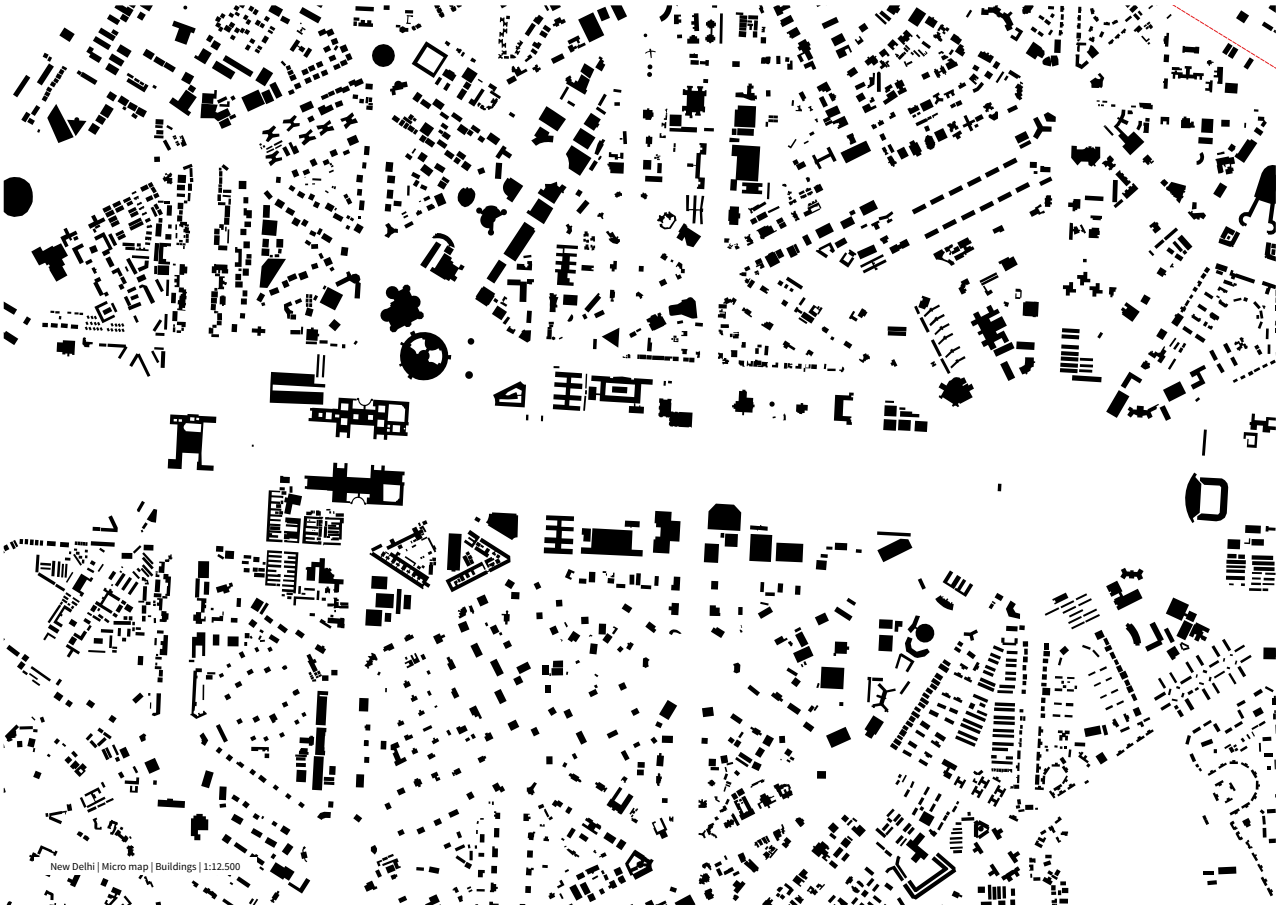
Appendix

Meso - Zoning



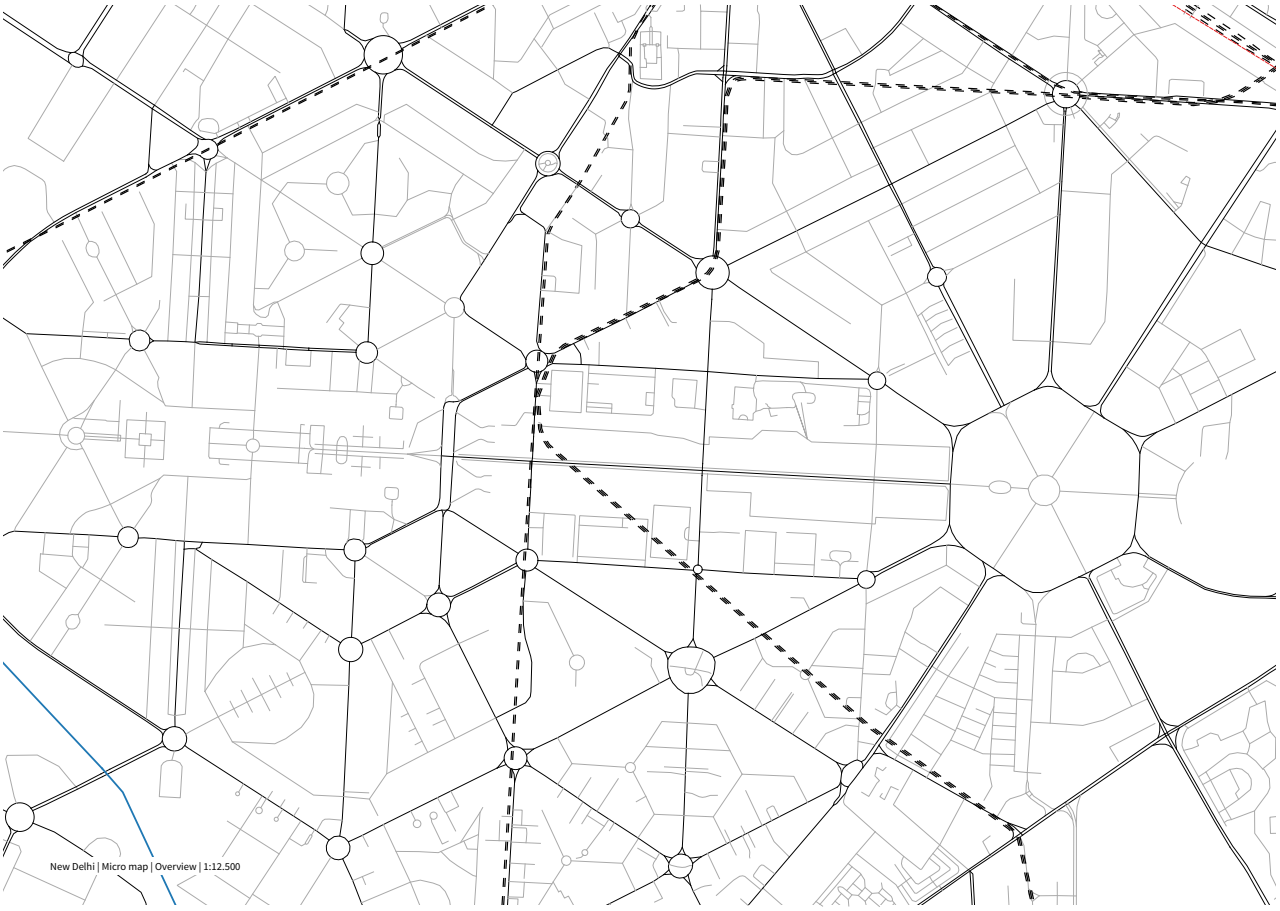
Appendix

Micro - Buidlings



Appendix

Micro - Infrastructure

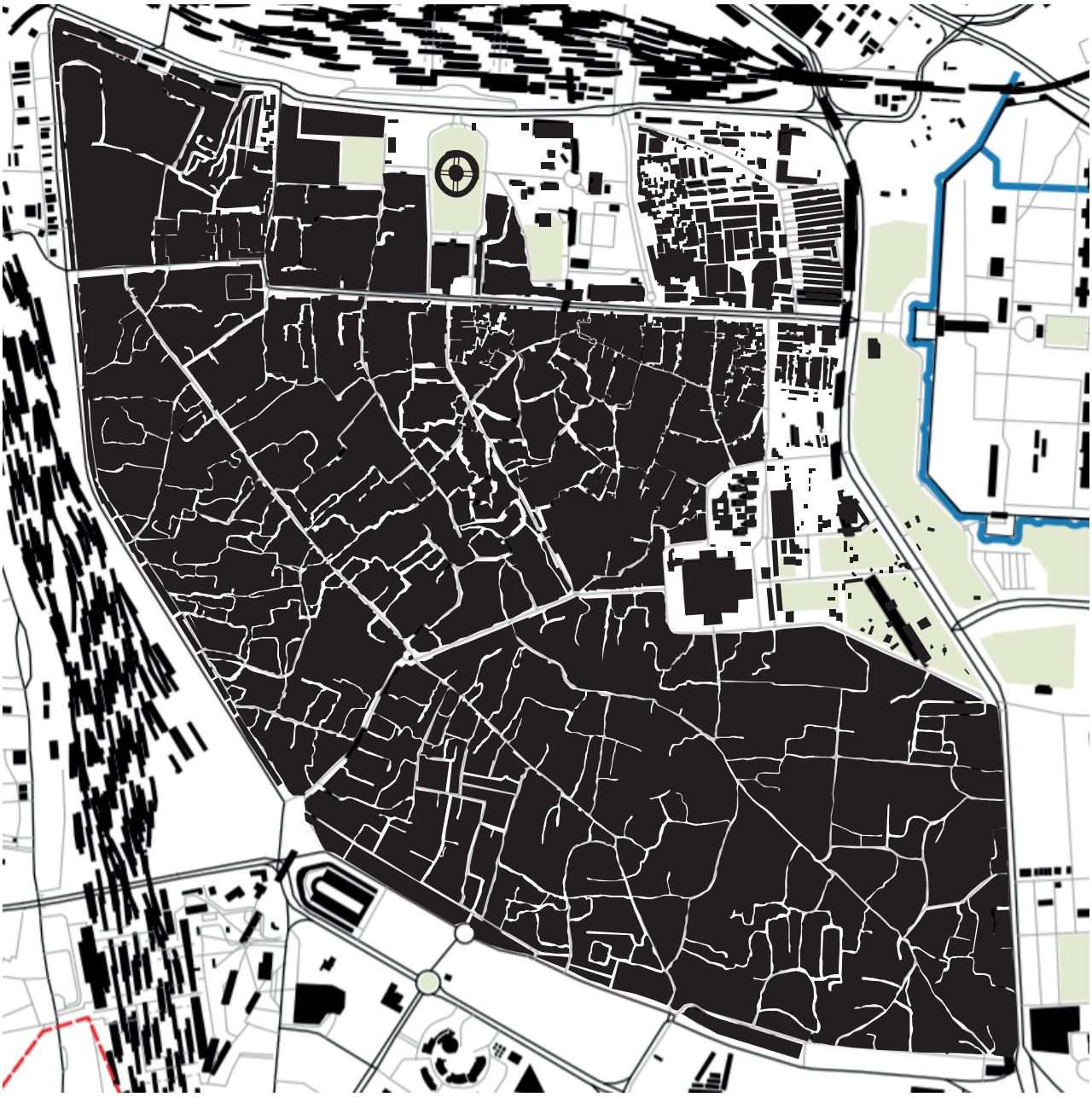


Appendix

Micro - Overview

Appendix

Micro - Old Delhi overview



Appendix

Aerial overview Delhi

Source; Google Earth Pro