ARCHIVES

From Artifact to Site:
UNDERSTANDING THE CANAL IN THE CITY OF GARDENS

Nida Rehman

Bachelor of Architecture
Cornell University, 2002

Submitted to the Department of Architecture
in partial fulfillment of the requirements for the Degree of
Master of Science in Architecture Studies
at the Massachusetts Institute of Technology
June 2009

Signature of Author _____

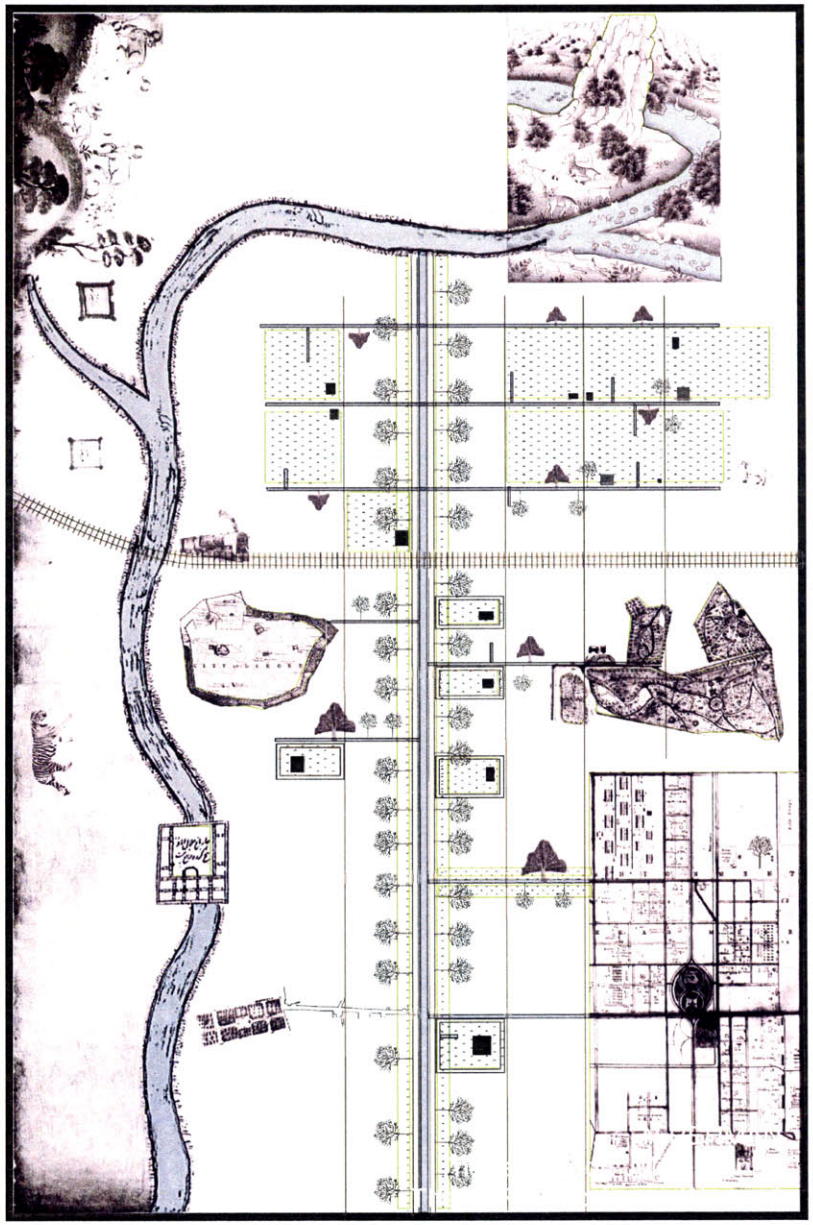
Nida Rehman
Department of Architecture
May 21, 2009

Certified by _____

Julian Beinart
Professor of Architecture
Thesis Supervisor

Accepted by _____

Julian Beinart
Professor of Architecture
Chair, Department Committee on Graduate Students



From Artifact to Site:
UNDERSTANDING THE CANAL IN THE CITY OF GARDENS

by
Nida Rehman

Thesis Supervisor
Julian Beinart
Professor of Architecture

Thesis Reader
James Wescoat
Aga Khan Professor

From Artifact to Site:
UNDERSTANDING THE CANAL IN THE CITY OF GARDENS

by
Nida Rehman

Submitted to the Department of Architecture on May 22, 2009
in partial fulfillment of the requirements for the Degree of
Master of Science in Architecture Studies

ABSTRACT

The words 'garden' and 'infrastructure' express the power of culture over nature. In celebration of its history of Mughal gardens and waterworks, Lahore has been construed in local imaginations as "the city of gardens". In this thesis I argue that the contemporary usage of this popular urban motif is rooted in the nineteenth-century planning of the city and the concurrent development of the vast canal irrigation system in the Punjab. I examine the Lahore Canal to evidence how it shapes not only the form of the city but also its character: at the end of the nineteenth century Lahore is transformed into a center of culture and refinement, "the city of gardens".

This thesis looks at the story of the modernization of a landscape to transform it from an "arid desert" into a "fertile garden", in two parts. First I examine the canal, the instrument of this transformation, as an artifact of a technological system. I argue that, in this capacity, it is a conduit for ideas of reform and cultivation that accompany colonial planning and that these ideas later emerge within the city-of-gardens rhetoric. In the context of contemporary urban issues, a sentimental identification with the Mughal history of gardens ignores the colonial themes of decay, fertility and beauty. I argue that a continued uncritical attachment to the city-of-gardens narrative obfuscates planning challenges in the city through a continuing emphasis on landscape beautification. This approach is not just irrelevant but pernicious to topical thinking about equitable and sustainable development. In the second part of the thesis I explore the canal as a site for contemporary urban planning. By identifying the themes explored in part one in the built form, I propose an expanded program for future design directions.

Thesis Supervisor: Julian Beinart
Title: Professor of Architecture

ACKNOWLEDGEMENTS

In this thesis, I talk about cultivation, refinement and improvement. In the context of my own learning, there are many cultivators to whom I owe much gratitude:

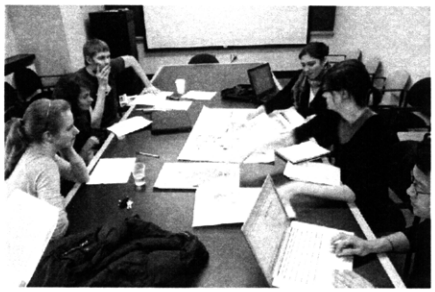
Julian Beinart, my advisor and teacher: thank you for sharing with me your wonderful thoughts on cities, architecture and learning-and for listening and responding with such care to mine.

Jim Wescoat, thank you for helping me sharpen my focus on Lahore. Your unique perspective reminded me of the richness of my hometown and how much there is to learn.

Leo Marx and Rosalind Williams, your generosity, kindness and insight opened up a new world of learning for me-thank you.

In Lahore, a number of people guided this work:

First of all I am indebted to Alam Sahib at the Lawrence gardens without whose knowledge and experience of Lahore's hidden water channels this thesis would be tilted more towards metaphor than reality. Many thanks to Rafay Alam for his passionate advocacy for the life of this most special yet trying of cities. Our conversations and his articles have been very helpful for this study. Thanks also to Professor Imran Ali at LUMS for his encouragement, Rana Yamin at the Canal department for sharing his thoughts with me, and the staff at the Punjab Secretariat archives and library for their help. I am grateful to Ameena, Kitty and Zeb, for making the canal hunts so much fun.



Thanks to my mother Anjum Rehman (the 'gardener' in my life) for taking me to see Alam Sahib and being a fantastic research buddy, and to my father Tahir Rehman for going out with his camera at all odd times. Both of you have not just supported this work but also cultivated my curiosity and supported my endeavors for many years-thank you for your patience, encouragement and love.

In Cambridge, I have the thesis therapy group to thank: Api, Rei, Bob, Sandra, Sabrina, Christine and Claire, who were a constant source of support during the long hours in building nine. In particular I am indebted to Bob, for his comments on the draft and for his uniquely local perspective on the subject.

To Ateya and Somnath, who have listened to much nonsense from me, thank you for holding out.

I want to extend my warmest thanks to three of the best people in the world: Priyanka, Sandra and Sabrina for holding my hand in the last hours and seeing this through completion (I am your slave forever).

Finally, I want to thank Daniel, who has nurtured my heart and mind.

CONTENTS

INTRODUCTION

One of my earliest impressions of the city I grew up in are of long nighttime drives along the Lahore canal-this being my parents' strategic idea of a lullaby for their habitually nocturnal child. Indeed it was a tranquil scene and their extreme measures would be rewarded when I would finally and peacefully succumb to sleep.

The canal of my childhood memories retains much of its serenity today. Thick rows of mature willow and stately eucalyptus trees line its banks and the recessed green belt on both sides. In the daytime, the dense foliage shields the road from the harsh sun and also *seems* to keep out the noise, dust and chaos of the growing metropolis around it. In the spring, the Parks and Horticulture Authority (PHA) dispatches its armies of dutiful gardeners to plant rows of day lilies to add color to the leafy scene. During festivals the water is host to colorful and brightly lit floats and fountains-commemorative displays of national and local culture. In the long heat of the summer months the canal also becomes the city's largest, public swimming pool. Although the scene is often disturbed by rush hour congestion and increasing pollution, the lush and verdant streetscape along the canal still epitomizes the view most Lahoris, like myself, have of their city: They affectionately call it "the city of gardens and fountains".

Water and trees aside however, the canal, which was built under the British colonial rule, is not exactly what this sentimental epithet refers to. Lahore gained this reputation, in popular and historic imaginations, because of its history of imperial gardens built during the Mughal dynastic period. The tradition of garden building in Mughal India goes back to the first emperor, Babar. For the Mughals gardens were a way to simulate the fertile and temperate environment of their native central Asian homeland in the hot and dusty plains of the Indian sub-continent. Lahore, a prominent provincial seat of the Mughal Empire, saw its fair share of garden building particularly along the banks of the River Ravi. From the advent of Mughal rule in India in 1526 until the time of the emperor Shah Jehan during the 17th Century, gardens represented what James Wescoat has called a "field of representation" for their imperial patrons. Rather than a comprehensive urban or public scheme, gardens were isolated pleasure enclaves for the Mughal court and nobility, and they slowly became integrated into the physical structure of the city.[1] This history of landscape patronage was captured in later imaginations of the city under the city-of-gardens narrative.

In this thesis, I propose that the ideas of reform and cultivation rooted in the simultaneous development of the city and its rural hinterland in the late 19th century under British colonial rule are important antecedents of Lahore's enduring garden identity. After the formal

annexation of the Punjab by the East India Company in 1849, the British began to build what would eventually become a gargantuan network of perennial irrigation canals along the Indus river system to develop regional agriculture. The Lahore branch of the Bari Doab Canal was built during the 1860's. Its course ran close to the southern periphery of the ancient city following the alignment of the watershed and nearly parallel to the River Ravi to the north. At the same time, as a provincial capital of the still nascent colonial administration, the city itself was expanded to accommodate a new structure of government and a new class of inhabitants. Gardens figured prominently in the suburban development of Lahore's civil station and cantonment. Although the canal was intended for irrigation to farmland, distributaries were built in the city to provide water to these new urban gardens. Over time the canal came to be a shaping force in the form and character of the modern city. As the city kept growing south, the canal inadvertently became its central spine. The waters it siphoned from the River Ravi, Lahore's primordial lifeline, fed the new urban landscape and over time relegated the river and the old medieval core to the periphery. The changes to the material environment of the city were accompanied by a host of ideas about nature serving a 'civilized' and 'modern' lifestyle. These ideas I argue are inscribed within the powerful urban motif: "the city of gardens".

Today, Lahore has a population of nearly 10 million people and is spread horizontally over 1772 square kilometers of land[2]. The city's expansion has occurred in a haphazard fashion primarily constituting the building of (suburban) residential settlements (often termed in the development vernacular as housing schemes or colonies) over agricultural land, mainly in the southern periphery of the city. The city's urban tissue comprises a patchwork of quasi-planned low-density, middle to high-income areas whose interstices are packed with high-density, low-income settlements. Often, slum conditions are created by a lack of infrastructure and services to rural villages that have been consumed into the urban territorial spread. In a city whose major water supply is deemed contaminated and unfit for untreated consumption and the crumbling infrastructure rarely provides adequately for a majority of the populace, the notion of a genteel urban culture of gardens and fountains seems ironic and anachronistic.

Upon a closer look at the site of the canal many contradictions become apparent. These can be elaborated by directing caveats at each of the impressionistic and scenic qualities that I extolled in the opening paragraphs this introduction. Firstly, the trees along the canal became a source of conflict in recent years. In 2005, the City District

(Endnotes)

1 James L. Wescoat, "Gardens, Urbanization, and Urbanism in Mughal Lahore: 1526-1657," in Mughal Gardens: Sources, Places, Representations, and Prospects, ed. James L. Wescoat and Joachim Wolschke-Bulmahn, 139-170 (Washington DC: Dumbarton Oaks Research Library and Collection, 1996).

2 Wikipedia contributors, Lahore, 05 2009, 20, http://en.wikipedia.org/w/index.php?title=Lahore&oldid=291183278 (accessed 05 2009, 21). Wikipedia sites the World Gazetteer for Lahore's population statistics. The official population per the 2009 census is stated as

Government of Lahore announced a 700 million Rupee plan to drastically reduce tree cover along the canal road. As the city's main transportation spine, the road along the canal was instrumental in 'driving' the city's southward horizontal expansion. Under Chaudhry Pervaiz Ellahi, then Chief Minister of the Punjab, the plan to widen the road by two lanes on either side entailed an estimated loss of 10,000 trees and 60 acres of the linear green space along the banks. Until then, the canal had incurred sporadic 'development' losses of its trees and green space due to piecemeal road widening and the construction of underpasses. The 2005 project was halted under intense pressure from citizen groups, but the canal as a site since remained under the scrutiny of planners, municipal authorities and activists alike.

Furthermore, while one may appreciate the protection offered by the trees from the noise and pollution of the city, it is important to keep in mind that the park-like atmosphere of the colonial projects within the civil station and cantonment historically provided insulation from what was seen as the 'opaque' and unsanitary native city. Trees were not only a perceptual buffer from the old city but at a time when miasmatic theories of the spread of disease where still very prevalent, they were considered a means of cleansing the air to curb the spread of disease.[3]

The historic relevance of the colonial ideas is something I hope to pursue in this work. I also see the contemporary efforts at planting along the canal and of using its space for commemorative display as part of this lineage of ideas. In November 2008, shortly after assuming office as the Chief Minister of the Punjab, Shahbaz Sharif announced a 480 million Rupee investment to recreate Lahore as "the city of gardens". The plan focused on public recreational facilities, solid waste management and most prominently on the so-called beautification of the city.[4] While the necessity for adequate sanitation and the improvement of public space are real and dire needs of this burgeoning mega-city, the politically driven rhetoric of 'cleanliness' and 'beautification' echo colonial practices of aiming public landscape and building initiatives towards visible and prominent areas of the city, resulting in uneven 'cleanliness' and 'beautification'.

Furthermore, the idea to recreate a glorious past, exploiting the historic identification with the Mughal gardens, can be seen as a means to conceal notions of western style progress beneath a façade of local authenticity. In the past, proposals for road works along the canal have come under local pressure for their hubristic disregard for what Lahoris see as an historic and 'natural' resource (the canal and its associated

---

7 million although that does not include the population of Lahore's Cantonment. Government Statistics cited by Wikipedia claim a 10 million estimate.

3 See, John Murray, Report on the Treatment of Epidemic Cholera, (Calcutta: Office of the Superintendent of Government Printing, 1869). In this report medical opinions are listed discussing the generally positive role of trees as a physical barrier against the onslaught of cholera.

4 The News International, "Lahore to be again made 'city of gardens': Shahbaz," The News International, 11 05, 2008, http://www.thenews.com.pk/daily_detail.asp?id=144971 (accessed 05 01, 2009).

5 I am referring in particular to the 2005 road-widening plan for the canal road and

linear green space).[5] Such proposals have also right been accused of neglect of 'real' planning issues such as the plight of people in lower income neighborhoods lacking access to infrastructure and public services. This aspect of lack becomes evident at the canal during the summer months when large groups of young men take advantage of the water for much needed respite from the heat and parts of the canal becomes the city's largest, free public swimming pool.

Visions of the canal's (and the city's) future are often proposed and contested under the nostalgic city-of-gardens rubric. However, whilst the state offers proposals to *recreate* "the city of gardens" with development and concerned citizens try to *preserve* it from development, the site remains a stagnating potentiality mired in sentimentality.

The following is an outline of the thesis:

In the first part, I take a step back from the immediate concerns of the canal as a site to first examine its role as an artifact of a large technological system[6] and in doing so to expose the colonial antecedents of Lahore's enduring urban identity. Here I explore the Lahore Canal as a metaphoric and literal conduit; transferring ideas of reform and cultivation from the hinterland to the city and simultaneously nurturing an urban landscape steeped in these ideas. I use the canal as a means to explore the legacy of the colonial rhetoric within the city-of-gardens narrative.

In chapter one, I examine some of the colonial writings particularly administrative reports that accompanied rural and urban planning in the Punjab from the 1850's to the early 1900's. My purpose is to delineate the rhetorical framework behind the transformative developments in the province and in the city during this period. I show the construction of a narrative that linked the 'natural' landscape with the 'native' people in a combined project of reform through cultivation. The ideas about the people and the landscape subject to irrigation and agricultural reform in the country also were echoed in the writings about the city, *its* people and landscape. In this chapter, I highlight the persistent themes of aridity and decay in colonial thinking about physical and social change through the design and engineering of the landscape.

Extensive scholarly work has addressed societal, economic and ecological changes that occurred in the region with the development of the colonial canal irrigation system. However, the system's impacts on the formal and social growth of the modern city have remained somewhat under-appreciated both in work that addresses the region and also in histories of the city. In the second chapter I look at some of the concurrent transformations in the city and the country in the late

---

the widespread public backlash that prevented immediate implementation. The issue contested under the current administration.

6 Paraphrasing Thomas Hughes' definition, these systems comprise physical artifacts, organization or institutions, knowledge and learning, regulatory frameworks,

nineteenth century in light of the ideological commonalities discussed in chapter one and how the canal came to shape the city. Here I mainly concentrate on the new projects that were supplied water from the Lahore canal and thus emphasizing the canal's transformative role in the city. This chapter is only a modest step towards highlighting the need to explore a common history of Lahore and its agricultural hinterland. Although I do not attempt to write a cohesive history of the Lahore Branch of the Bari Doab Canal, I acknowledge that the dearth of such historical insight exists and could be modestly addressed through this study.

Chapter three is an essay in which I interrogate the image that Lahori's self-consciously create of their city. By surveying colonial reports alongside post-colonial writings, ranging from literary and popular accounts to contemporary visions of the city's future, I evidence traces and reinterpretations of the colonial rhetoric of reform in the city-of-gardens narrative. I also discuss how this identity has consistently provided an easily exploitable conduit between the modern and the traditional, lending tacit historical authenticity to contemporary planning ideas.

Having delineated the ideological framework of colonial reform and its antecedent relationship to the city's enduring urban identity, I return in the second part of the thesis to the canal as site. In chapter four I articulate some of the contemporary challenges that the canal (and the canal road) presents in the city. I analyze the Canal itself as a central spine of contemporary Lahore that has witnessed and fed the layered and radial growth of the city. In particular I highlight the planning questions that arise from the conjunction of the irrigation system, the urban transport system and the linear green space and how the efforts to maintain the continuity of the linear artery have eroded its ability to transversally stitch together neighborhoods on either side of its banks and helped fuel the city's decentralization.

In chapter five, I analyze one particular site along the canal in light of the ideas and metaphors discussed in part one and the contemporary situation cited in chapter four. By scaling down to a particular locality and testing the lessons on a larger scale one specific direction emerges for thinking about the city as a whole. However, because the thesis has dealt mainly with the world of ideas that contribute (somewhat haphazardly) towards forming a city, delineating a precise direction for spatial design is not my purpose. Rather, I am interested ways of developing an expanded program and methodology that supports the argument for a reconciliation for a long view of historical and geographic research with the immediate concerns of the here and now.

PART 1
a landscape artifact

1 : THE RHETORIC

In the decades following the annexation of the Punjab under the East India Company in 1849 and subsequently the installation of British crown rule in 1857, Lahore was subject to a series of interventions that radically altered the size, form and structure of the city. A drastically different city emerged on top of the fragments and ruins of the ancient city encountered by its new rulers. In 1892 Muhammad Latif, wrote the following passage in the introductory chapter of his book entitled, *Lahore, Its History, Architectural Remains and Antiquities.*

> After centuries of misrule and anarchy, the British, separated from India by fifteen thousand miles of sea, became the masters of the country. The real glory of the nation, the fame of their statesmen, does not lie in the subservience of kingdoms, in the humbling of mighty potentates, or in the ravaging of countries, but in this, that they have sheltered God's people, saved them from the rapacity of the tyrant, administered equal laws to them, and made them happy, prosperous, strong and united; that they have applied their whole thoughts and energies to the patronage of the arts, science, letters, trade and agriculture; have strived to make the nations committed to their care wise, prosperous and contented; and because they act on the motto that sovereigns are the shadow of God on earth, and that, as such, their duty is to be the benefactors, not the destroyers, of the human race.[1]

Latif, a government official, attempting to write a comprehensive history of the city believed that the colonial enterprise was predicated on the social, moral, political and economic uplift of the colonized people. In *Machines as the Measure of Men*, Michael Adas examines the history of Western colonial encounters in Asia and Africa beginning with the early expansionist era, to trace the development of the perception that technological advancements were tantamount to human progress.[2] This chapter examines the formation of ideas that framed colonial era transformations in the Lahore and its rural hinterland. Adas examines how science and technology became the "foundations" of a conceptual framework for colonial reform in the nineteenth century.[3] Colonial writings about various aspects of local culture, geography and the environment supported what he claims was an ill-defined but wide-ranging (and characteristically bourgeois) ideology: that of the civilizing mission. "The civilizing mission" Adas notes, "gave a moral dimension to arguments for imperialist expansion that were otherwise limited to economic self-interest, strategic considerations, and national pride. Like most ideologies, it

1 Syad Muhammad Latif, Lahore: Its History, Architectural Remains and Antiquities (Lahore: Sang-e-Meel, 1994 c1892).

2 Despite the profusion and robustness of rebuttals against this it, the idea that technology almost universally equates to progress is still highly pervasive particularly in the so-called 'developing' world where industrialization and technology transfers are predominant concepts in the economic development arena.

3 Michael Adas, Machines as the Measure of Men, Science Technology, and Ideologies of Western Dominance (Ithaca, London: Cornell University Press, 1989), 199.

enabled its adherents to defend violence and suffering as necessary but temporary evils that would prepare the way for lasting improvements in the condition of subject peoples. It lent a "humanitarian mystique" to the nasty business of conquest and domination".[4] Muhammad Latif, writing nearly half a century after the inception of colonial rule in the Punjab and witness to the physical transformations of the city particularly as they related to technological change as manifested in physical form (railroads, roads, canals etc) voiced this particular view of progress.

The Canal irrigation system in India, developed under British colonial rule in the late nineteenth and early twentieth centuries, (much like the other grand 'edifices' of colonial rule such as the railways, bureaucratic frameworks and monumental architecture) straddled this nebulous edge between moral obligation and forced occupation: they were simultaneously a tool for liberation and exploitation. While the system's potential benefits to the native populace were widely extolled by colonial administrators and engineers alike, a number of authors have examined its lasting disruptions to the social and ecological context as well.[5] In later chapters I will argue that the city of gardens as an idea about the cultural identity of Lahore can be traced to this colonial imagination of benevolent reform. Here, I am not trying to dispute that the term explicitly refers to Sultanate and Mughal garden histories of Lahore. I am more interested in how some of the embedded attitudes accompanying the city-of-gardens narrative in contemporary thinking are a legacy of an urban imagination that is most strongly rooted in the colonial city building regime. In this chapter, I explore the ideas that framed the nineteenth century colonial transformation in Lahore and its rural hinterland in the context of city and irrigation planning.

As early as the 1817 the British began to develop what eventually became a gargantuan system of perennial irrigation canals in the alluvial plains of Northern India. Prior to 1836 most of the work consisted of the rehabilitation of existing canals primarily built under Mughal rule. From that time onwards an entirely new system of canals was conceived, engineered and layered upon this older network beginning with the Ganges Canal in the Ganges-Jumna Doab in Uttar Pradesh (Interestingly, some of the pre-British canals irrigated not agricultural farmland but imperial gardens, hunting grounds and private farm gardens).[6] Work on the first canal project in the Punjab, the Bari Doab canal began shortly after the formal annexation of the Punjab in 1849. Historically this landscape, the site of the ancient Indus Valley Civilization, had been irrigated by the annual inundation of the River Indus and its branches. The modern irrigation system came to form an intricate, machine-like network interlacing the Doabs or

4 Adas, Machines as the Measure of Men, 200.

5 See David Gilmartin, "Scientific Empire and Imprerial Science: Colonialism and Irrigation Technology in the Indus Basin," The Journal of Asian Studies (Association of Asian Studies), 1994, 1127-1149; Imran Ali, The Punjab under Imperialism 1885-1947 (New Dehli: Oxford University Press, 1989)

6 Ian Stone, Canal Irrigation In British India, Perspectives on Technological Change in a Peasant Economy (Cambridge: Cambridge University Press, 1984), 13

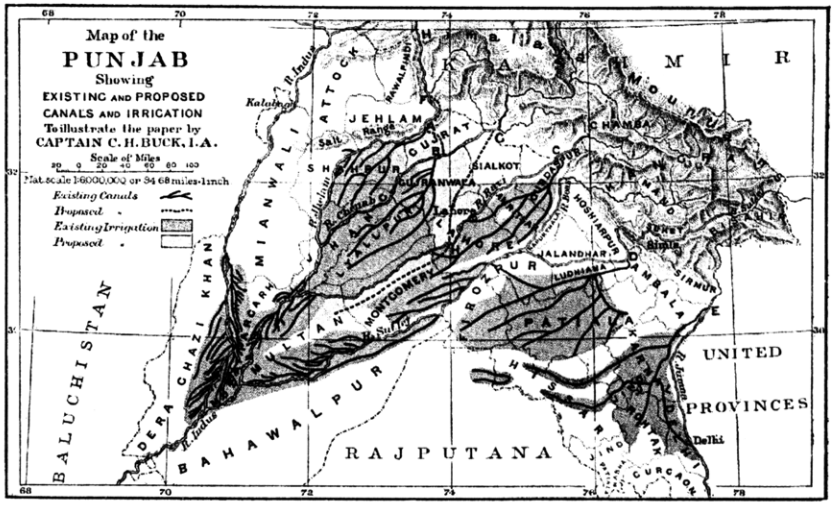


Fig 1. Canal Irrigation in the Punjab. Source: C. H. Buck in "The Geographical Journal", Vol. 27, No. 1 (Jan., 1906), pp. 60-67

interfluvial areas and irrigating nearly twenty million acres of land in Pakistan alone, forming the backbone of the agricultural economy of the region. [7]

While it is my intention to evidence the changes to urban structure that took place with the introduction of perennial canal irrigation in the countryside, it is important to first understand the conceptual underpinnings of these transformations. This thesis is thus not concerned so much with the engineering advances that allowed the canals to be developed but the construction of narratives regarding the landscape and the local people, that prefigured the social conditions to receive the technological and concurrent planning interventions. These imaginations inhabited political, bureaucratic and literary writings of the time period, a small number of which are surveyed in this chapter to shed light on the prevailing ideologies of reform.

This chapter concentrates on the two 'sites' for reform: the rural hinterland of the Lahore District, known as the Manjha and the city of Lahore. In both cases, the physical landscape as well as the local people, primarily the peasant populations and the Indian citizens of the 'pre-modern' city were considered subject to improvement. The colonial writings, including gazetteers, settlement reports and municipal reports, contained a recurring emphasis on the notion of reform through cultivation to increase the productivity of the human and natural resources. Many of these writings, particularly the land settlement reports published by the provincial government between 1860 and 1827, generally began with descriptions of the physical and population characteristics of the area, seamlessly combining empirical observations with value based judgments to concoct a vivid picture of the landscape that was ultimately lacking in desirable characteristics such as fertility, productivity and beauty. Whilst the terrain was described as decaying and arid, the local people were evoked as criminal or lazy- their undesirable traits were seen to be a result not just of inherent (or genetic) characteristics but also bred by a lifestyle of

7 Punjab Irrigation and Drainage Authority, Punjab Irrigation and Drainage Authority, 2008, http://pida.punjab.gov.pk/background.htm (accessed 05 21, 2009).

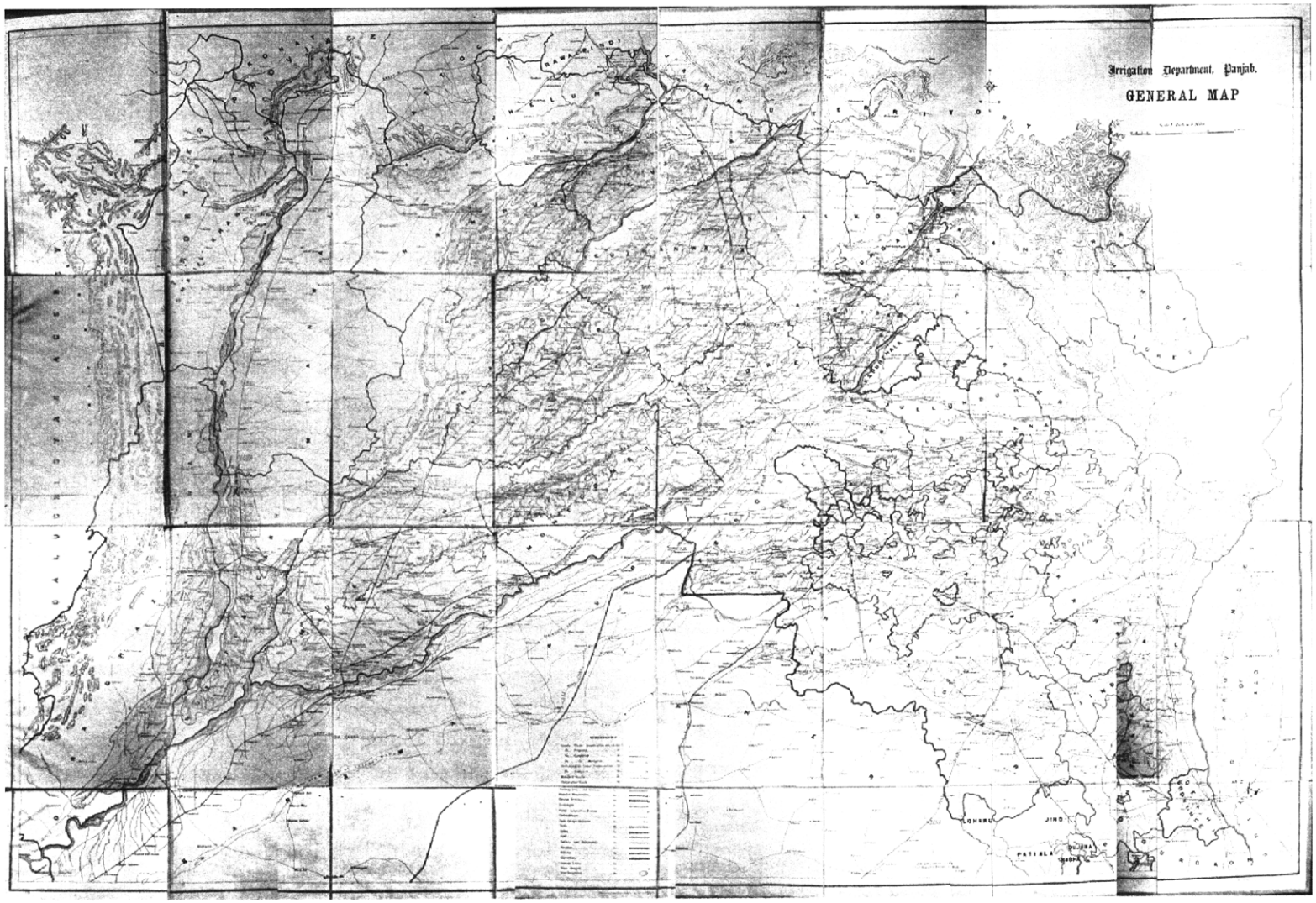


Fig 2. 'Irrigation Department Panjab' General Map. Source: Punjab Secratariat Library.

pastoral nomadism. Whilst the aridity of the land would be corrected by the irrigation system, the social attributes were to be reformed by an almost biblically ordained, settled agrarian lifestyle.[8]

Fig 3. Lahore District from the : 'Irrigation Department Panjab' General Map. Source: Punjab Secratariat Library.

The country

The administrative boundaries of the Lahore District follow the natural drainage contours of the Punjab. The River Sutlej forms the boundary with Ferozepur District along the southeastern edge. The River Ravi runs parallel and close to the northwestern edge dividing the district such that most of its area falls within the Bari Doab or the interfluvial zone between the Ravi and the Sutlej. The Manjha is the central tract of high land through which the Bari Doab Canal and its branches were constructed in the 1850's and 60's. The first report on the settlement of the Lahore District, published in 1860, described the region in the following words:

> The District is in general **poorly cultivated and thinly inhabited**. On the banks of the rivers Sutlej and Ravee, and in the neighbourhood of the city of Lahore, the cultivation is better than in other parts. The central portion of the Bari Doab, and the greater portion of the Shurrukpore pergunnah are **jungle** tracts, and the inhabitants are **dependant on the rains** for a crop of the **poorer** kind of cereals and pulses, and for fodder for their large herds of cattle.[9]

8 For a discussion of the social structure and re-settlement of people in the Canal Colonies see, Imran Ali, The Punjab under Imperialism 1885-1947 (New Dehli: Oxford University Press, 1989). An elaboration of the criminal tribes settlements can be found in, William J. Glover, Making Lahore Modern: Constructing and Imagining a Colonial City (Minneapolis: University of Minnesota Press, 2008).

9 R. H. Davies, R. E. Egerton, R. Temple and J. H. Morris, "Report on the Revised Settlement of the Lahore District in the Lahore Division," (Lahore, 1860), 3.

In such matter of fact language, this statement demarcated the terrain under observation as an arid and inhospitable landscape. The author suggested that apart from the inundated riverbanks, the topographic and climatic characteristics of the land in question were unsuitable for any serious agricultural cultivation. The inhabitation on this land, presumably due to its aridity, was sparse and inconsequential. By saying that the rains and the flooding of the rivers were the sole sources of irrigation, the writers made clear that the people lived a life dependant on seasonal rather than constant water supply. This changeability of the environment had implications for the settlement patterns, which I will discuss in later paragraphs. Furthermore, the use of the term jungle evoked wilderness and danger–attributes that were echoed in the descriptions of some of the native populations.

In a section entitled "Former Prosperity"[10] the settlement officers speculated that the landscape they observed and wrote about had not always been infertile and inhospitable to sustained human settlement. By citing, "native tradition"[11] and archaeological evidence: the "numerous ruins of old villages and deserted wells"[12], they suggested that the land had indeed been fertile in the past but had diminished in its productivity when it was deserted and ruined in the aftermath of tumultuous incursions over many years.[13] The officers correctly understood that the environment, as they observed it, was not necessarily a 'natural' condition of the landscape but a result of continued human intervention. However, the evocation of ruin allowed them to speculate freely on a more abundant and fertile primordial condition. By shifting agency from nature to past human interventions, the evocation of ruin granted powerful historic and cultural legitimacy to the colonial rulers to resurrect the primeval fertility of the landscape. The historic imperative to change the landscape, seemed also to contradict the universalist claims of colonial engineering practice. While the engineers thought that they were imposing a neutral and bias-free system, which would improve the livelihoods by an equitable water distribution system, the state was constructed for itself a historical mandate: that to advance and transform the landscape meant first resurrecting an original condition of the landscape. The colonial administration saw itself as a historic force, claiming its power over local history by asserting control over local 'nature' (and thus territory and people).

Our concept of nature embodies inherent ambiguities. There are fine, blurry lines that we tread when referring to the world outside of human intervention, precisely because the human and non-human worlds are invariably interdependent.[14] This ambiguity is central to the story of the

10 Ibid, 16.

11 Ibid, 8.

12 Ibid 16.

13 Ibid 16. Without the mention of specific dates, the authors point to the period of the decline of Mughal Rule, 'during some of the Muhammadan conquests most probably those of Nadir Shah, or Ahmed Shah Durrani.

14 For a discussion of first and second nature see the introductory chapter of, William Cronon, Nature's Metropolis, Chicago and the Great West (New York: William Norton, 1992).

irrigation system: the canals simultaneously signified an improvement upon nature to increase its productivity and a return to nature, an older more fertile condition that existed prior to its ruin. The rhetorical use of decay (and the inferred colonial imperative to resurrect) was a device that emerged in writings about the city as well. By positioning themselves as being able to restore the land to an original, productive state through technology, the colonial officers were claiming their authority over the locals and taking ownership by active imaginative construction.

The themes of aridity and ruin featured prominently in subsequent writings. For example, in the second report published in 1869, the settlement officer, Leslie Saunders also observed that although the banks of the rivers were fertile and cultivated due to seasonal inundation, the remainder of the district was barren and unproductive. By this time however, the canal works were under way and in his writings he was quick to acknowledge that the environment was in a state of transition and that the new system would ensure fertility in the near future. Saunder's wrote:

> Hitherto these uplands have been looked on as the poorest tracts in the district, as being sparsely populated, and without the means of obtaining even good drinking water for man or beast; but now that the Bari Doab Canal has been cut down the center of this tract there is every reason to hope that this great fertilizer will **turn this desert into a garden.**[15] (Note: emphasis mine).

Implicit in Saunder's rosy prediction was the idea that by causing this transition from arid desert to abundant garden, the canal would not only ensure the commercial benefits of improved irrigation and agricultural cultivation but would also transform the aesthetic values of the landscape. This metaphoric link between countryside and garden is easily supported by the commonality of technologies: here I mean the tools, knowledge and methods that ensure water supply, plant cultivation, soil fertilization and so on.

In the colonial imagination, the idea that the lands were previously "sparsely populated" de-legitimized any proprietary claims of the local pastoralists. This was also implied in the categorization of these tracts as Crown Waste Lands. The improved and irrigated tracts of Crown Waste Lands that were opened up for agriculture became the site for the re-settlement of the local populations through a number of measures including the allotment of government land grants.[16] The Punjabi pastoral peasantry, just like the countryside itself, was poised for transformation under the colonial irrigation reforms. This process involved extensive describing, categorizing and characterizing of the people. The attributes assigned by the colonial administrators to the so-called desert were reiterated in the descriptions of the local people:

---

15 Leslie S. Saunders, Report on the Revised Land Revenue Settlement of the Lahore District in the Lahore Division of the Panjab, 1865-69, (Lahore: Central Jail Press, 1873), 3.

16 Imran Ali, The Punjab under Imperialism 1885-1947 (New Dehli: Oxford University Press, 1989).

they too were unproductive or wild and thus subject to benefit from a similar process of reform and improvement. Just like the canal, "the great fertilizer"[17], would transform the landscape from arid to fertile, it was hoped that the inhabitants would undergo improvements as well. Colonial policy toward the local people touched on a number of issues only some of which I will cursorily discuss here. For the scope of this study it is important to establish that the people were as much part of the narrative of reform as the landscape itself. To that end I will discuss and analyze some of the descriptive rather than operational aspects in colonial writings regarding the peasant and landowning populations.

For the purposes of enumeration, the British grouped local peasantry into tribal structures. William Glover explains that the identification of tribes was based on political expediency rather than actual factual distinctions of traditional caste structures.[18] Tribal hierarchies were established by designating groups as either traditional landowning or military classes or as nomadic tribes. Such distinctions allowed some groups to benefit from the fruits of irrigation while ensuring their political acquiescence and others, 'the non-agricultural castes' to be subject to exclusion. [19] In his article *Malign Growth: Agricultural Colonization and the Roots of Backwardness in Punjab*, Imran Ali discusses the inequities associated with this structure of categorization and the colonial land allotment policies, which allowed the feudal or landowning classes to flourish at the expense of a more egalitarian structure. "Despite major economic change" he notes, "they remained the "menials", or *kamins*, that they were termed in official records and common parlance. Never enfranchised by the British, and burdened with the weight of caste hierarchy, their ability to seek socio-economic justice suffered further with the monopolization of the new lands by their social superiors".[20]

In addition to exclusion from land ownership, certain non-agricultural groups, were also attributed varying degrees of criminality. Data about them was gathered in census and ethnographic surveys. The deviancy of these people; nomads, gypsies and wanderers; was considered by the colonial administrators to be a product of their inherent characteristics bit also the environment and their iterant 'unsettled' lifestyles. Like the warrior groups, these people too needed to be settled on the land but in this case under strict regimes of reform which would allow them to eventually transform into productive elements of the society. For example the Sansi's, "the most comprehensive and formidable hereditary criminal tribe"[21] according to one report, were described in the following words:

17 Saunders, Report on the Revised Land Revenue Settlement of the Lahore District in the Lahore Division of the Panjab, 1865-69, 3.

18 William J. Glover, Making Lahore Modern: Constructing and Imagining a Colonial City (Minneapolis: University of Minnesota Press, 2008).

19 Imran Ali, "Malign Growth: Agricultural Colonization and the Roots of Backwardness in Punjab," Past and Present (Oxford University Press), 02 1987.

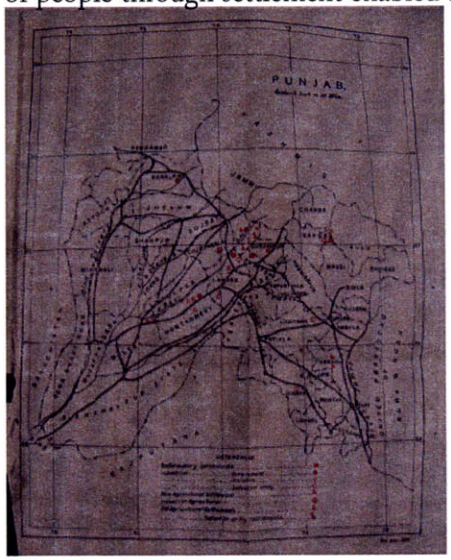
20 Ibid, 118.

21 Hari Kishan Kaul and L. L. Tomkins, Report on the Question Relating to the Administration of Criminal and Wandering Tribes in the Punjab, (Lahore: Government Printing, 1914), 4

Sans Mal is said to have been the son of a Chohan, or Tur Rajput woman, somewhere in Rajputana, by a low caste man, born in the jungle, to which the perverse alliance drove the woman under the caste rules. (...) The children and descendants of the ostracized woman, not being allowed to enter a town, evidently wandered from place to place, eking out an existence as best as they might. In this condition they would naturally associate with other outlaws and gradually develop into a caste of wandering woodmen, living mainly by hunting and very often plunder. The conditions of this out-caste life of wandering degeneracy would no doubt result in their accepting such food as nature provided, even to the consumption of unclean animals and reptiles.[22]

Fig 4, a, b, c. Tribes and Settlement . Source: Notes on the administration of criminal tribes, Punjab, 1917-1920.

Thus the jungle wilderness and the uncultivable land were seen as breeding grounds for these 'predatory' nomads. For the colonialists, the unreliability of constant irrigation and scarcity of fertile land for agriculture explained the nomadic or pastoral patterns of living amongst the people, and in turn was a cause for their criminality and deviance. The state attempted to establish administrative control of people through settlement enabled by an extensive system of enumeration and classification. Equipped with ethnological data, catalogues and lists of these people, the colonial administrators embarked on a project for social reform through the creation of criminal tribes settlements. Settlement on the land was seen as crucial for a peaceful existence and the built domain was an arena for reform.



Bawarias in the Settlement.

With their advanced knowledge and tools, as the nineteenth-century colonial administrators and engineers in India set out

22 Ibid, 5.

to improve the land and people, they also keenly noted the perceived reception of western technology amongst the Indians. In their writings the native subject, in particular the lower-caste rural people were seen as backward and to some extent unfit for modernization. This was elaborated in observations such as the following where native 'backwardness' was juxtaposed to the artifacts of western technology, which were fast transforming the landscape.

> (...) they witness the great advantages of the pursuit of useful arts introduced by European civilization but show no disposition to follow it. By the side of the express train (...) traveling through the waste at the rate of 30 or 40 mph, we see the same old cart which was used before the period of Porus, driven by the process of twisting the bullocks tail".[23]

The City

In the 1850's as the expanded irrigation transformed the countryside, Lahore was also being transformed. As the provincial capital of the still nascent colonial administration, the city had to be reconfigured to accommodate a new structure of government and a new class of inhabitants. The city's new rulers embarked on a program to reconfigure and expand the old city to accommodate new residential areas, government functions, institutional buildings and recreational facilities. Over few decades that followed Lahore saw the construction of the new civil station, the cantonment and an expanding zone of suburban residential areas linked to the civil station to house the English and increasingly the Indian elite. Water from the Lahore branch of the Bari Doab Canal was used to cultivate a suburban 'garden' landscape along its banks: the site of the modern city. Like the countryside, the colonial administrators described the existing city as a site of decay and ruin. Colonial writings evoke Lahore's past through historic travelers accounts, local tradition and archaeological evidence to create an image of a place unsuited to modern life and to British (or civilized) sensibilities.

When the British formally annexed the Punjab in 1849, Lahore was 'found' to be in a state of decay and devastation. The city once praised by Bernier and Milton had diminished in size, population as well as

23 Latif, Lahore: Its History, Architectural Remains and Antiquities, 260.

Fig 5. 1837 Map of Lahore showing the pre-colonial situation of the city Source: Punjab Secratariat Library.

"magnificence" from its heyday in the Mughal period. Of its original thirty-six quarters, what remained were only the nine quarters within the old walls and the jetsam of urban desertion outside them.

> Few cities have suffered more from desolating hordes and from anarchy than Lahore during the last 120 years previous to the inauguration of British rule. Eight times did the troops of Ahmed Shah Durani pass through Lahore : Mahrattas and Sikhs have done their work of destruction, and the buildings, being for the most part built of brick, have perished and are perishing rapidly from mere exposure.[24]

Two dominant tropes can be used to understand colonial thinking about the city. To the rationalizing gaze of the colonial reformers, the ancient city was impenetrable and disorderly. William Glover uses the word 'opaque' to describe how these officials perceived the city. At the same time, the deserted landscape outside the city was often considered as a place of decay and ruin. These two areas, the city and its outskirts figured very differently in the colonial imagination and elicited very different responses. While the city's medieval urban fabric was largely ignored in planning efforts, the 'wasteland' in its environs-like the rural countryside-was poised on the brink of a major transformation under the 'civilizing mission' of the colonial rulers.

In *Making Lahore Modern*, William Glover shows that the British found the structure and urban fabric of the old city, particularly the medieval core inside the walls to be opaque and impenetrable. By opacity he refers the lack of order and rationality that rendered the city illegible to any efforts at spatial and functional ordering. The dense urban fabric, with its the tightly packed houses, street crowds, dust, noise and sanitation deficiencies troubled the colonial officials trying to rationally understand the city. Glover also suggests that the social structure of the city was "resistant to aggregate description".[25] Here he means that the complex familial arrangements, and the traditional social structure eluded the tools for census data collection and enumeration.

One aspect of the inner city that preoccupied colonial and Indian reformers alike was that of sanitation. Here the deficiencies in physical sanitary arrangements were seen as cause for a moral degradation of the people as well. Glover writes, "In Lahore, beginning in the 1880's, Urdu pamphlets and treatises on urban sanitation, public health, and a range of infectious diseases (including plague, smallpox, and fevers) were published by Indian authors in the city".[26] One such document, entitled *Sanitation in the Punjab*, was written by Lala Kashi Ram in 1884. Ram prefaced the need for reform by evoking dissimilarities in British and Indian sanitary customs and suggesting that unhealthy living conditions in the Punjab were a result of peoples' unsanitary behaviors.

24 G.C. Walker, Gazetteer of the Lahore District, (Lahore: Lahore Civil and Military Gazette Press, 1894), 271.

25 Glover, Making Lahore Modern: Constructing and Imagining a Colonial City, 50.

26 Ibid, 132.

In the introduction Ram remarked that "compared with England the Punjab is very unhealthy".[27] He supported this claim by examining not the physical, institutional or municipal particularities that would result in the 'unhealthy conditions' but instead speculating the habits, customs and beliefs of the local people.

Fig 6. the Old city. Source: Aijazuddin, F.S. "Lahore Recollected". Lahore: Sang-E-Meel Publishers 2003.

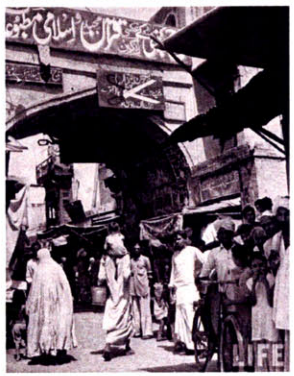


Fig 6a. the Old city. Source: LIFE photo archive hosted by Google.

> How are the death rates of England and the Punjab to be accounted for? Why do the inhabitants of the Punjab die in larger numbers than those in England? The reason is simple. In England the **laws** of sanitation are generally obeyed; in the Punjab they are almost entirely **neglected**. The people of England are clean, their houses are clean, and their cities and parishes are clean. And as a reward for their cleanliness, they enjoy the blessings of a good health. In the Punjab, on the contrary, the people are comparatively **dirty**, their dwelling quarters are dirty, and their towns and villages are dirty. And in **consequence** of their dirtiness, they suffer severely from sickness and mortality. Unfortunately, most of our countrymen do not understand this. According to their belief whatever happens, either good or bad, comes from God.[28]

Such writings thus not only elaborated on the need for physical reform in the city, but also placed an emphasis on the social aspects. It is clear from the author's emphasis that he considered the propensity for disobeying laws and neglecting cleanliness a cultural trait. (Of course we know that his assumptions about the differences between English and Indian cities were misguided given the conditions of industrial cities in the 18th and 19th centuries). Ram emphatically believed in the munificence of the colonial government and placed the onus on social change that would usher in improvements to the physical condition of the city.

27 Lala Kashi Ram, Notes and Suggestions on Sanitation in the Punjab (Calcutta, 1884).1.

28 Ibid, 1.

> But it may be asked why do they not appreciate the efforts which the Government has been making in the way of improving their health. One of the reasons is that a great majority of the ignorant mass of our countrymen do not possess a sufficient knowledge of the laws of sanitation.[29]

Descriptions of the city at that time vacillated from the pseudoscientific to the romantic. Between the lines, one can begin to discern both the supposedly benevolent mission to educate and civilize and the more expedient necessity to establish political control over the local people. Whilst the colonial writings about the Punjabi countryside often employed a pseudoscientific language of quantification, surveying and categorizations (albeit embellished with more biased language), the city was described in decidedly more value-laden and, according to William Glover, more negative language.[30] If the attempt to sound scientific and neutral prefigured a universalizing imperative to reform, the less neutral use of language implied a resignation on the part of the colonialists about the durability of the backward culture. At times, the urban fabric of the old city for example was less an arena for reform than an artifact of curiosity. In the 1893 Lahore District Gazetteer, the settlement officer, G. C. Walker wrote:

> Within the city the streets are narrow and winding **but** some of them from their overhanging balconies of wood curiously carved and coloured, the striped awnings over the shop fronts, and the streamers of bright coloured clothes hung at intervals across from balcony to balcony, present much that is picturesque to a stranger's eye".[31]

While the colonial officer could appreciably nod at the quaint and picturesque elements of the old city, there was no question that it was something entirely foreign to European sensibilities. No serious consideration of the urban environment of the opaque, old city was warranted in the future planning of Lahore.

Contrary to the view of the old city as closed or opaque, the deserted environs of the city presented a different kind of challenge to the government. These areas were scattered with the remains of Mughal monuments and gardens, the ruins of past settlements and what William Glover refers to as the "durable pockets of disorder"[32]: the suburban settlements including Mozang, Anarkali and Gowal Mandi. Like the countryside, this landscape was also a place of decay and ruin: a palimpsest revealing traces of past settlement and overrun by unwelcome natural processes. In the words of John Lawrence, the Chief commissioner of the Punjab:

> Few suburban localities could be found in any province presenting such peculiar **sanitary** difficulties as the vicinity of Lahore. The station of Anarkali, with its adjuncts, is scattered over an area of

29 Ibid, 3.

30 Glover, Making Lahore Modern: Constructing and Imagining a Colonial City, 48.

31 Walker, Gazetteer of the Lahore District, 270.

32 Glover, Making Lahore Modern: Constructing and Imagining a Colonial City, 54.

> several square miles, over which extend the ruins of not one but several successive cities if various eras and various dynasties. The surface of this extraordinary plain is diversified by mounds, kilns, bricks, stones, broken masses of masonry, decaying structures, hollows, excavations, and all the *debris* of habitations that have passed away. The soil is sterile, and impregnated with saltpetre, but the ground is interspersed with rank vegetation, and though generally arid, yet from its undulating nature, possesses an unfortunate aptitude for the accumulation of stagnant water.[33]

Echoing to the descriptions of Punjab's arid, unproductive and decaying rural landscape, here the metaphor of decay was used to construct an image where artificial and natural elements co-existed in an unhealthy and unpleasant environment. The "successive cities" layered upon each other cropped up as figures in an unsanitary field where hard arid earth gave way to swampy pockets of uncultivated, wild plant growth. Natural elements-the trees, soil and water-where seen to be degenerating much like ruins of the ancient structures. The following statements from the 1893 Lahore District Gazetteer exemplify the use of scientifically embellished language to authoritatively establish a sense of a deficient landscape:

> In the immediate vicinity of the city the country is tolerably well wooded; but the trees are deficient in size and variety, consisting chiefly of the *acacia Arabica*, here called *kikar,* and the *tanariz Orientalis or faras*.[34]

> The soil is by no means favourable to vegetation containing as it does much carbonate of lime below and large quantities of soluble salts and carbonate of soda near the surface.[35]

Like the rural countryside, this wasteland was also poised on the brink of a major transformation under the 'civilizing mission' of the colonial rulers. The colonial planning gaze was affixed on this deserted and decaying landscape. It was a kind of tabula rasa upon which to envision a series of improvements: a new city with a civil station, cantonment and residential suburbs; modern functions and bureaucracy; and a different group of inhabitants including British officers and a newly cultivated Indian middle class. In 1860 the construction of the Lahore Branch of the Bari Doab Canal marked a definitive (if also paradoxically incidental) beginning for the growth of this new city. The colonial outlook towards these transformations is well exemplified, once again, by Muhammad Latif:

> The dreary expanse of crumbling ruins and tottering walls and old mounds, the desolate and barren tracts, strewn for miles around with debris, where there stood not a tree to give shelter to a weary travelers, have through the magic wand of British civilization, been charmed into a scene of life again.[36]

33 Sir John Lawrence (1852) as quoted in Syad Muhammad Latif, Lahore: Its History, Architectural Remains and Antiquities (Lahore: Sang-e-Meel, 1994 c1892), 251.

34 Walker, Gazetteer of the Lahore District, 293.

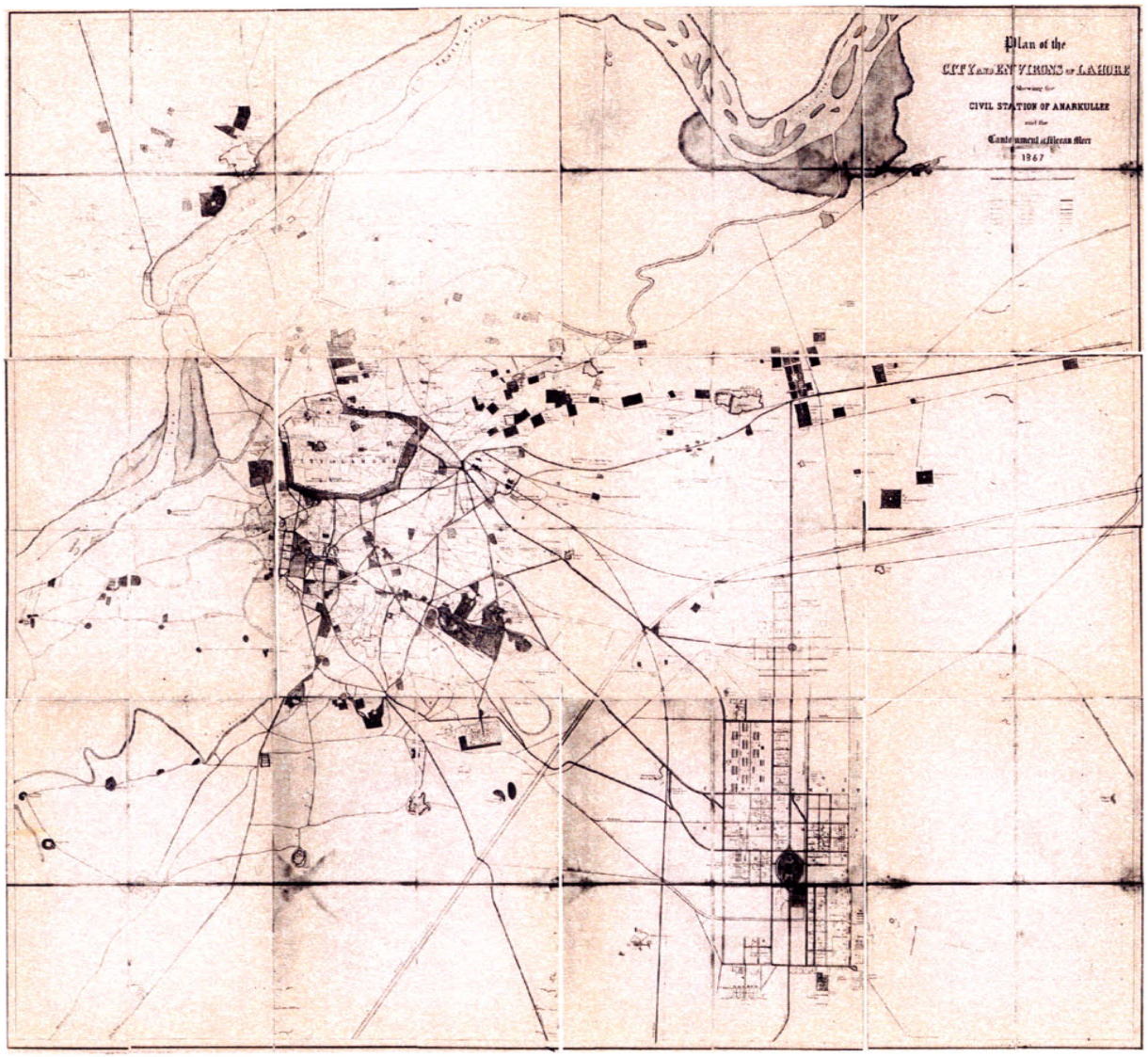
35 Ibid, 297.

36 Syad Muhammad Latif, Lahore: Its History, Architectural Remains and Antiquities (Lahore: Sang-e-Meel, 1994 c1892), xi.

In this chapter I have delineated some of the ideas that underpinned the physical and social reform in the rural Punjabi countryside. Before the powerful machine of irrigation technology, coupled with a rationalized land settlement program, could cultivate the garden, the desert had to be imagined.

One of the most prominent themes of the semantic conjunction between the conceptions of the city and the country was the idea of cultivation. Rhetorically, the colonizers were able to link the land and the local people; and the city and the country, in a combined project of reform and productivity. The transformations ensued simultaneously in the city and its regional hinterland. The physical provision of water infrastructure-the system of perennial irrigation canals-helped to create this productive landscape.

In the following chapter I will trace some of these changes with a focus on the development of the city as it pertains to the canal system.


Plan of the
CITY AND ENVIRONS OF LAHORE
Shewing the
CIVIL STATION OF ANARKULLEE
and the
Cantonment at Meean Meer
1867

2 : THE TRANSFORMATIONS

The Canal System: Description and Goals

The mid 19th century heralded the unprecedented development of large integrated technological systems in the industrializing and the colonized world. These systems gave rise to vast changes in all aspects of human life: the transformation of urban and rural settlement patterns, increased movement of goods and people, the reduction of disease and the growth of economies. The immediate palpable sense of change that accompanied such notable developments, as Bazelgate's sewerage system in London (1859-1865) and the railway boom in the United States (1830's to 1860's) led many observers to believe that these systems themselves embodied social transformation. The enlightenment notion of human progress premised upon scientific and technical advance had converged with the accelerated pace of such advances whose manifestation was much more tangible in the material world than anything in the past.

Much like in the rest of the world, the Punjab witnessed considerable physical, social and demographic change in the second half of the 19th century, which continued into the first half of the 20th century. At the heart of these changes was the colonial development of technological systems such as the networks of railways, roads and the irrigation canals. In the nearly hundred years of British rule the canal irrigation system transformed the natural interfluvial landscape of the western branches of the Indus River from barren desert and jungle waste to a productive and fertile garden.

The Indus river system comprises five nearly parallel branches, which originate discretely in the Himalayan highlands, converge in the southern plains of Punjab and continue as a single river down through the Sind to the Indian Ocean. The precipitation in this region also closely follows the riverine geometry with rainfall contours forming a perpendicular relationship to the rivers. The annual rainfall reduces from about 25 inches in the highlands to less than 5 inches at the intersection of the rivers. The climate and soil conditions vary greatly, with the landscape getting progressively drier and warmer as one moves northeast to southwest along the direction of river flow. The plains of the Punjab, leveling out from the Himalayan foothills until the confluence of the five rivers form the site that captured the British colonial imagination. After defeating the Sikh armies and gaining the control of the region in 1849, the new rulers quickly gauged the extant insufficiency, but also the future potential for large-scale agricultural production in the Punjab. While neither the great rivers,

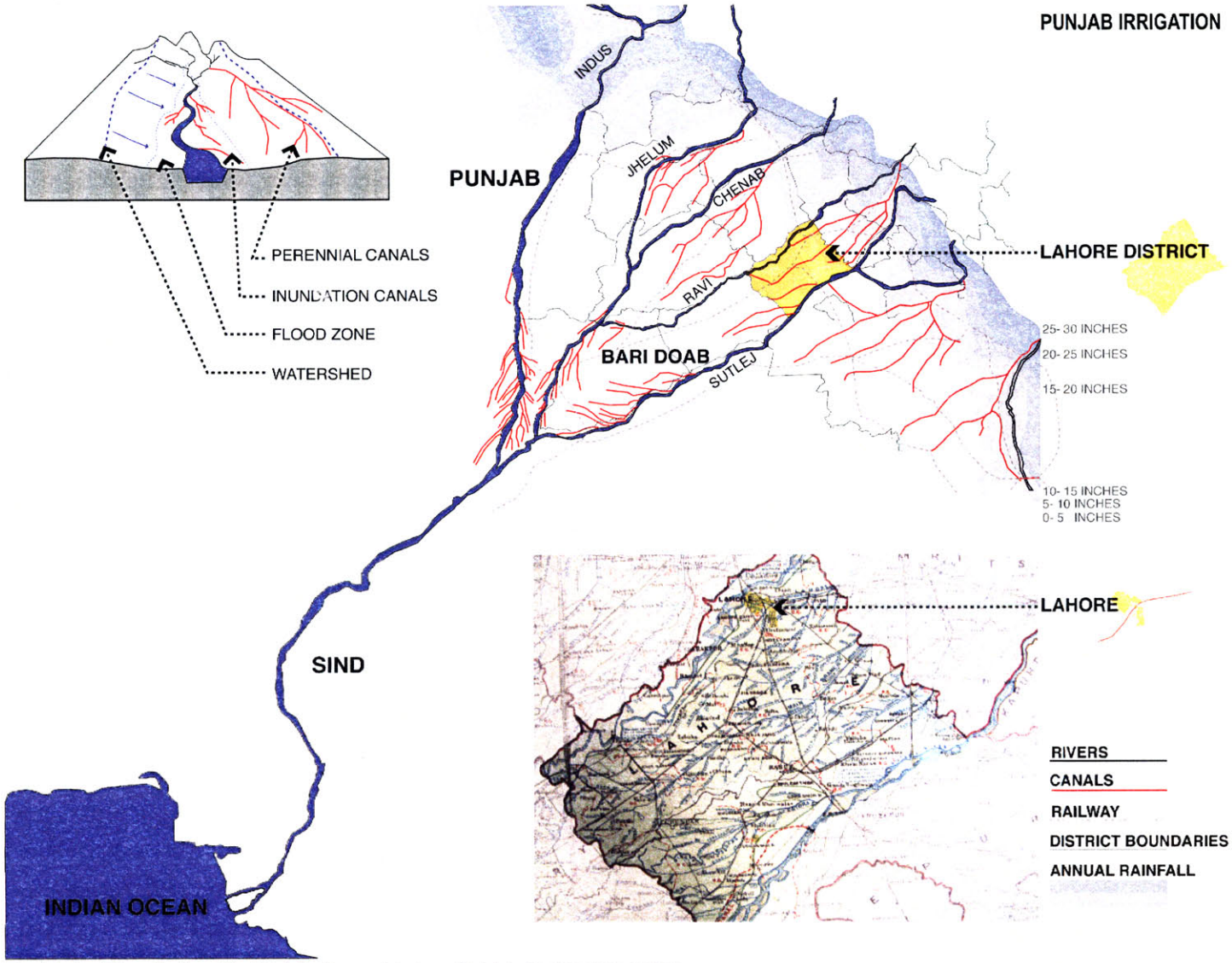


Fig. 1 Indus River System, Punjab Irrigation and Lahore District . Source: The author.

not the highly temperamental seasonal monsoons provided a consistent means of irrigation, the area had a long history of infrastructural interventions built to extend the reach of the natural hydrology. The British administrators quickly observed the inadequacy of these means of irrigation, namely inundation canals and wells. At the inception of colonial rule, cultivated land in the region was limited to the fertile banks of the rivers and the areas seasonally irrigated by canals and groundwater sources. The existing inundation canals fed by the natural flooding of the rivers were deemed technically deficient for considerably increasing the amount of cultivable land. These canals were usually built in the low lying areas near the river banks and would require pumping systems to irrigate fields on higher ground. The new perennial canals would be built along the ridges of the doabs, taking their waters from head-works located further upstream (and upslope) and maintained by a system of permanent weirs and reservoirs. This way the water could be gravity fed down the gentle slopes by means of distributaries to the fields in the upland tracts, providing a consistent yearlong supply and ensuring the cultivation of *Rabi* (spring) and *Kharif* (autumn) crops.

The development of the new irrigation system in the Punjab commenced shortly after annexation in 1849 under the East India Company, with the building of the Bari Doab Canal and was eventually expanded to include branches emanating from each of the Indus's great tributaries, the Jhelum, Chenab, Ravi and Sutlej rivers. Following the alignment of the watershed, these canals formed an intricate pattern

Fig. 2 Rainfall distribution in the Punjab. Source: Irrigation Department Punjab. Statistics of Irrigation, Water distribution and working of distributaries of the canal in the punjab for the year 1899 to 1900.
The canals in the southwestern portion near the convergence of the rivers are mainly inundation canals whereas most of ones in the northern plains are perennial canals.

of incisions in the landscape, distributing waters from the rivers to the canals, into the smaller watercourses and thus to the fields.

For the British rulers of India the canal irrigation works were motivated by distinct but interdependent goals. First, by increasing the capacity for artificial irrigation in the rain-starved districts, they hoped to boost agricultural production on a large scale. Ostensibly, the increased cultivation would prevent against famine future and assure

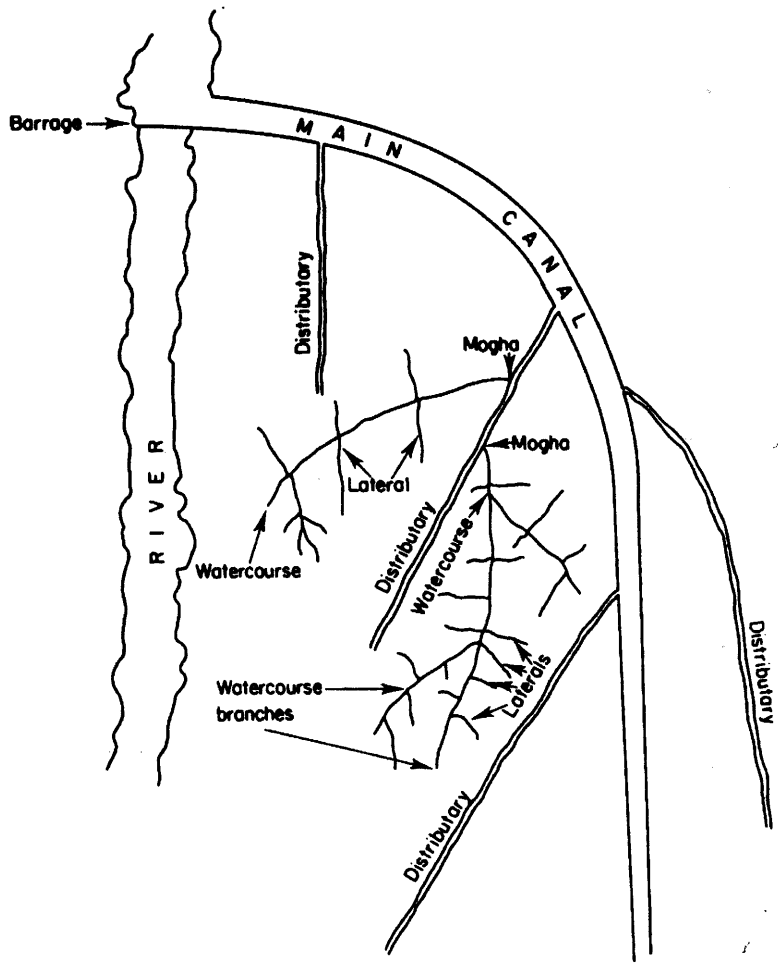


Fig. 3 Schematic Diagram of Canal System, showing the different components from canal to distributary to water course. Source:Merrey, 1982.

better livelihoods for the local people. Most importantly, revenue extracted from agricultural production was anticipated (and proved to be) the main source of state income. Other related sources would include the commercial exchange of agricultural products, the sale of (newly valuable) irrigated land, the collection of water rates, the tolls collected from using the canal for navigation purposes, the collection of rent from mills leased on land with access to water power, and the increase in taxable income arising from the anticipated prosperity of growing cities and towns. A third aspect of the irrigation policy was the social and political agendas of the colonial state. These involved plans to bring people from other, more populated districts, to the Punjab and settle them there through a process of agricultural colonization on the newly opened land. This process also included the local people, in particular the soldiers from the disbanded Sikh army who were characterized as 'martial' or aggressive races, who were to be settled on the land through an allotment process to ensure their political acquiescence. The idea of establishing a proprietary relationship of people to the land in the service of 'peaceful pursuits' emanated long-held Christian precepts regarding the moral basis for an agrarian or rural lifestyle. More severely, settlements were also established to contain and provide work to those groups known as 'criminal or wandering tribes' and in need of reform. Some of these settlements were on agricultural land whilst others were associated with new industries. It was hoped that the stability of living and work would lead to the improvement of certain 'reformable' but criminal propensities.

The social and physical reforms intended to accompany the irrigation system, as mentioned in the previous chapter, were preceded by lengthy data collection, surveying, classification and registration. All the 'scientific' analysis formed a particular picture of the landscape and its inhabitants as the site for reform.

As discussed in the previous chapter, the Punjabi landscape was constructed in the colonial administrative imagination as a kind of 'tabula rasa'. The rain starved inland tracts, on higher ground than the flood plains, were sparsely cultivated and inhabited by nomadic pastoralists. The general aridity of the land, the lack of regular settlement patterns and evidence of past inhabitations provoked in earlier settlement reports the descriptions of a decaying and undesirable landscape. In contrast, the reports and accounts published soon after the canal system came into operation painted a decidedly different picture. In the 1893 Lahore district gazetteer, G.C.Walker wrote the following description of the transformation of in Lahore Manjha:

> Until therefore irrigation was imported by means of the canal, there was very little natural growth of any sort and the agriculture was mostly inferior. In 1854 the Settlement officer described this part of the district as a jungle in which only the poorer cereals and pulses could be grown. Also in 1868 it is alluded to as a sparsely populated tract without means of obtaining drinking water for man or beast. Now the whole of the Manjha tract, except for a small portion on the south-west, is traversed by branches and distributaries of the canal, their banks lined with trees and the lands near them under good and careful cultivation.[1]

Administrative officers and other chroniclers extolled the virtues of the system and its positive impacts on the productive as well as aesthetic qualities of the landscape.

Despite these earlier, generally glowing descriptions of the irrigation system and its transformative power, in retrospect the actual outcomes of the system have been complex. The many varied transformations-ecological, social and economic-have been detailed in a number of studies. Most notable are those by Aloys Michel, who discusses the pernicious the ecological impacts of the system such as waterlogging and salinity; Imran Ali who explores the unique relationship of the economic growth and the poverty that persisted in the region and David Gilmartin who looks at the political and social ramifications of the new agricultural regime.[2] However, an understanding of the effects of the system on the city of Lahore is still lacking. In this chapter, I speculate on the role of the canal systems in the development of Lahore's suburban landscape.

---

1 G.C. Walker, Gazetteer of the Lahore District, (Lahore: Lahore Civil and Military Gazette Press, 1894), 2.

2 Imran Ali, The Punjab under Imperialism 1885-1947 (New Dehli: Oxford University Press, 1989); David Gilmartin, "Scientific Empire and Imprerial Science: Colonialism and Irrigation Technology in the Indus Basin," The Journal of Asian Studies (Association of Asian Studies), 1994: 1127-1149. A. Aloys Michel, "The Impact of Modern Irrigation Technology in the Indus and Helmund Basins of Southwest Asia."

I begin by discussing not the canal but the River Ravi in Lahore. I suggest that the canal was part of a number of infrastructural changes that eventually transformed the landscape of the river. Once the city's natural lifeline, over time, the river receded not just physically but also from the city's collective consciousness. In this respect I will discuss the re-orientation of the city away from the river, towards the canal. Thus I am starting not with the actual landscape that was cultivated by the canal but the landscape that suffered from it. Whilst a complete discussion on the effects of desertification caused by irrigation development and other public works on the river landscape in and near the city is out of the scope of this study, I am using it to open the discussion on the transformations in Lahore.

I then go on to explore the spatial and social dimensions of the suburban development of the city vis-à-vis the irrigation function of the canal. I examine, chronologically the series of developments that were directly supplied by canal water and how these combined to form the 'modern' city of gardens.

The City, the River and the Canal: A Story of Decay

There are a number of serious ecological and environmental impacts associated with the modern irrigation system. The canal fed areas in the Punjab (and elsewhere in India) began to suffer the effects of water-logging and salinity around the late 1800's. With the new canals, surface water was not only spread over a wider territory but also stood for longer times in mostly unlined canals and water-courses. The expanded and prolonged contact of water with the soil caused extra seepage into the ground resulting in higher water table levels. The extra groundwater interfered with the root zone of the crops under cultivation and its evaporation caused salts to be deposited on the surface.[3] The 'twin menaces' (as they are often referred to in Pakistani development and geographical literature) of water-logging and salinity have plagued agriculture in Pakistan since the time of partition with nearly a quarter of the land in the Indus plains suffering from their effects.[4] Although a detailed discussion of these problems is out of the scope of this thesis, it is ironic that the very area purportedly converted from desert to garden should suffer the fate of desertification.[5]

3 Michel, "The Impact of Modern Irrigation Technology in the Indus and Helmund Basins of Southwest Asia."

4 K.U Kureshy, A Geography of Pakistan (Karachi: Oxford University Press, 1977).

5 The term, established in the seventies refers to environmental degradation that specifically causes landscape to become dry in part due to the processes of development. See Brian Spooner and H. S. (Ed.) Mann, Desertification and Development: Dryland Ecology in Social Perspective (London: Academic Press, 1982).

In addition to the problems of a rising water table, the parasitical relationship of the canals and the river points to another aspect of the desertification process-one more pertinent and visible in the urban landscape.

Irrigation canals inherently invert the natural order of river systems. Whereas rivers are fed by networks of streams or tributaries that accumulate volume and size as they flow to their final destinations, canals disperse river waters by branching into successively smaller channels or distributaries. The withdrawal of water for distribution over a large area logically reduces the river water levels.

Prior to the construction of the modern irrigation system under colonial rule, the river flood plains (rather than the inland *doab* tracts) were the most heavily cultivated areas in the Indus valley system. The fertile alluvial soil of the inundated banks nurtured a pattern of seasonal cultivation in the region. This pattern was radically altered when water from the rivers was channeled through perennial canals to irrigate the arid inland zones. The canal system, with its reservoirs and weirs, ensured a yearlong water supply to the land and in doing so also created a reduction in the natural water levels of the rivers. As early as 1865, the settlement officer, Leslie Saunders attributed the recession of the Ravi River and the adverse effects to the villages located along it, to "the absorption of its waters for the purposes of the Bari Doab Canal".[6] On the whole however, the canal system along with other infrastructural developments continued to impact the water levels and

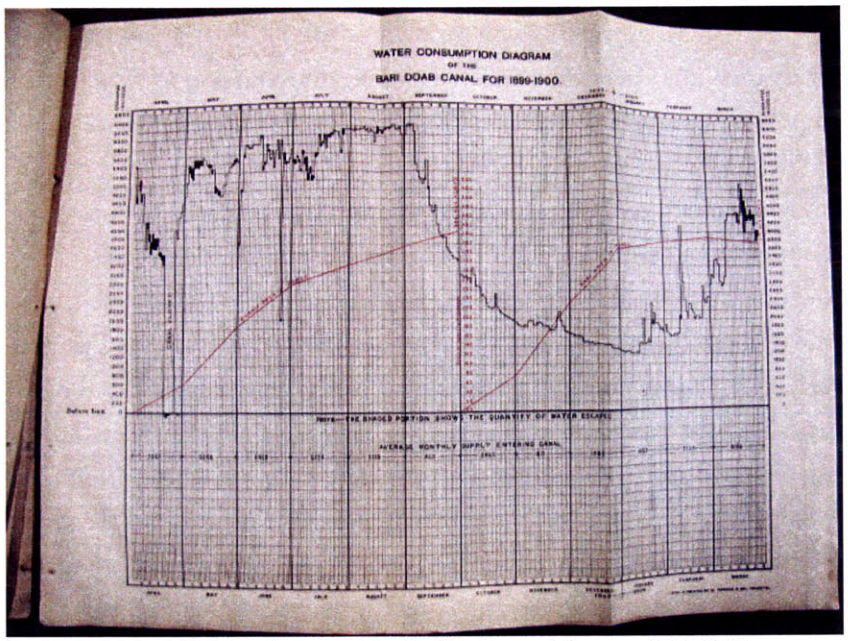


Fig. 4 Water consumption diagram of the Bari Doab canal. Source: 1899-1900 irrigation statistics report.

6 Leslie S. Saunders, Report on the Revised Land Revenue Settlement of the Lahore District in the Lahore Division of the Panjab, 1865-69, (Lahore: Central Jail Press, 1873), 23.

7 Asim R. Khan, M. Kareem Ullah and Saim Muhammad, "International Network of Basin Organizations," Water Availability And Some Macro Level Issues Related To Water Resources Planning And Management In The Indus Basin Irrigation System In Pakistan, http://www.riob.org/ag2000/pakistan.htm (accessed 05 21, 2009). According to this study on the water resources of the Indus Basin Irrigation system (IBIS), the maximum river withdrawals occur during the Kharif (late summer, autumn) season however because the inflow to the rivers from melting glaciers during the summer months is also at its highest, the overall capacity of the irrigation diversions remains lowers than the inflows. In the Rabi season (winter, spring) the reverse condition is experienced. The inflow to the rivers is deficient to meet irrigation demands but withdrawal is also decreased due to maintenance closures of the canals during that time.

course of the river.[7]

Over time, the River Ravi suffered significant reduction in its water supply and channel size. It is difficult to say to what extent these reductions were caused by the withdrawal of waters from the canals and how much could be attributed to other interventions such as flood protection infrastructure. However, observations and accounts corroborated the fact that the river indeed diminished over time since the mid-nineteenth century. For example, in the 1893 Lahore District Gazetteer, it was noted that the railway bridge that crossed the Ravi near Shahdara originally measured at nearly eight thousand feet but that its length had been shortened to nearly half. The length although originally over-designed to over extent, proved redundant because the width of the Ravi's channel reduced considerably quite astonishing within the span of one year. In the report the river embankments made to protect the railway from floods were stated as the cause for this change in the River. "Just above Lahore city the course of the stream is carefully directed by embankments designed to protect the railway from injury by floods, and the river which used to throw out several branches (...) is now kept to one channel".[8]

The desirability of the Ravi as an urban artery also diminished because it became the unfortunate beneficiary of the city's refuse. In the 1876 letter on the proposed water and drainage system of the city it was stated that the new system would discharge sewage into the Ravi River.

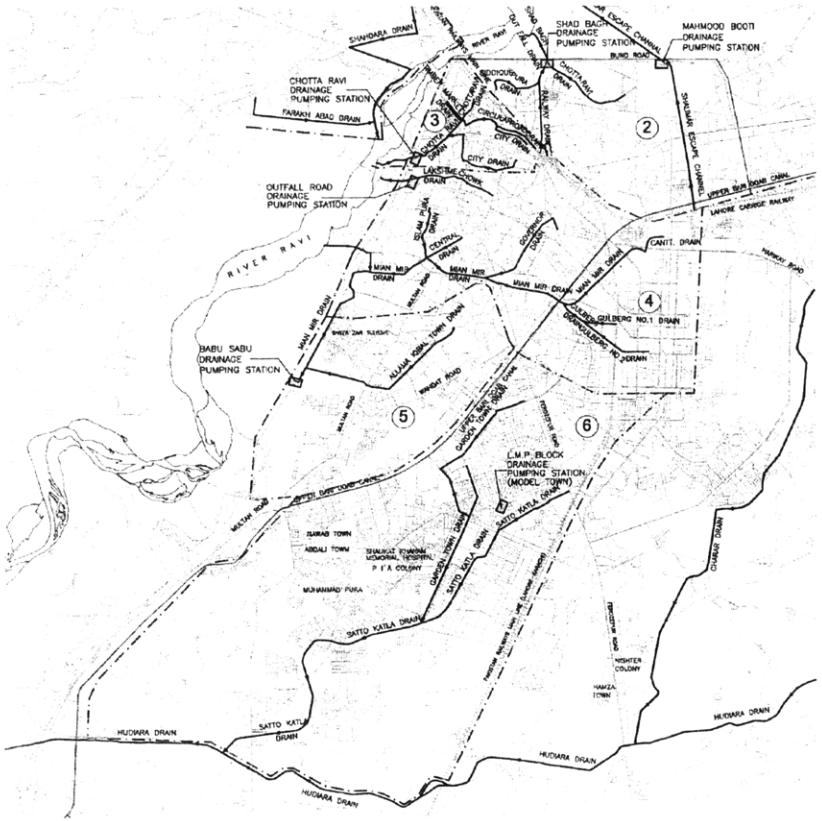


Fig 5a Drainage System. The system continues to be channeled into the Ravi River. Source: Lahore Development Authority. Integrated Master Plan for Lahore 2021. Final Report, Volume 1. National Engineering Services Pakistan (Pvt.) Ltd.2001

8 Walker, Gazetteer of the Lahore District, 4.

9 R. P. Nisbet, "Letter from the President Municipal Committee, Lahore, To The Commissioner and Superintendent, Lahore Division, On the Subject of Water-Supply and Drainage of Lahore 1876" (1876).

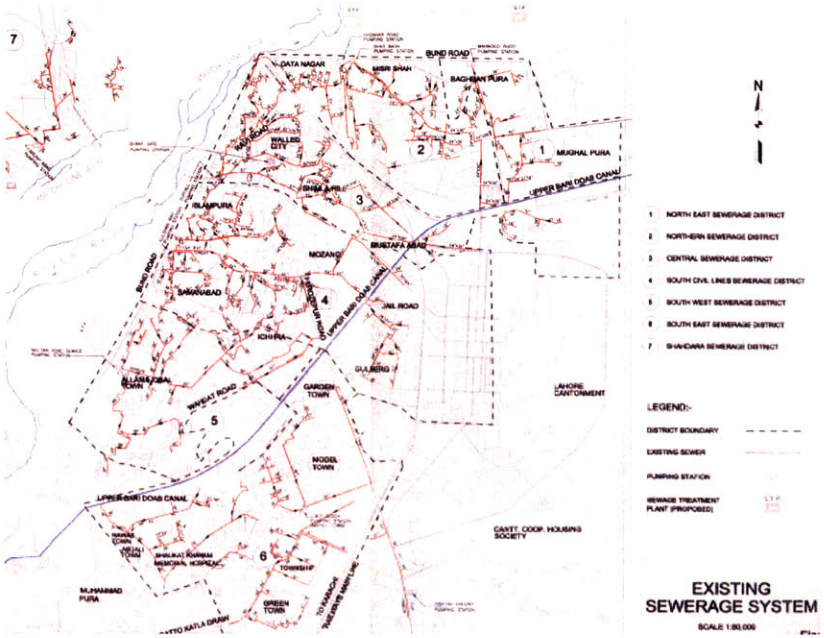


Fig 5b Sewage System. The system continues to be channeled into the Ravi River. Source: Lahore Development Authority. Integrated Master Plan for Lahore 2021. Final Report, Volume 1. National Engineering Services Pakistan (Pvt.) Ltd.2001

> Some sanitarians will no doubt be apprehensive of this means of disposing of a large quantity of sewage, but it must be borne in mind that the discharge takes place some miles below the City and away from human inhabitations, also that the sewage has been already discharging into the river for the past twenty-five years, and no perceptible contamination has resulted.[9]

At present Lahore's sewage and drainage continues to be channeled into the Ravi.

Today the river Ravi marks the urban periphery of Lahore. This was not always the case. As evident from James Wescoat's studies of Mughal gardens in Lahore and historic maps of Lahore, the suburban landscape of Lahore in the time of the Mughals was oriented towards the Ravi.[10] The most prominent of the imperial sites located along the river terrace include the Shalimar Gardens in the northeast, the Emperor Jahangir's hunting estate and later tomb across the Ravi in Shahdara, Kamran's

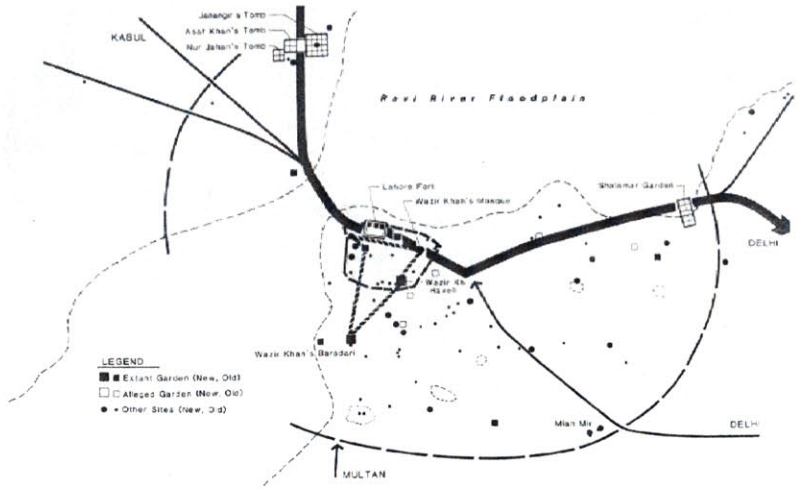


Fig. 6 Garden Sites in 17 century Lahore, situated along the Ravi River. James L. Wescoat, "Gardens, Urbanization, and Urbanism in Mughal Lahore: 1526-1657," in Mughal Gardens: Sources, Places, Representations, and Prospects, ed. James L. Wescoat and Joachim Wolschke-Bulmahn, 139-170 (Washington DC: Dumbarton Oaks Research Library and Collection, 1996).

10 James L. Wescoat, "Gardens, Urbanization, and Urbanism in Mughal Lahore: 1526-1657," in Mughal Gardens: Sources, Places, Representations, and Prospects, ed. James L. Wescoat and Joachim Wolschke-Bulmahn, 139-170 (Washington DC: Dumbarton Oaks Research Library and Collection, 1996).

Fig. 7 The Ravi- Katchi Abadi's (slums) located at the banks of the Ravi River- Photos courtesy of Javed Zakriya

Baradari on the Ravi itself, and of course the Lahore Fort, the Badshahi mosque and the walled city itself. In addition to these, smaller gardens, farms, estates, and *mazars* lined the river terraces along the northern and western sides of the city. In 1622 the Emperor Aurangzeb built the protective embankments, called the *Bund-i-Alamgiri* along the north of the city. These embankments, it is claimed, caused the first major diversion of the river away from the city, leaving only a small stream, known as the *Chota* or small Ravi near the city walls as a trace of the old water's edge.

The colonial infrastructural interventions, including the canal system, the sewerage system and flood embankments continued to diminish the river and make it more and more polluted. Thus the river receded not just physically but also in the collective imagination of the city. The once fertile landscape and urban spine was reduced over time, partially due to the siphoning of river water from the canals and the growth of relative importance of the canal bank as an urban artery, to an unattractive edge. Ironically, over time it becomes the very wilderness that the colonial rulers had envisioned in the inland tracts of the doabs and eastern outskirts of the city.

This diversion of the Ravi, the eventual reduction is its water level due to the canal system and the building of the Lahore branch of the Bari Doab Canal in 1860 were all factors that eventually contributed to the re-orientation of the city towards the newly developed (and irrigated) 'garden' landscape that grew along the canal in the late nineteenth century.

The New Suburban Landscape

As the Ravi's course receded from the city and its once fertile banks diminished in the collective urban consciousness, a verdant landscape grew along the new canal. In 1860, a branch of the Bari Doab Canal was extended "to spread fertility toward and about the city of Lahore".[11] The canal entered the Lahore district near Wagah, north east of the city. Following the geographic logic of gravity-fed irrigation, the canal was situated along the natural ridge passing between the walled city in the north and Mian Mir in the south. It was cut along a course parallel to the river and was discharged into the river through a channel near the village of Niaz Beg, about seven miles southwest of the city. Two railway lines, extending to Amritsar in the east and Multan in the south, crossed over the canal near Mian Mir. Like the other canals in the system, the Lahore branch was built with a fairly standardized cross-sectional layout with ample tree-lines banks constructed with roadways for vehicular transportation.

The outskirts of Mughal Lahore, an area once characterized as a decaying wasteland, became the site of the new colonial city where a landscape of gardens and fields was carefully cultivated.

11 Paul W. Paustian, Canal Irrigation in the Punjab, An Economic Inquiry Relating to Certain Aspects of the Development of Canal Irrigation by the British in the Punjab (New York: Columbia University Press, 1930), 28.

> The environs of the city in 1849 were a 'dreary expanse of crumbling ruins', remains of the ancient city of the Mughals. The houses and offices of the first residents were confined to the neighbourhood of the old cantonments, which occupied a strip of alluvial soil to the south of the city, and running parallel with an old an old bed of the Ravi. Gradually, however as the European population increased in numbers, the station spread eastward, making steady inroads upon the less inviting region which lay further from the river. And thus year by year the ruins and graveyards of Lahore passed under the humanizing influence of western civilization. Metalled roads have pierced the debris of former days, and the bungalows and gardens have succeeded to ruins and rough jungle. Much still remains to be done, but the scene has already assumed a garb of life and trimness not discreditable to the Punjab Capital.[12]

The new developments along the canal in Lahore's new civil station were programmatically diverse, comprising institutional, residential, industrial, and bureaucratic buildings. The new cantonment housed the military functions. All these diverse public projects were typically served by an extensive open space and garden program. Many of these new gardens were fed water by eight distributaries and various watercourses branching from the Lahore canal. This modern city, with its resplendent and peaceful garden estates and broad, tree-lined avenues, was the morphological counterpoint to the old city with its disorderly winding streets and the chaotic amalgam of humanity, noise and garbage. At the same time the open space provided a physical separation and sanitary buffer from old Lahore. The open and rational structure of the new suburbs also served a didactic function to nurture a British educated and cultured middle class. Lahore thus became two distinct cities. Most of the older inhabitants were crammed into the dense fabric of the ancient walled city. Whilst the more affluent residents left the old quarters in favor of the new suburbs, more and more rural migrants began to arrive to take their place and make their way in amongst the material prosperity of the city. The new arrivals far outnumbered those who left. The large *havelis* vacated by the elite began to be sub-divided and inhabited by the newcomers.[13] Despite the distinction between these two very different cities, the colonial city was not a segregated or heterogeneous environment. Instead it purposefully integrated certain classes of Indian society within the culture of new Lahore.

I argue that the transformations to the city's physical and social structure were literally and symbolically linked to the canal. Physically the canal as a spine held together a series of individual elements almost like a *sheesh* kebab or a charm bracelet. The structure of this spine was not governed by an external or geometric logic but by the geographic logic of the irrigation system. The image of this artery in the city was a synthesis of the symbols of modern progress-the roads and canals-with the elements of a cultivated 'second nature'-"fine gardens, grassy plains, metalled roads, lined on either side with shady trees, canals,

12 Walker, Gazetteer of the Lahore District, 284.

13 Markus Daechsel, "Between Suburb and World Politics, Middle-class Identities and the Refashioning of Space in Late Imperial Lahore, c. 1920-50," in Beyond Representation Colonial and Postcolonial Constructions of Indian Identity, ed. Crispin Bates (New Delhi: Oxford University Press, 2006).

public offices and picturesque European homes".[14] This unique picture of modernity, combining the artifacts of civil engineering with an improved and tamed version of nature, was an urban environment that embodied gentility and culture. Over time many of the distributaries and watercourses either ceased to function or their water supply was supplemented by other water sources.[15]

As the canal's function in the city diminished so did the public consciousness about its role in the organization of the city.

The colonial era histories of the city, such as that written by Mohammad Latif and various government reports often mentioned when canal water was used to irrigate a certain area or project. Further evidence was collected from historic maps, interviews in Lahore and site surveys: visits to the canal while its waters were drained for yearly siltation and maintenance. As an aside, it seems important to mention that more contemporary histories of the city do not address the urban function of the canal. At the turn of the century, the transformative power of the irrigation system was visible throughout the countryside. It was part of the urban consciousness and formed a central aspect of the 'civilizing' narratives of technological progress. These narratives- having shifted to the post-colonial development discourse- employ more contemporary technologies and systems as their tangible manifestations. The symbolic role of the canal, with its declined urban function, is now layered with different meanings in the city, some of which I will explore in greater detail in chapter three.

In the following pages I will unfold a chronological outline of the several 'garden' elements in the city that were either partially or completely supplied water from the Lahore canal.

14 Syad Muhammad Latif, Lahore: Its History, Architectural Remains and Antiquities (Lahore: Sang-e-Meel, 1994 c1892), 87.

15 The contemporary usage of the urban water-courses and distributaries was gauged in interviews with Muhammad Alam, the head gardener at the Lawrence gardens (now called Bagh-e-Jinnah) and Rana Yamin, the executive engineer in the Irrigation and Power Department. It is difficult to ascertain the extent to which the small branches of the Lahore branch are still used today. The gardens are irrigated mainly through the use of tube-wells and the use of canal distributaries has been more or less discontinued.

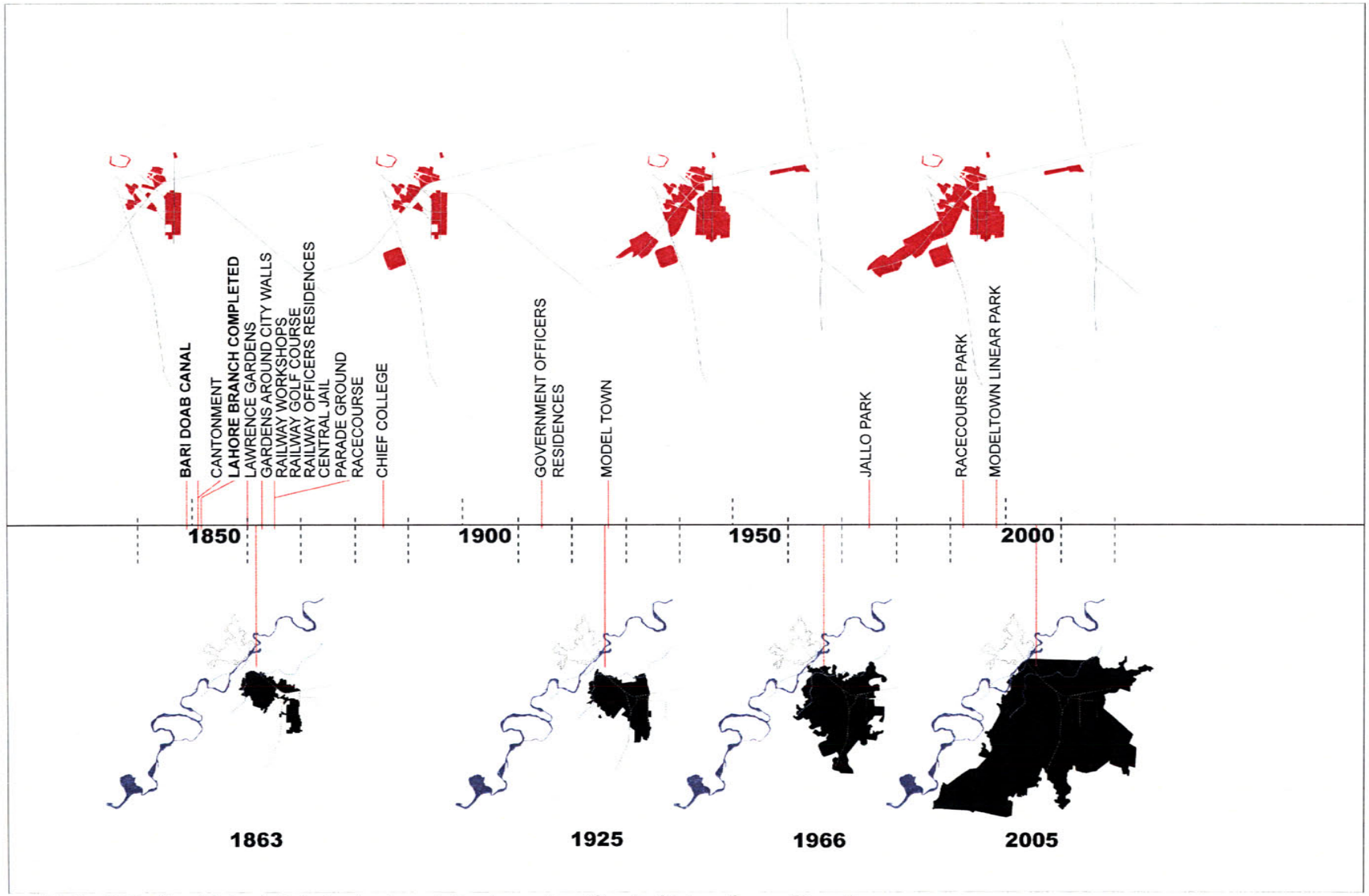
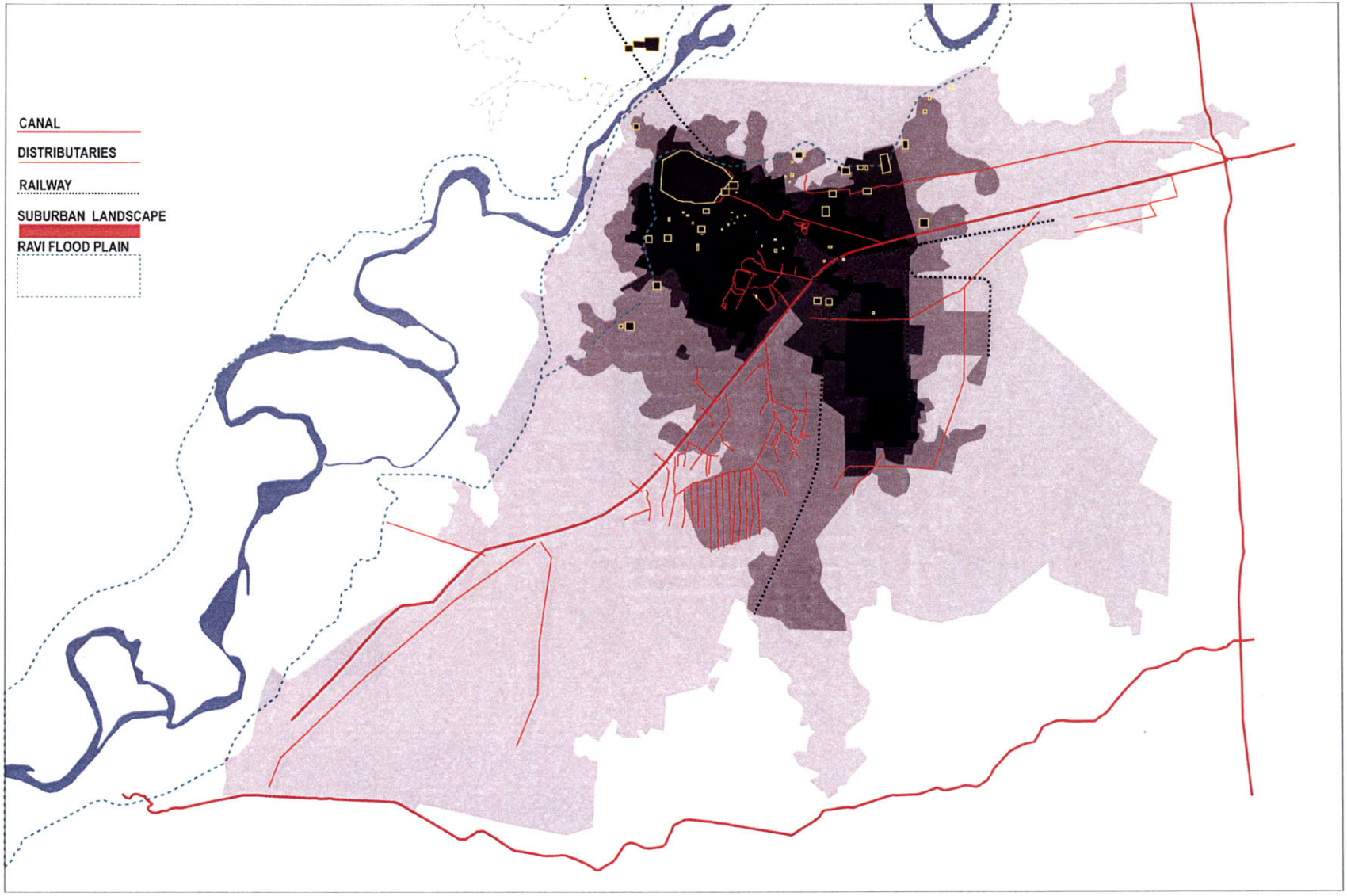


Fig 8a, 8b Timeline of Lahore's Suburban Landscape's Development and Growth of Lahore. Source: The author.


CANAL
DISTRIBUTARIES
RAILWAY
SUBURBAN LANDSCAPE
RAVI FLOOD PLAIN

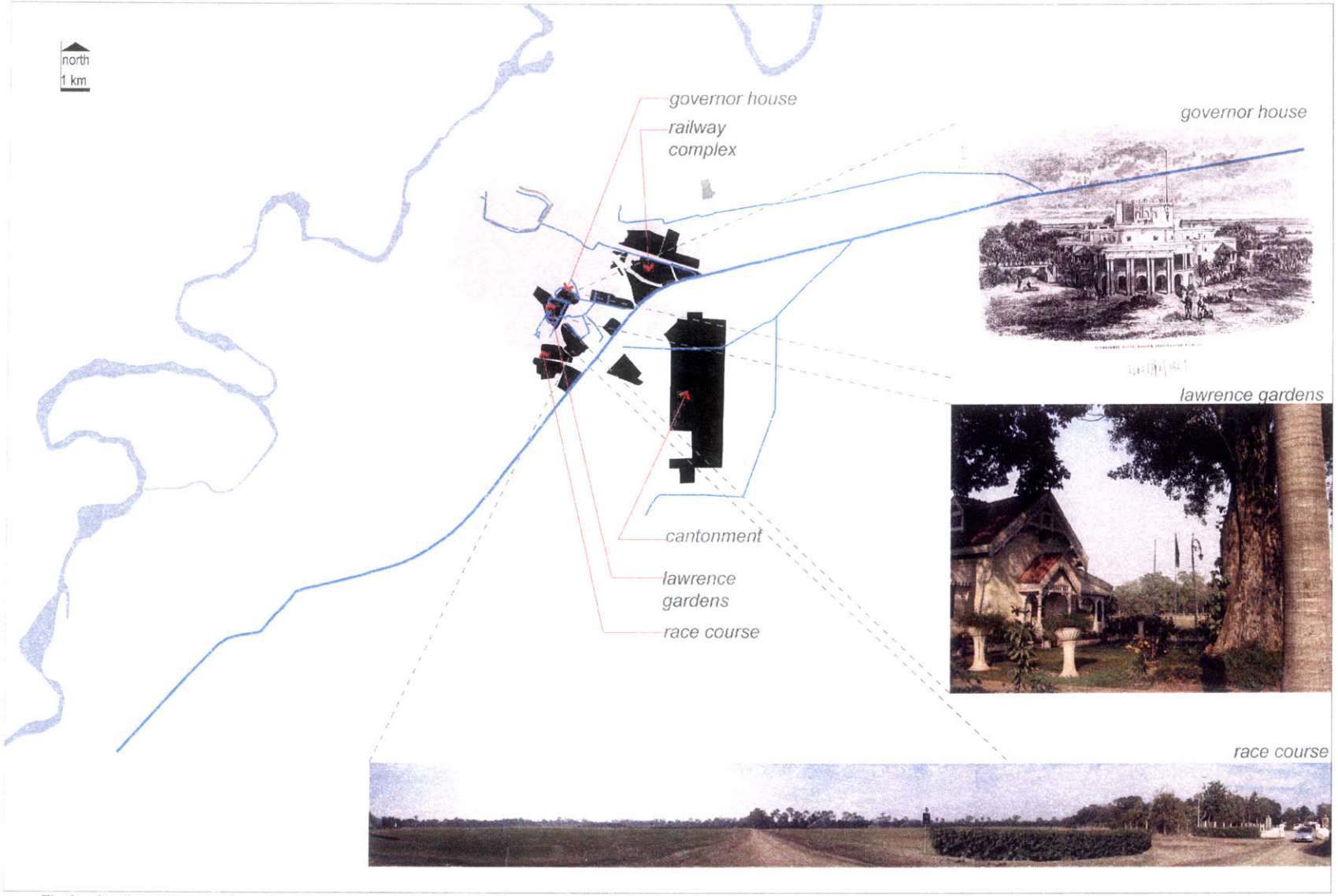
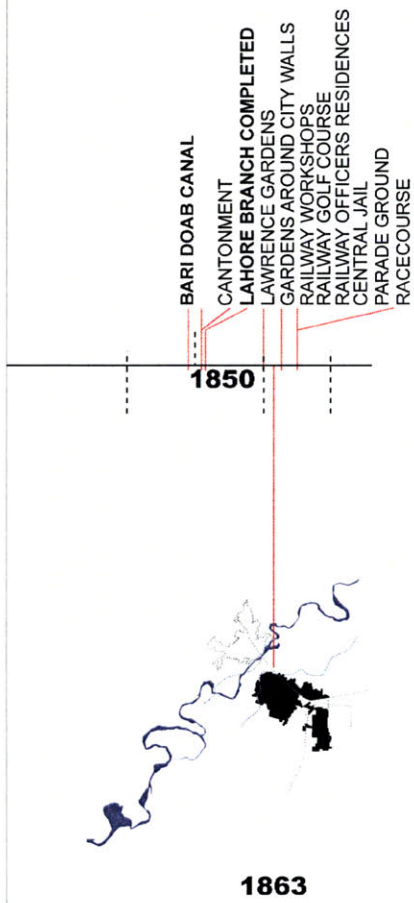


Fig 9a, 9b. Development along the Canal between 1800-1870. Source: The author.

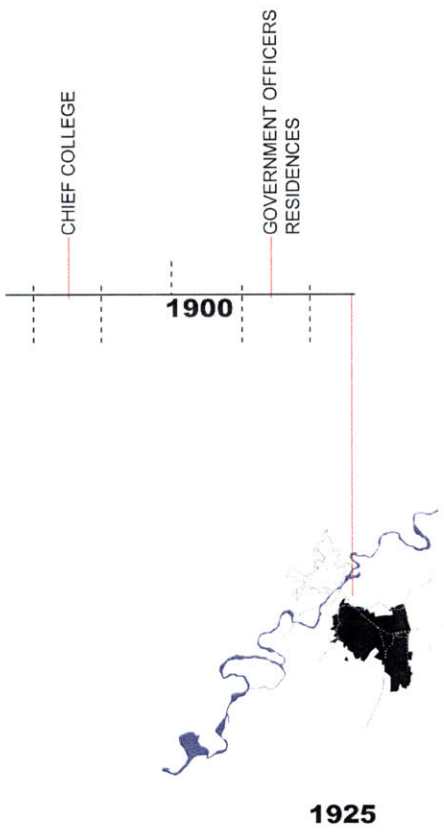


Cantonment

One of the first and possibly the most notable developments in the new suburban landscape was the building of the new cantonment. After annexation, the British army moved into the barracks that had previously housed the troops of Ranjit Singh's army. This area, Anarkali, was located south of the city walls and could be considered as one of the 'fragments' of the 'opaque' old Lahore that William Glover describes. In 1851 sanitation concerns prompted the search for a more apt environment of the troops. The area chosen for relocation was the village of Taslimpur located near the Sufi shrine of Mian Mir. The area around the shrine had been developed under the patronage of the Mughal Emperor Dara Shikoh. The cantonment was laid out in a rigid and hierarchical grid pattern with a north south alignment, with its central road linking to Shah Jehan's Shalimar Gardens in the north. Thus the cardinal layout of the Cantonment linked two important Mughal garden sites.

When the Lahore branch of the Bari Doab Canal was built a few years later, the Mian Mir Cantonment was the only urban locality on the far side of the canal. A cut from the canal was extended from Herbanspura in the north east of the city and then branched off into the cantonment to supply water to the parks and tree-lined avenues of the Cantonment. The area was also serviced by two railway stations, one on the north on the Amritsar line and the other along the west on the Multan line.

Fig 10a, 10b Development along the Canal between 1870-1925. Source: The author.



> They stand on an open and exceedingly dreary plain, originally bare of trees, but now gradually growing greener as canal irrigation extends and the trees planted by the roadside and assiduously fostered spring up.[16]

Although the Cantonment was distinct from Lahore civilian suburbs, the transformation of the landscape and the careful cultivation of natural elements was a common feature to both. While it continues to house the military headquarters of the district corps, it has indeed also become the city's most exclusive residential area, replete with spacious bungalows, gardens and wide landscaped avenues.

Lawrence Gardens

Perhaps the one project most emblematic of the garden city that emerged along the banks of Lahore's new canal was the Lawrence Gardens. This was a combination of different functions including a public park, the home of the Punjab Agri-horticultural society and the botanic gardens, the zoo, cricket pitches and tennis courts. The complex of gardens was developed in 1860 and expanded in 1868 around the Lawrence and Montgomery Halls. These two buildings, both designed in a rigidly neo-classical style, were built by funds from the European and native elites of Lahore respectively. They housed banquet and meeting halls, a library and reading room and other spaces for a variety of social functions.

16 Walker, Gazetteer of the Lahore District, 309.

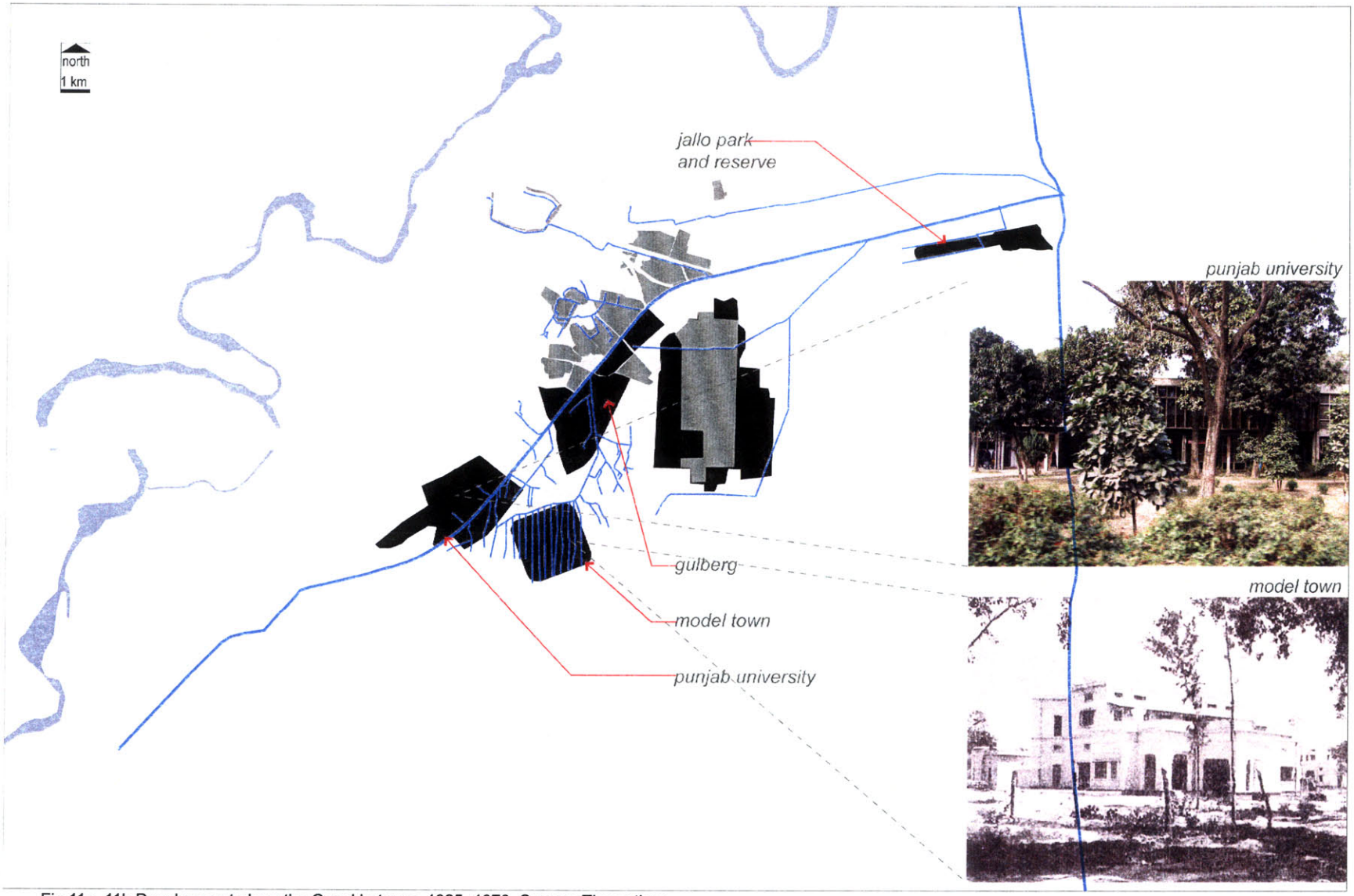
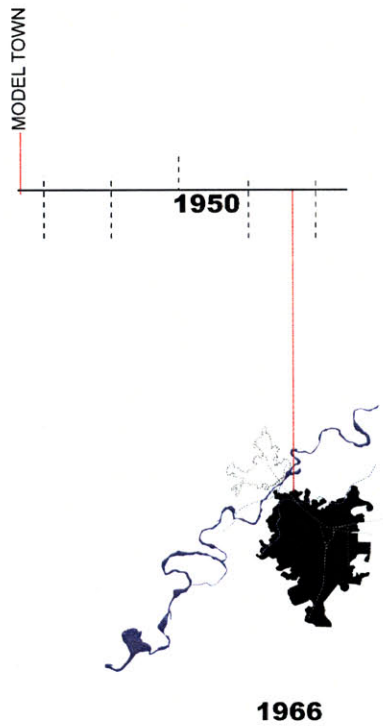


Fig 11a, 11b Development along the Canal between 1925- 1970. Source: The author

The financial patronage of the English as well as native elite was not limited to the buildings but was also extended to the gardens. The support of the Indian aristocracy of the Punjab was particularly prominent in the development of an extensive menagerie and zoological gardens for which local *Nawabs* and *Rajas* also donated exotic animals such as lions and ostriches, in addition to monetary support.

Botanical research, seed acclimatization and plant propagation was conducted at the Agri-Horticultural Society Gardens and the gardens were used to display different perennial and seasonal species of native and imported plants. Amaryllis, camellias, orchids and chrysanthemums were just a few of the varieties blooming in turn throughout the year. Malta Orange trees, Italian Pomelos, mango and fig were among the 600 species and 80,000 trees planted at the Lawrence Gardens. The plants and seeds developed at the botanical gardens were supplied without cost to various public institutions and individuals in the city.

William Glover has written about the formal aspects of the gardens and how those, in conjunction with the collaborative financial patronage define the Lawrence gardens as a complex social condenser configuring a controlled interaction of colonial and local elite. With is neo-classical architecture, the functional and picturesque landscapes, the didactic displays of botanical research and the racially heterogeneous social functions, the Lawrence Gardens was an



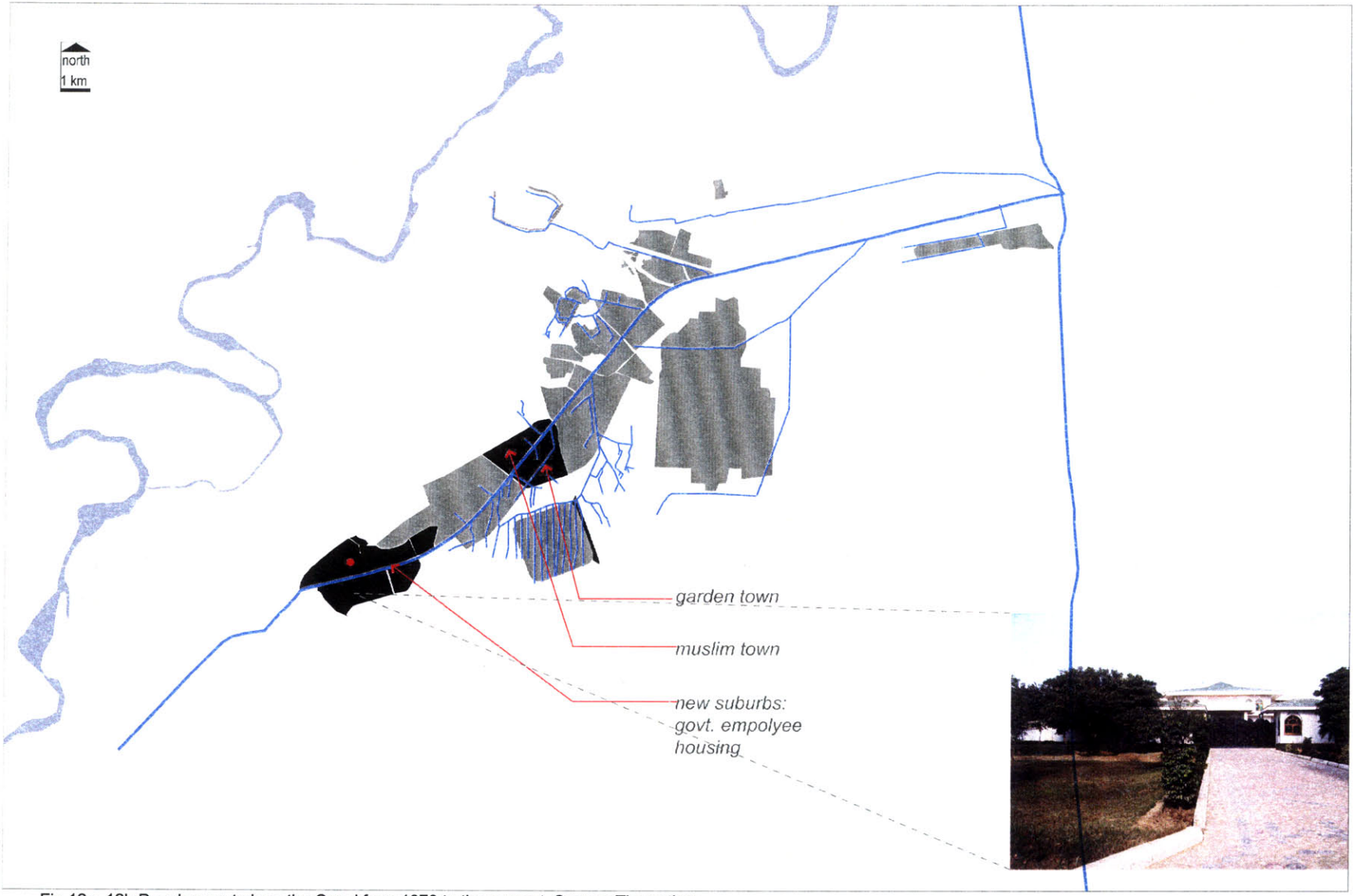
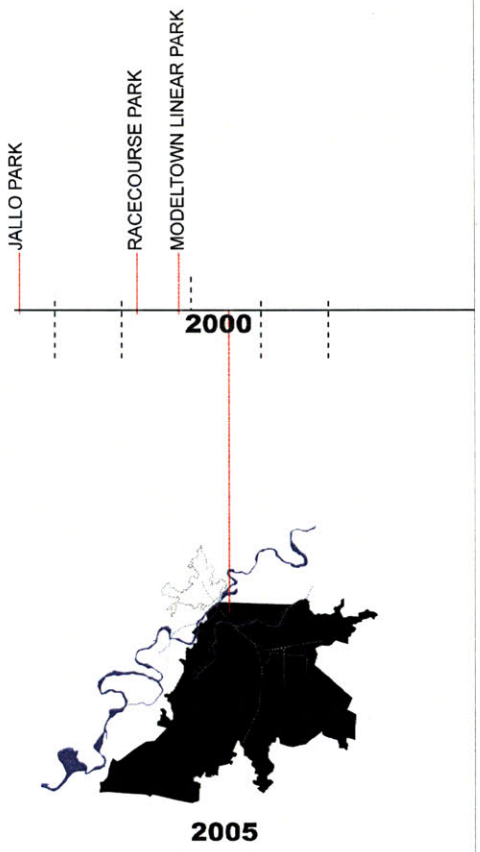


Fig 12a, 12b Development along the Canal from 1970 to the present. Source: The author.

embodiment of Lord Maculay's famous pronouncement in 1835 to create a "class who may be interpreters between us and the millions whom we govern; a class of persons, Indian in blood and colour, but English in taste, in opinions, in morals, and in intellect". Glover suggests that, "while Lawrence gardens and the associated buildings could easily be seen as an isolated 'island of Englishness', a racially segregated Anglo enclave designed to provide a semblance of comforts of home, this would be a partial view. Missing would be the role this landscape played as a controlled space of cultural interaction in the city, one heavily subsidized by elite and indigenous philanthropy".[17]

Indeed the physical, social and financial interaction between the Lahore's elite found a perfect setting within the Lawrence Gardens. Glover's analysis however concentrates on the Lawrence gardens as a singular place where this interaction was concentrated. To further his argument, I would posit that the role of the canal in nurturing this landscape is a critical component. The Lawrence Gardens was supplied canal water by means of the Governor House Distributary. This channel took off from near the railway crossing over the canal and was branched towards the area of Mall Road where it fed the Governor House and the Chief College amongst a number of other areas. In the Lawrence Gardens the water was spread evenly over the landscape through a number of small watercourses. This infrastructural



17 William J. Glover, Making Lahore Modern: Constructing and Imagining a Colonial City (Minneapolis: University of Minnesota Press, 2008).

aspect of the gardens, while briefly noted by both Latif and Walker in their respective descriptions of the gardens is absent from more recent histories.[18] A rational irrigation regime was crucial to cultivation and plant propagation. According to Alam Sahib-the head *mali* (gardener) at the Lawrence Gardens-although water supply to the gardens was supplemented with tube wells, the basic functioning of the gardens continued to depend on this infrastructure of water courses. Alam Sahib's enthusiasm for the precision and order of the canal system (or the microcosm of that system within the Lawrence gardens) made me realize this underappreciated infrastructural layer of the city. I also began to see the urban canal system as an analogical device to understand the gardens' connection with the rest of the suburban landscape. The botanical research and plant displays were a way in which the Lawrence Gardens helped to inculcate a garden culture in the city. To this day, the exchange of plants and the seasonal flower festivals are a proud legacy of the Lawrence Gardens. As such, looking beyond the original Anglo-Indian collaboration, I posit that the Lawrence Gardens was not only a social condenser, isolated from the rest of the city, but once ensured a precise and consistent water regime, it facilitated a wider cultural association with gardens that continues to propagate in the homes of Lahore's 'suburban' elite today.

Gardens around the Walled City:

Since the establishment of colonial presence in Lahore, the exterior condition of the walled city was altered in a series of steps. The colonial texts cite the unsanitary conditions of the city as the cause, which necessitated these alterations. The emperor Akbar originally built the city walls during the late 1500's. In 1812, under Ranjit Singh they were reinforced and a moat with ramparts was built around them. The walls stood at thirty feet and under British rule the height was reduced to fifteen feet, the moat-"a standing source of dirt and unhealthiness"-was

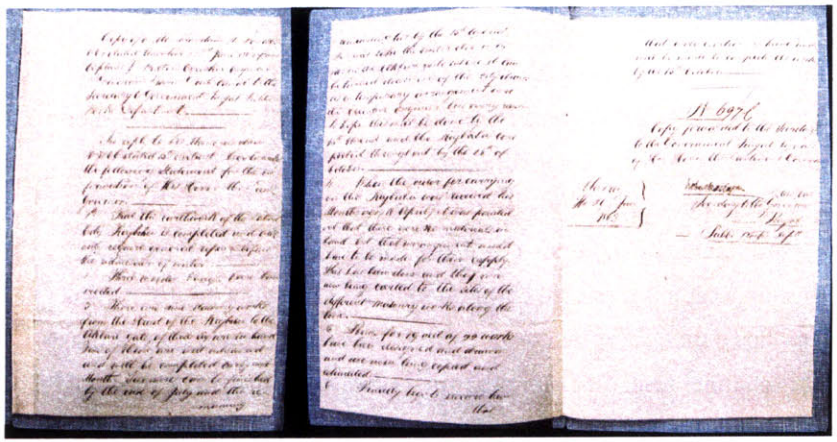


Fig 9. A copy of a memorandum dated 22nd June, issued to the Secretary of the Punjab Public Works Department, regarding the construction of the Rajbaha (distributary channel) from the canal to the gardens around the walled city.

18 Latif, Lahore: Its History, Architectural Remains and Antiquities

19 Ibid.

20 Oxford English Dictionary

covered and finally converted into gardens in 1863. A channel was dug from the Lahore canal to bring water to these gardens that "greatly conduced to the comfort and enjoyment of the town-people of all classes".[19]

In his description Muhammad Latif calls the gardens a boulevard. Indeed the original definition of the term boulevard, stemming from bulwark and referring to the horizontal portion of a rampart (upon which a promenade is laid out) is most precise in this context.[20] The gardens acted as a cordon sanitaire around the 'opaque' city: a means to buffer the civil station from threats emanating from the unsanitary old quarters.

The Railway Complex

Lahore was the headquarters of the North-Western Railway. The railway complex comprised the station, the junction of the three lines; a large complex of factories, workshops and sheds, where equipment, carriages, engines etc were manufactured and repaired; housing for the railway officers and workers; a large golf course for the officers; a technical institute and a number of other programs. The station and workshops were located on 126 acres of land. Latif gave a very detailed description of all the workshops, factories, shed and their respective functions. In an enthusiastic tone he detailed the different equipment and operational capacities. "From the variety of the appliances used, and of the work done, as well as from the order and method followed, this busy factory presents one of the liveliest and most interesting and suggestive spectacles that can be seen in Northern India, and it has acted most beneficially on the crafts of the Province".[21]

According to Latif the complex was supplied water by the Lahore canal. The water was stored in two reservoirs and pumped into an overhead tank to be distributed and supplied to all the workshops and sheds. The housing quarters for the workers, which included numerous facilities such as a swimming pool, library and stores, were also provided water from the canal, in addition to the municipal waterworks. Housing for the railway officers was also located around the complex.

Model Town

Another notable urban development to which canal water was brought was the Model Town. Established by private middle class Indians in the 1920's, it was a suburban development unabashedly based on Ebenezer's Howard's garden city plan.

21 Latif, Lahore: Its History, Architectural Remains and Antiquities, 289.

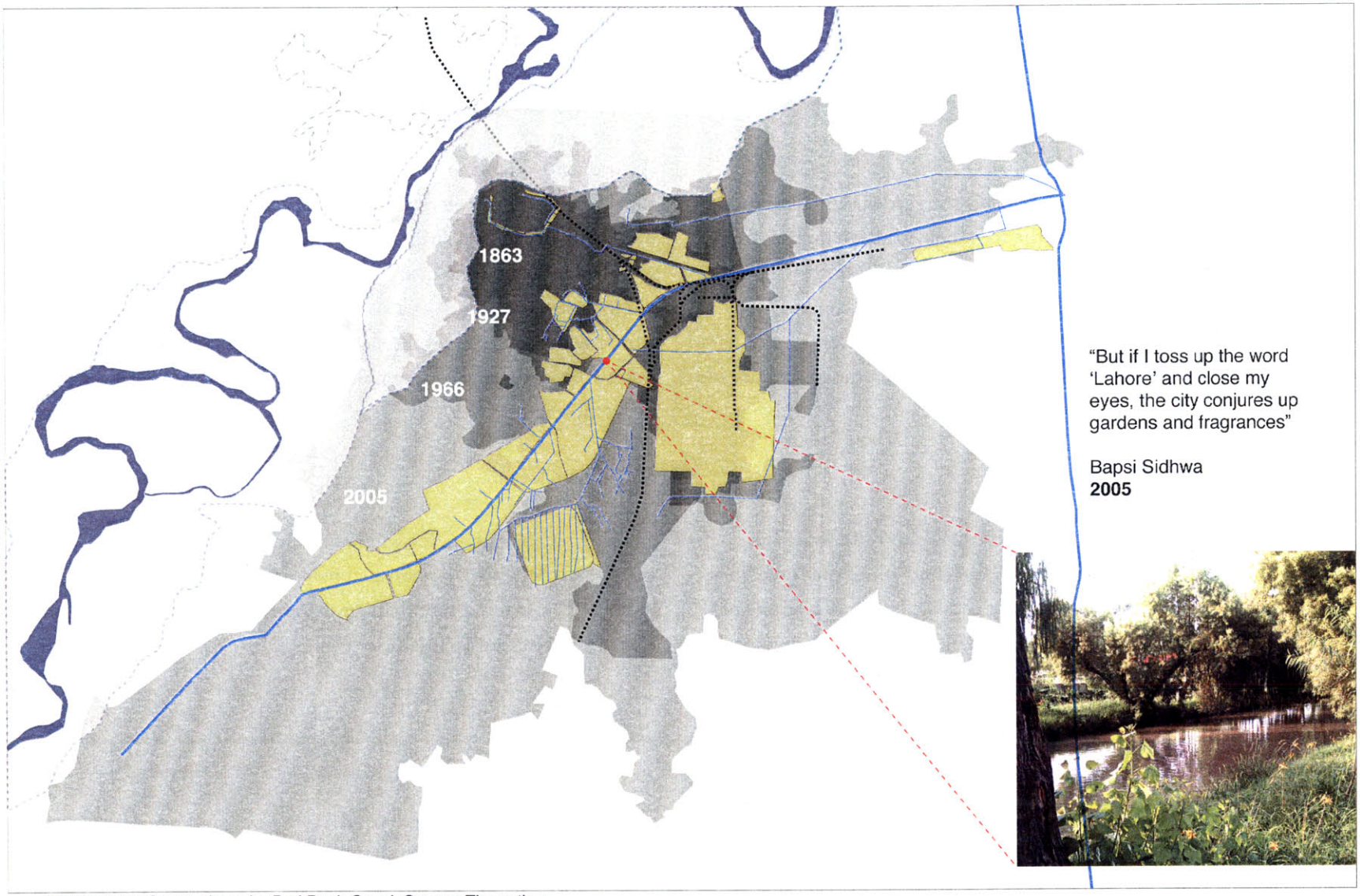


Fig 13 Open Space along the Bari Doab Canal. Source: The author.

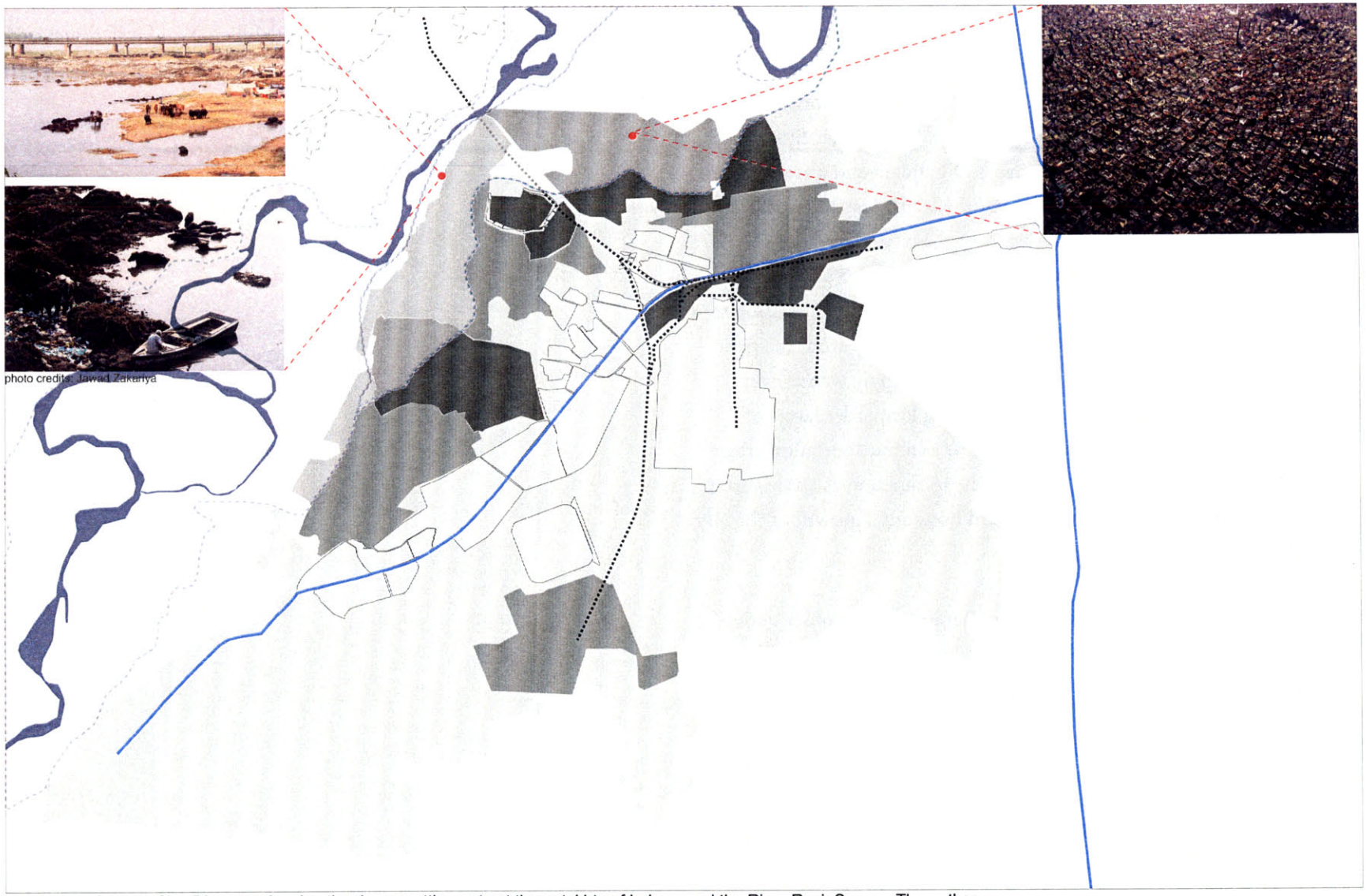


Fig 14 The Opaque City. Diagram showing the dense settlements at the outskirts of Lahore and the River Ravi. Source: The author.

The transformed and productive landscape, a veritable charm bracelet comprising the canal, its linked distributaries and the gardens they irrigated, formed a site of prestige occupying a large swath of the new center of the city. The layout of pre-colonial urban form, comprising the walled city, the old suburb of Baghbanpura and the Shalimar Bagh complex, the tomb complex of Jahangir in Shahdara and a scattering of suburban estates and farm gardens along the southwest and northeast of the city, indicates a strong orientation of the city toward the River Ravi. Over time, as the waters of the Ravi receded and the late nineteenth century developments in the city, particularly in relation to the canal went underway, the itself was refocused away from the river and toward the canal. Although its urban water supply waned over time, with some of the distributaries becoming lost under layers of urban accretion, the canal's importance grew as a transportation artery. The road along the banks of the canal came to function as an important arterial connector, facilitating the outward horizontal growth of the city particularly towards the south.

In the city the canal was an ordering mechanism, but its order derived not from any external formal or geometric logic but the logic of the canal system's geography, in fact the geomorphology of the river systems. More importantly, the new landscape derived its rationality through a spatial conjunction of modern infrastructure and an improved nature-where open space, trees and gardens provided a spatial inversion of the disorder of the old city. The canal cultivated not just gardens but a 'modern' garden culture in Lahore.

At the turn of the century the modern city and its genteel culture had positioned itself within urban narratives. Muhammad Latif, expressed this sentiment when he proclaimed:

"Lahore was not ever a garden as it is now".[22]

22 Ibid , xiii.

3 : THE NARRATIVE

> Lahore-the ancient whore, the handmaiden of dimly remembered Hindu Kings, the courtesan of Moghal emperors-bedecked and bejeweled, savaged by marauding hordes-healed by the caressing hands of successive lovers.[1]

Perhaps in reality the distinction between a whore and a courtesan is slight, but it is significant in affect. Here Bapsi Sidhwa, an eminent Pakistani novelist and one of Lahore's many celebrated chroniclers, describes two different sides of the same coin. To borrow from the title of her anthology of essays on Lahore, she is referring to the sin as well as to the splendour *[sic]* of the city. The complexity of urban life and urban form easily lends itself to binary reductions. The glittering visage and the seedy underbelly are symbiotic counterparts in many an urban imagination.

In this narrative about Lahore there is another aspect that I am interested in: to paraphrase Sidhwa's sexual innuendo, it is the layering of operations upon the city. As she suggests, Lahore is successively savaged and healed, pointing to an historic process in which the city is formed through a cycle of destruction and renewal.

The colonial writings discussed in chapter one described in Lahore and its rural hinterland a degenerated landscape and an inverse condition of cultured refinement. The former was the existing condition constructed in the gaze of the reformer, one of aridity, decay and opacity. The latter was the reformed state after improvement and transformation: it was fertile, spacious and sanitary. Both descriptions referred simultaneously to the spatial and formal characteristics of the landscape and also to a perception about the native subject. The reform was physical as well as social.

Furthermore, while describing the existing condition of aridity, the colonial writings also implied an original state of fertility that was lost over time. The existing condition was thus a ruined (and second) nature, while the landscape improvements through irrigation reform created fertility and abundance, resurrecting a primordial condition (or a first nature).

The relationship of 'nature' in both these descriptions points to a third theme of colonial reform and one I argue is recast in contemporary narratives. This is the idea of improvement to re-create an abundant nature from the ravages of decay. Because the land was said to have been fertile in some vaguely specified past, the improvement upon was a historically mandated process of healing the savaged landscape.

---

1 Bapsi Sidh wa in A Pakistani Bride, as quoted in Bapsi Sidhwa, City of Sin and Splendour: Writings on Lahore, ed. Bapsi Sidhwa (New Delhi: Penguin Books, 2005), xi.

The theme of decay thus suggested a sense of loss while the theme of refinement implied a historically sanctioned rebirth. This historic imperative, I argue, is the operative imaginary at work in "the city of gardens" motif. The twinned visions of nature, the desert and the garden, are the opposite ends of the process of improvement.

Who are the successive hordes and lovers that Bapsi Sidhwa refers to?

For the colonial writers, the hordes refer to the century of wars and destruction at the waning of the Mughal Empire. For the Muslim writers it is the Sikh period in Lahore's history that represents a time of degradation. In the post-colonial imagination the Mughal heritage is the glorious past–the Mughals are the quintessential 'healing lovers' who created gardens out of a desert and so prominently revered in the city of gardens narrative.

The Mughal City of Gardens

The development of garden sites in Mughal Lahore is the historic backdrop of the city-of-gardens narrative and I will begin this chapter with a brief overview. A central direction for inquiry is the urban character of the gardens built and patronized by the Mughal emperors and nobility. The history of Mughal gardens is well researched and analyzed in the work of a number of historians. Here I will draw from some of the work of James Wescoat and Abdul Rehman to explore the relationship between imperial gardens and the city of Lahore. I will discuss, by reiterating come of Wescoat and Rahman's conclusions, on how gardens began to emerge in an urban imaginary.

In Gardens, Urbanization, and Urbanism in Mughal Lahore: 1526-1657
James Wescoat notes some concern about the vagueness of the term "city of gardens" as it is used to describe Lahore. First of all, the expression is used in post-Mughal or colonial rather than Mughal sources. Wescoat notes that the concept is vague and problematic. "But does it connote", he asks, "an urban landscape laid out on formal principles of garden design? A city graced with a particular type of garden design? A city with a large number of gardens relative to other types of places? A city where important social events occurred primarily in gardens? Or some combination of the above?"[2]

2 Wescoat, J. L. (1996). Gardens, Urbanization, and Urbanism in Mughal Lahore: 1526-1657. In J. L. Wescoat, & J. Wolschke-Bulmahn (Eds.), Mughal Gardens: Sources, Places, Representations, and Prospects (pp. 139-170). Washington DC: Dumbarton Oaks Research Library and Collection.

Wescoat suggests that Mughal garden building in Lahore, commencing during the time of the first emperor Babar in 1526 until the second half of the seventeenth century, was a variegated "field of experimentation rather than a consistent policy or convention".[3] Different relationships between city and garden, citadel and garden, and suburb and city emerged during this period, indicating a dynamic set of meanings and functional practices of garden building.

There was a diversity of functions associated with gardens. They ranged from funerary sites, to residential complexes including permanent homes of Mughal nobility and encampment sites for the court, to imperial pleasure gardens. In Lahore they were built in the heart of the walled city, in the citadel, in suburban sites along the terrace of the River Ravi on either side and in other places in the southern environs of the city. The gardens were also diverse in typology and scale. The Mughals commissioned and built hanging gardens, terraced gardens, hunting estates, tanks, and gardens which had no planting. Despite the wide range of functions, locations and typologies, gardens were rarely meant to serve public or community functions- they were exclusively the domain of the royal and noble aristocracy.

The earliest sites built during the emperor Babar and Humayun's reign until about 1550 were basically isolated suburban private gardens commissioned by Mughal nobility, including some built on the western side of the River Ravi. Under the emperor Akbar, during which for a short time Lahore became the seat of the empire, royal patronage was concentrated on projects in the walled city and the citadel. Despite a large number of developed garden sites in these early periods, gardens remained relatively isolated events in the city. They did not yet form any cohesive structure or meaning on the urban scale.

The reign of the emperor Jahangir and later Shah Jehan, marked the most prominent period of garden building activity in Lahore. Under the active patronage of Jahangir's wife Nur Jehan, and her family, gardens of all types and sizes were built in very diverse locations. For example these include projects such as quadrangle gardens in the fort itself and the *Hiran Minar*, a hunting estate built by Jahangir in Shiekhupura, west of Lahore. Additionally, Nur Jehan's brother and father built *havelis* and adjoining gardens both inside and outside the walled city. Nur Jehan herself oversaw the construction of Jahangir's tomb complex built in Shahdara, on the western banks of the Ravi. Their continued patronage marked an important point in the evolution of gardens in the city. "Nur Jehan's family", according to James Wescoat "threaded the residential palace garden concept from the citadel, through the walled city, out into the nearby suburban *mahallahs* of Lahore".[4]

Soon thereafter this consolidation of the garden-city relationship came to its most momentous period during the time of the emperor

3 Ibid, 142.

4 Ibid, 159

Shah Jehan and his provincial governor Wazir Khan during the 1630's. Among other projects, Shah Jehan commissioned what became the most important garden site in Lahore. The Shalimar gardens, built along the eastern river terrace epitomize the experimentation of the Mughal garden works in Lahore. Built on three levels, the gardens are widely celebrated today as a feat of engineering. Under the supervision of Ali Mardan Khan, a canal was dug from head-works nearly 160 km upstream on the River Ravi to bring water to the forty odd fountains and waterworks of the gardens. On route to the Shalimar gardens the Hasli canal irrigated a number of farms and farm gardens.

The Shalimar gardens served as an important node in the route from Lahore to Delhi in the east. The Grand Trunk Road was rerouted to pass along the southern edge of the gardens. In either direction from the gardens, west towards the city and east out of it, the route slowly developed a whole string of prominent gardens, as well as villages, and funerary sites. The imperial procession from the Shalimar in the east to the citadel and the Shahdara gardens in the west across the river thus became an important urban structuring element. In this way, as James Wescoat suggests, gardens no longer remained isolated moments in the city but came to define important nodal points in the city's emerging structure. Here the role of the garden sites, both the nodes as well as those that cropped up along the routes, is suggestive of the relationship of the city and the river Ravi. I will return to this point shortly.

Abdul Rahman reiterates the node and network relationship of the gardens to the city. He gives the example of suburban communities of "royal gardeners" such as Baghbanpura near the Shalimar gardens and Shahdara near Jahangir's tomb garden complex north of the river Ravi that developed to provide the requisite care and maintenance to the imperial gardens. These suburban communities, he says, needed to maintain links to the center city and roads were built to do that. Over time more gardens were built along these routes to the city and thus a strong physical relationship between city, suburb and garden was formed. Meanwhile, under Shah Jehan's nobles, garden building activity continued in the southern suburbs of Lahore reinforcing the same pattern of nodes and routes.[5]

The Shalimar gardens could be perhaps be construed as the locus of Lahore's garden identity today. It is certainly one of the most prominent historic sites in Lahore and has been bestowed the status of a UNESCO world heritage site. Can we suggest then that the node-network formation, underpinning the city-garden relationship, is a facet of "the city of gardens" urban motif? How is this network construed in the imagination as part of the city of gardens?

5 Abdul Rehman, "Garden Types in Mughal Lahore according to Early-Seventeenth-Century Written and Visual Sources," in Gardens in the Time of the Great Mughal Empires: Theory and Design (Leiden: E.J.Brill, 1997).

6 James L Wescoat, Michael Brand and Naeem Mir, "Gardens, Roads and Legendary Tunnels: The Underground Memory of Mughal Lahore," Journal of Historical Geography, (Academic Press), 1991.

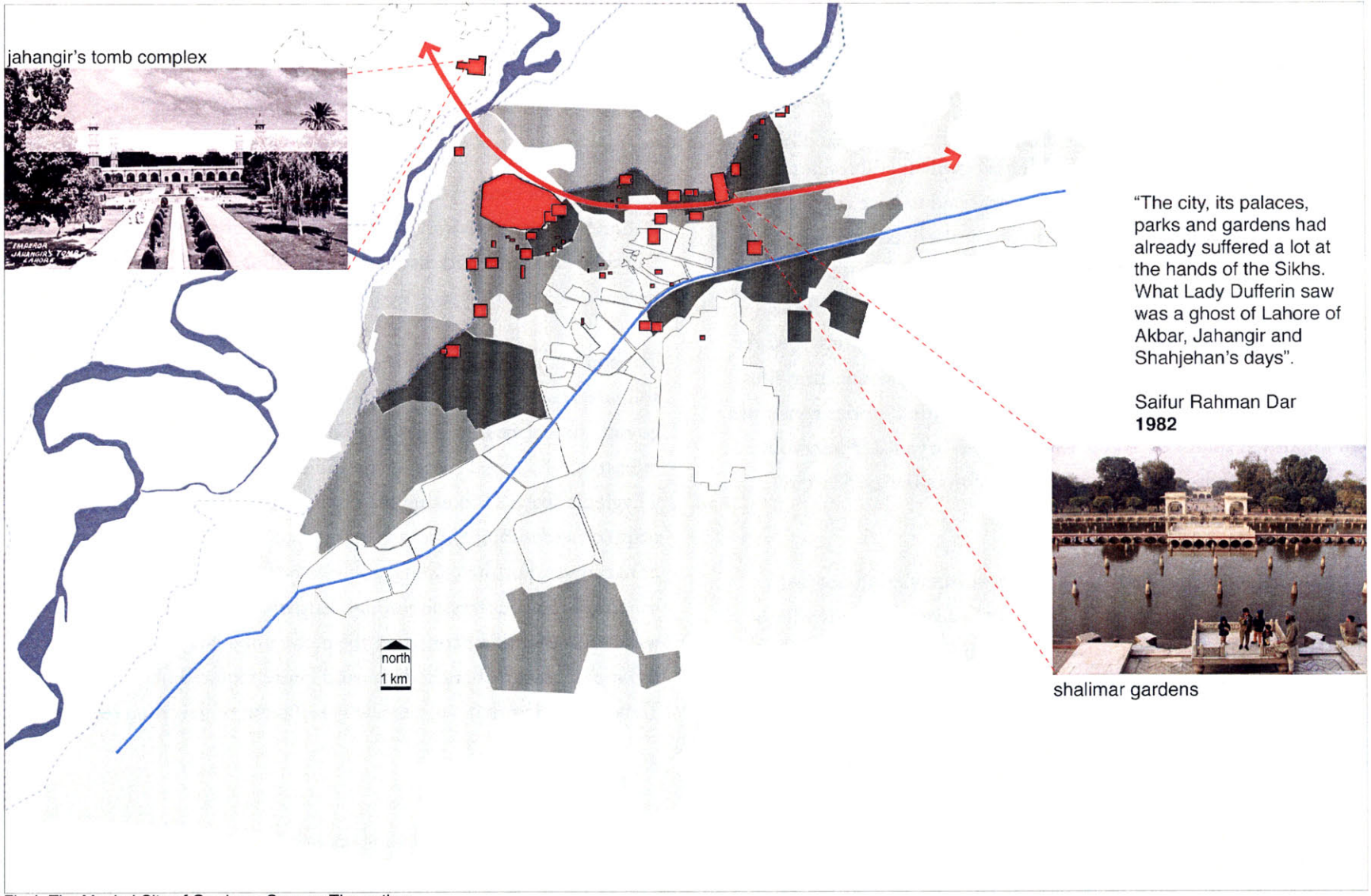


Fig 1. The Mughal City of Gardens. Source: The author.

One elaboration on this theme is provided in the essay *Gardens, roads and legendary tunnels: the underground memory of Mughal Lahore.*[6] Here James Wescoat, Michael Brand and Naeem Mir 'excavate' a plethora of 'tunnel stories' in Lahore to suggest that long after its physical structure has dissipated with the city's physical transformations, the networked landscape of Lahore's Mughal gardens still resides within local imaginations. Different tunnels were said to have connected important sites in Lahore. While no physical evidence of these *Surung* or tunnels remains, the authors re-create the underground landscape by connecting local legends and stories about the tunnels. These range from stories about regional tunnels connecting cities, used for military purposes and local tunnels within the city connecting sites and neighborhoods. The authors suggest that these stories constitute an important source of "social evidence" and "a valuable reservoir of collective landscape memory" that reinforces the garden-city relationship.[7]

They go on to suggest that "if tunnel stories are viewed not just as cultural artifacts of Mughal times, but as a subconscious will to remember Lahore when it was powerful and whole" then one could say that "perhaps the most critical commentary on the history of Lahore is that the power and spatial coherence expressed by tunnel networks of the Mughal period are acknowledged to be absent today".[8] If so then does the city-of-gardens as an urban narrative, with which Lahori's identify with the Mughal city, express a collective sense of loss? And does it also express a desire to recover some of the lost glory?

To discuss this I will return again to Bapsi Sidhwa's Lahore, "savaged by marauding hordes" and the notion of decay.

Decay and Refinement

As highlighted in chapter one, the colonial imaginaries conceived of the Punjabi countryside as an arid and unproductive landscape, Lahore's deserted environs as a site of ruin and the walled city itself as a hotbed of disease and disorder. Marshalling an image of decay in the narratives of reform prefigured the transformations of this landscape.

The concept of the 'outside' is a helpful place to situate ideas of decay. In *Habitations of Modernity* Dipesh Chakrabarty suggests, "dirt can go only to a place that is designated as outside".[9] He uses the term to refer to the bounded space of the Indian home that is delineated in as a hygienic space. I am using his 'outside' not only to define a physical realm of undesirability but analogously to refer to the construction of narratives. For the colonial administrators who were mandated to reform the countryside through irrigation and settlement, it was necessary to first construct the picture of a landscape that was lacking in certain characteristics and hence required improvement. Thus everything that was outside the domain of irrigation (either

7 Ibid, 3.

8 Ibid, 14.

9 Dipesh Chakrabarty, Habitations of Modernity Essays in the Wake of Subaltern Studies (Chicago: University of Chicago Press, 2002), 69.

temporally, prior to irrigation or spatially, outside of its physical reach) was characterized as unfertile and decrepit. The irrigated landscape, the garden, was the scope of operations and everything beyond of that was a wasteland.

Similarly post-colonial writers, hearkening back to the Mughal city as the epitome of Muslim culture and power in Lahore, have referred to the Sikh period of Lahore's history as a time of urban degradation. A few lines from Saifur Rahman Dar's book *Historic Gardens of Lahore* exemplify this sentiment and position it within the city-of-gardens narrative.[10]

> Many European travelers, who visited Lahore during its heyday of Mughal empire are full of praise for its gardens and palaces. They have rightly called Lahore a city of gardens. (...) Lady Dufferin did not see Lahore at its best. The city, its palaces, parks and gardens had already suffered a lot at the hands of the Sikhs. What Lady Dufferin saw was a ghost of Lahore of Akbar, Jahangir and Shahjehan's days.[11]

The active destruction of the city's glory is a theme that is echoed in more recent criticisms of contemporary development and planning in Lahore. For example, in *Tales without end* Majid Sheikh, a prominent Pakistani columnist, writes about the historic trees of Lahore and bemoans their felling-a common phenomenon-under development pressure in the city.[12] His lament extends not just to the degradation of the ecological or physical environment but also to the loss of cultural identity. "For the city of Lahore" he suggests, "trees have a profound and historic connection, and probably nowhere on earth have we treated them more shabbily. There are stories about the trees of Lahore that need to be told".[13]

Taking on this call, Sheikh tells the story of the most "magnificent and tallest tree in the city of Lahore" which, like many others, succumbed to 'development' pressure. He calls this particular *sumbal* tree, planted amongst others from the Mall road to the Cantonment under the supervision of Sir Ganga Ram, the *"badshah"* or king. "Then one day the men in uniforms moved in and in the name of 'development', cut it down. It took a total of five days to fell the old *badshah*, and every time I would pass by I would curse those felling him".[14] Invoking the metaphor of the desert Sheikh then writes:

> Today the spot is an isolated place, like a desert. One wonders that our subconscious mind is not trying to recreate images of deserts all around us, as we try hard to create within ourselves the sensitivity that reflect the harshness of a desert.[15]

---

10 Saifur Rahman Dar, Historical Gardens of Lahore (Lahore: Aziz Publishers, 1982). Dar's account of Sikh rule and garden building is a bit contradictory. He vehemently repudiates the entire period that the Sikhs controlled the city as "an accident of history" (29). He speaks of plunder and anarchy prevailing during that time but then concedes to the Sikh rulers a love of garden building before going on to discuss the gardens built by Ranjit Singh and his successors.

11 Dar, Historical Gardens of Lahore, 1.

12 Majid Sheikh, Tales Without End (Lahore: Society for the Advancement of Education, 2006), 314-316

13 Ibid., 314.

14 Ibid., 315.

15 Ibid., 315.

There is a parallel but different imagination of the city, one in which is Lahore not as a desert but as a garden: in this Lahore is a city of culture or the "bedecked and bejeweled" maiden, who is neither savaged nor neglected, but tended to and cared for. The nineteenth century suburban garden landscape, fed and nurtured by canal water was created out of the veritable wasteland described in earlier colonial reports. This area represented for the new elite of the city the epitome of culture and refinement. This notion remains embedded in the contemporary imagination about the city and its gardens. Further along in Bapsi Sidhwa's introductory chapter, one is given a glimpse of this Lahore:

> But if I toss up the word 'Lahore' and close my eyes, the city conjures up gardens and fragrances. Not only the formal Mughal Gardens with their obedient rows of fountains and cypresses, or the acreage of the club-strewn Lawrence Gardens, but the gardens in thousands of Lahori homes with their riot of spring flowers. The trees bloom in a carnival of jewel-colours-the defiant brilliance of kachnar, bougainvillea and gulmohur silhouetted against an azure sky. And the winter and the spring air are heady-they make the blood hum. On the summer evenings the scent from the water sprinkled on the parched earth signals respite from the furnace of the day-for the summers are as hellish as the winters are divine.[16]

During the nineteenth century, the area cultivated by the canal in Lahore, including the Lawrence gardens, Aitchison college, the Cantonment, and the new garden suburbs became a sprawling English enclave secluded from the historic city and a majority of the local people. For the English and Indian elite, this new suburban landscape was a complete inversion of what they described as the dense, chaotic and unsanitary conditions of the native city. Not only was it an open, spacious and healthy environment but it was also secluded from the old city by means of ample space and dense foliage. A majority of the Indian population was crammed into the old quarters. As the aristocratic and elite populations vacated the their *haveli*s within the city walls, these large homes were taken over by rural migrants into the city. Just as the *Androun sherer* (or inner city) was becoming denser, the new garden suburbs provided a very different picture of residential living. A much smaller population lived in spacious *bungalows* surrounded by individual gardens and walled off from the public spaces of the city.[17]

The parallel imaginations of loss and renewal, associated with Lahore's gardens and trees, are oft-narrated themes. Numerous writers have eulogized the loss of the city's "green splendour, which is no more",[18] while others have been "steeped in its romance".[19] The beauty of the cultured city derives from its trees, gardens, flowers and fountains,

16 Sidhwa, City of Sin and Splendour: Writings on Lahore, xii.

17 For a discussion of the elite exodus from the old city and the suburbanization of Lahore under colonialism see Markus Daechsel, "Between Suburb and World Politics, Middle-class Identities and the Refashioning of Space in Late Imperial Lahore, c. 1920-50," in Beyond Representation Colonial and Postcolonial Constructions of Indian Identity, ed. Crispin Bates (New Delhi: Oxford University Press, 2006), 270-293. Also see Glover, Making Lahore Modern.

18 Nazir Ahmad Chaudhry, Lahore : glimpses of a glorious heritage (Lahore: Sang-e-Meel Publishers, 1998), 276.

19 Sidhwa, City of Sin and Splendour: Writings on Lahore, xi.

whilst its decay from unhygienic social practices, the deficiencies of sanitation infrastructure and waste disposal; environmental pollution caused by increasing traffic and congestion; physical development of roads and buildings; and a general neglect of historic monuments. At the end of his book Saifur Rahman Dar writes:

> It is unfortunate that the people of this most cultured city did the most uncultured thing in destroying all these historic gardens. (...) The city of Lahore now gives a very gloomy look. The ever extending limits of the city are swallowing the greenery which once encircled the city. The rapid means of communications are polluting the air" (and unless) "Lahore can be made the Lahore which it once was (...) it will never be able to regain its place in history as a neat and clean city with gardens, orchards and parks.[20]

This last statement manifests a tension. Here the desire to uphold or preserve tradition (the gardens of Lahore) is conflated with a modernist call for neatness and cleanliness. His grievance over the loss of the city's gardens reflects the legacy of colonial writers who spoke of a desire to cleanse an environment characterized by its impenetrable disorder and dirtiness and an inherent complacency of the people to address these concerns. In 1884, when Lala Kashi Ram wrote his manual on sanitation in the Punjab, he deplored the lack of citizen awareness and concern for matters of civic hygiene. He noted that, "a majority of the ignorant mass of our countrymen do not possess a sufficient knowledge of the laws of sanitation".[21] Saifur Rahman Dar's lament about the deterioration of gardens contains within it echoes of this earlier concern for the sanitary conditions of Indian cities.

This conflation of ideas about traditional gardens and modern sanitation is most evident in the perspective of the 'reformers' of today or the state. The following articles from an important national daily newspaper outline the proposal of the Shahbaz Sharif government to 'beautify' Lahore and re-create "the city of gardens".[22]

---

20 Dar, Historical Gardens of Lahore, 48.

21 Lala Kashi Ram, Notes and Suggestions on Sanitation in the Punjab (Calcutta, 1884), 3.

22 The News International, "Lahore to be again made 'city of gardens': Shahbaz," The News International, 11 05, 2008, http://www.thenews.com.pk/daily_detail.asp?id=144971 (accessed 05 01, 2009).

Shahbaz for speeding up Lahore beautification project

Monday, January 12, 2009
By Our Correspondent

LAHORE

CHIEF Minister Muhammad Shahbaz Sharif has said pace of work on the 'project of making Lahore again a city of gardens' and purging it of garbage should be expedited and after removing shops from the parks their original shape be restored.

He said that purging the cities of waste material and proving healthy environment to the masses were priorities of the government and dialogues with local and foreign firms were in progress in this regard. He stated this while addressing a meeting on Sunday. He ordered removal of garbage heaps from the city within one month and shifting of cattle from the city and 100 complete repair work of streetlights by January 25.

He said that a plan for beautification of historic Iqbal Park of Lahore should immediately be evolved so that better recreational facilities could be provided to the residents of the Walled City.

MPAs Rana Muhammad Iqbal, Wasim Qadir, Mohsin Latif, Taskforce Chairman Khawaja Ahmad Hasaan, Taskforce on Horticulture Authority Chairman Mustafa Kamal, Lahore commissioner, DCO, LDA and PHA DGs and WASA and MD Solid Waste Management MDs were also present.

The CM directed the Solid Waste Management to evolve a comprehensive strategy regarding sanitation of the city and said that WASA should complete all arrangements for the disposal of water before the start of summer season.

He said that billboards should not be made a source of income rather the city be purged of all billboards for restoring its historical beauty. He said that first of all construction of all the roads of the city should be ensured and maximum plantation be made on these roads. After this, installation of billboards at some places will be considered but their installation at roofs would not be allowed, he added.

He directed removal of LCDs installed at different roads and said that a policy should be evolved for their installation at suitable places.

He directed the commissioner that parks should be restored in their original shape.

He said that Jallo Park would be made a park of an international standard and services of foreign consultants would be acquired in this regard. He directed the PHA to compile a calendar for improving the condition of 300 parks of Lahore and after improving the condition of all these parks in a fixed timeframe, recreational facilities should be ensured to the people.

He said that the pace of work on the project of beautification of Lahore city should be expedited.

He said that removal of garbage from the provincial metropolis and later generation of energy from it was included in the priorities of the government and negotiations with different foreign and local firms were in progress in this regard. He directed the MD of Solid Waste Management to adopt an effective strategy regarding cleanliness of the city on daily basis.

He said that the roads of the city should be washed and complete removal of garbage should be ensured.

A vigorous campaign should be launched for creating awareness among the people about cleanliness of their localities and surroundings, he added. He said that the city should be divided into small units for purging it of filth and garbage besides special committees be constituted under the supervision of public representatives who should supervise the cleanliness process.

The CM said that now he wanted results from WASA and Solid Waste Management. He said that WASA had enough time for improving its water disposal system and it should complete all arrangements prior to forthcoming summer season besides it should also complete the cleanliness of sewerage system and pipelines. He said the DG of LDA should supervise the whole process. He said that effective measures should be taken for removing hurdles being faced by the people regarding traffic and he would soon convene a meeting of traffic police in this regard.

Fig 1a, 1b. Article outlining the proposal of the Shahbaz Sharif government to 'beautify' Lahore and re-create "the city of gardens". Source: the news international, November 5, 2008.

Lahore to be again made 'city of gardens': Shahbaz

Wednesday, November 05, 2008
By Our Correspondent

LAHORE

PUNJAB Chief Minister Mian Shahbaz Sharif has said that Lahore will again be made a "City of Gardens" in order to provide better environment as well as recreational facilities to its residents. He said a comprehensive strategy had been evolved to spend Rs480 million for to provide recreational facilities in the parks of the city.

He stated this during a briefing given by Task Force on Horticulture Chairman Mustafa Kamal regarding beautification of the provincial metropolis at the Chief Minister's Secretariat here on Tuesday.

Shahbaz said the historical and cultural heritage of the city would be restored for promoting tourism, adding that the Punjab Garden Project was approved to improve all the parks and tourists' spots of the province. He said the approval of the Lahore Tree Project to import 25,000 trees, with the cooperation of private sector, was approved to give the city a green look.

The chief minister said revolutionary measures were being taken to beautify the city and the Parks and Horticulture Authority (PHA) was being activated for this purpose. He directed the officials concerned to evolve short and long term strategies for this purpose and also present a six-month comprehensive plan regarding future projects of the beautification of the city.

He said the project of setting up of a company, comprising gardeners of the PHA, should also be considered and they should be included in different projects of beautification of the city but it should be ensured that none of them should be jobless. He also directed them to outsource major projects, saying that all major banks and other organisations be given the responsibility of establishing and looking after the parks as the same was already being carried out by various banks as well as organisations.

The chief minister said that pavilions were constructed in the cricket grounds for promoting sports during his last tenure and 14 more such pavilions were being constructed where various sports facilities would be available. He approved various administrative affairs, including a proposal of the Task Force chairman to set up an urban horticulture institute, which would further enhance the performance of the PHA, besides ensuring transparency in its affairs. He directed the officials concerned to review the Chairlift System Project near the Ravi and said that development of parks on available lands in the city should also be considered.

Shahbaz asked the C&W secretary to receive compensation from the contractor concerned for the damage caused to the Ravi Park during the construction of the Ring Road and directed that the amount of security should not be paid to the contractor without payment of compensation. The C&W secretary was directed to take prompt action in this regard. He directed the Solid Waste Management MD to give recommendations regarding cleanliness of the city, saying that the citizens were not only facing various problems due to heaps of garbage but diseases were also breaking out. He issued direction for the review of the widening and beautification of the Lahore Canal.

Earlier, Task Force Chairman Mustafa Kamal briefed the meeting that presently, there were 856 parks, green belts and sports grounds in the city, out of which only eight were in a good condition while the condition of 442 was deplorable. He said the first phase of beautification of the city would be started from Nov 15 and completed by March 2009, adding that the new projects in the regard would include the Ravi Park, the Jallo Botanical Park, the Expo Centre, Johar Town, the Green House, the Lahore-Kasur Road and the Canal Bank Road Landscape. He said souvenir shops would also be set up in the parks of the city. Besides, he presented various suggestions for the improvement of the PHA's performance.

MNAs Mian Marghoob Ahmad and Malik Riaz Ahmad, MPAs Mehar Ishtiaq, Naveed Anjum, Rana Muhammad Iqbal, Task Force chairman Khawaja Ahmad Hasaan, the chief secretary, the Housing secretary, the Forests secretary, the PHA DG, the LDA DG, the Lahore DCO, the Wasa MD and other officers were also present.

For the colonial administrators who planned and built the modern city, the Mughal tradition of garden building was an important precedent. In the 1893 Lahore District Gazetteer G. C. Walker, referring to the Mughals, wrote:

> In the next place, to their love of the picturesque in nature-a pleasing feature in their character-we owe the construction of those regularly-planned gardens, with their dense foliage, fountains and imitative cascades, which have excited the enthusiastic admiration of travelers to the east. Coming from the well-watered valleys and waving foliage of Ush and Indejan, Babar regarded with almost European disgust the dusty treeless plains of the Punjab. In his memoirs he complains of the ugliness of the cities of Hindustan. "They have no walled-gardens," he says, "no artificial water-courses;" and he seems to have lost no time in setting them a good example, by laying out a magnificent garden at Agra.[23]

Walker's remarks indicated a degree of admiration for the Mughal tradition of garden building. He highlighted the capacity of the Mughals to establish their control over the 'natural' and native environment- "the dusty treeless plains" and the ugly cities-by means of technology and their "love of the picturesque". He also noted the spatial ordering of this environment through the use of "regularly-planned gardens". These aspects of Mughal garden planning, as recalled by the colonial officer, resonated strongly in the colonial discourse of reform.

Walker attributed to the Mughals certain *modus operandi* that were, at the time of his writing, characteristic of the British planning in India. First, by saying that "Babar regarded with almost European disgust (...)", Walker suggested that the Mughals held the same contempt for the native landscape as the British. He identified with the emperor, Babar for he (Walker) saw as Babar's didactic approach to garden building. "Setting a good example" for the locals through models and object lessons was an important component of the colonial planning regime.[24]

Thus the builders of the new suburban landscape of Lahore in the nineteenth century established legitimacy in part by historicizing the Mughal city of gardens. This legacy remains essentially unchanged in the post-colonial context.

As cultural anthropologist Clifford Geetrz notes, there are two conflicting tendencies that characterize nation-building discourses in the post-colonial era. He calls these "essentialist" and "epochalist" forces.[25] These are prevalent also within the built domain of the post-colonial world. Whilst the former reflects the tendency of planners to

23 G.C. Walker, *Gazetteer of the Lahore District*, (Lahore: Lahore Civil and Military Gazette Press, 1894), 273.

24 See William Glover's discussion on object lessons and models. Glover, *Making Lahore Modern*

25 Clifford Geertz, *The interpretation of cultures: selected essays* (New York: Basic Books, 1973).

develop form with roots in tradition, proponents of the latter envision the future through ideas of modern progress. Infrastructure building has remained invested in the epochalist project with the belief that standardized technological systems are a means to achieve progress and economic growth. However, in the developing world, architects and planners have tried to temper such determinism by recalling tradition in built form.

The Lahore canal, with the landscape that it cultivated and the identity that it nurtured, embodies today this tension between modernity and tradition (here I am referring to the canal not just as a component of the irrigation system, but as a site for planning in the city and I will return to this in greater detail in the next part).

The gardens and landscape of Lahore help to link a vision of progress to sentiments of local authenticity. As can be seen from the most recent visions laid out by Shahbaz Sharif, the rubric of "the city of gardens" continues to frame public projects in Lahore.

The Rs.480 million Rupee project to resurrect the city's verdant glory of its Mughal heyday, raises a number of issues. First, as mentioned above despite the overt purpose to re-create "the city of gardens", presumably a historic/cultural endeavor, Shahbaz's agenda is topped by the issues of cleanliness, the promotion of tourism and the provision of public recreational facilities. The "historic and cultural heritage of the city (...) restored for promoting tourism, (...) with the cooperation of the private sector" attains a branding capacity. "The city of gardens", (with their souvenir shops), developed with the sponsorship of private interests and the assistance of "foreign consultants", is an identity easily co-opted by the discourse of globalized capitalism.[26]

Another example is the continued use of the language of sanitation, which pervades the garden-city descriptions. This language, used today by the state, planners and conversationalists alike, indicates a lineage of rationalist thinking about the city where garbage, dirt and disorder are seen as backward and un-modern elements in the city. This is as prevalent in the colonial administrative descriptions of the decaying city as it is in the framing of Shahbaz Sharif's beautification project. In his call for "a vigorous campaign (to create) awareness among the people about cleanliness of their localities and surroundings",[27] Shahbaz is repeating Lala Kashi Ram's lament, in 1884 about the ignorance of locals. This language, as Dipesh Chakrabarty states "is the language, not only of imperialist officials but of modernist nationalists as well".[28]

My purpose in this chapter has been to examine the lineage of the colonial rhetoric of reform and cultivation (examined in chapter one), which accompanied irrigation and city planning in the late

26 The News International, "Lahore to be again made 'city of gardens': Shahbaz"

27 Ibid.

28 Chakrabarty, Habitations of Modernity Essays in the Wake of Subaltern Studies, 66.

19th century, in the city-of-gardens narrative. This identity is proudly conjured in the Lahori imagination to celebrate the city's long history of Mughal gardens. Viewed from the post-independence historical lens, the colonial gardens built in the nineteenth and twentieth centuries are but an appendage to the more exalted lineage of Mughal patronage. The suggestions I make about re-thinking the colonial lineage of ideas within this theme are by no means a repudiation of historical thinking about Lahore's ancient gardens, nor an effort to judge the importance of the city's modern gardens. I contend, for the sake of topical design thinking (about the canal and the city), that some less obvious themes-the ideas of decay and refinement-are embedded in the garden identity and kept hidden by a tendency towards sentimentality about Lahore's gardens. I suggest that the Lahore canal, built at the same time as the modern city, can be considered a conduit for the "civilizing" ideas of colonial planning. In turning the desert into a garden the canal helps to consolidate the idea of Lahore as a "garden" city. With Pakistani's trying to identify with their Mughal or muslim heritage and the historic imperative recast in the city-of-gardens motif, the canal becomes a powerful instrument of political control.

Today, although the local distributaries of the Lahore canal hardly serve their water function, the colonial garden landscape continues to thrive and has retained its privileged position as the center of the city. The canal's urban irrigation function has dissipated physically and also in the city's collective memory. Stripped of its urban function, the canal remains an accidental artifact of the regional irrigation system, innocuously bypassing Lahore to feed its rural hinterland. Its functional role has shifted from water supply to road way and open green space. In this aspect, it is reconstituted as a site where "the city of gardens" can be resurrected.

PART 2
an urban site

Introduction

In the preceding section I have explored the relationship between the growth of Lahore, the accompanying colonial conceptions of reform and the emergence of an urban motif that began to identify the city. Lahore became the city of gardens whilst the Punjabi countryside was transformed from a so-called desert into a garden, facilitated by the modernization of irrigation.

I have argued that today, the idealization of the city's abundant and flowering gardens and the narrative of their potential loss, obfuscates a continuing legacy of reform that is based on the idea of improvement and refinement upon conditions of decay and degradation.

By juxtaposing the popular narrative with these ideas, I have attempted to intervene upon the cultural meaning of Lahore as a city of gardens. In chapters four and five, I use that understanding to posit a physical intervention: here the canal and its surrounding landscape are explored as a central site in re-thinking the physical form of the city. I begin by examining the contemporary role of the artery in the city and its elaboration in current planning scenarios.

The proposition questions the abundance of open space in the city and speculates on the densification of the canal landscape. With a critical eye towards the sanctity of the urban narrative, I stress on the need to confront rather than perpetuate the problematic legacy of reform and starting with the Lahore canal, to expand the possibilities for Lahore's gardens in the future.

4 : THE CANAL TODAY

The form of Lahore today is inextricably linked to the canal in a number of ways.

As a site in the contemporary city, 'the canal' is a roadway, a continuous green space and of course a conduit for irrigation water. All three of its roles are arterial and linear in form. The term 'the canal' is commonly used to refer to the collective artery.

In chapter two I discussed the transformative role of the canal in Lahore. It formed an important spine along which the new suburban landscape was structured. Furthermore, it caused a shift in the centrality and growth in the city. As the city reoriented itself to the canal and this new landscape, the River Ravi and the neighborhoods along it became the periphery of the city-an inversion of the Mughal Garden city where there was a strong formal relationship of gardens and the river terrace (though one fraught with the potential dangers of flooding).

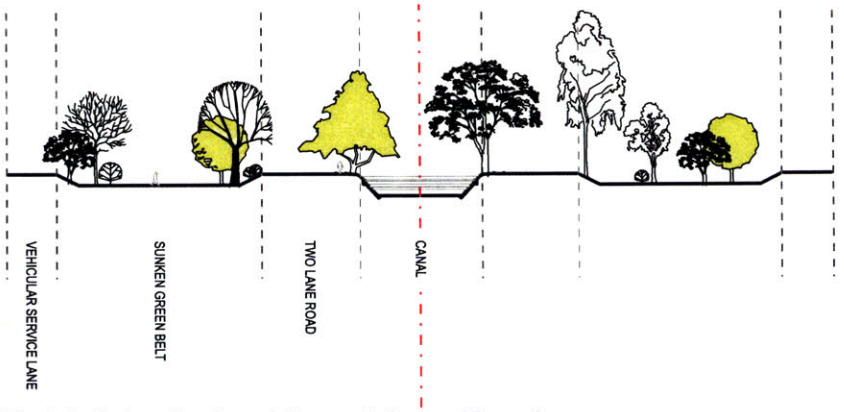


Fig 1. Typical section through the canal. Source: The author.

The canal and its branch-like system of distributaries structured a growing suburban landscape in Lahore, which was part colonial and part local. Its growth began with the development of the civil station and the cantonment in the second half of the nineteenth century and then continued in the twentieth century when Indian elite began to migrate out of the increasingly congested walled city and began to establish their own garden suburbs.[1] This pattern essentially continued after India became independent from colonial rule and Lahore became the capital of a partitioned Punjab. New suburban residential 'colonies' or 'schemes' (common terms in the local planning lexicon) such as Gulberg, Shadman and Samnabad were developed by the Lahore Improvement Trust following the colonial urban typology of detached

1 Markus Daechsel, "Between Suburb and World Politics, Middle-class Identities and the Refashioning of Space in Late Imperial Lahore, c. 1920-50," in *Beyond Representation Colonial and Postcolonial Constructions of Indian Identity*, ed. Crispin Bates (New Delhi: Oxford University Press, 2006).

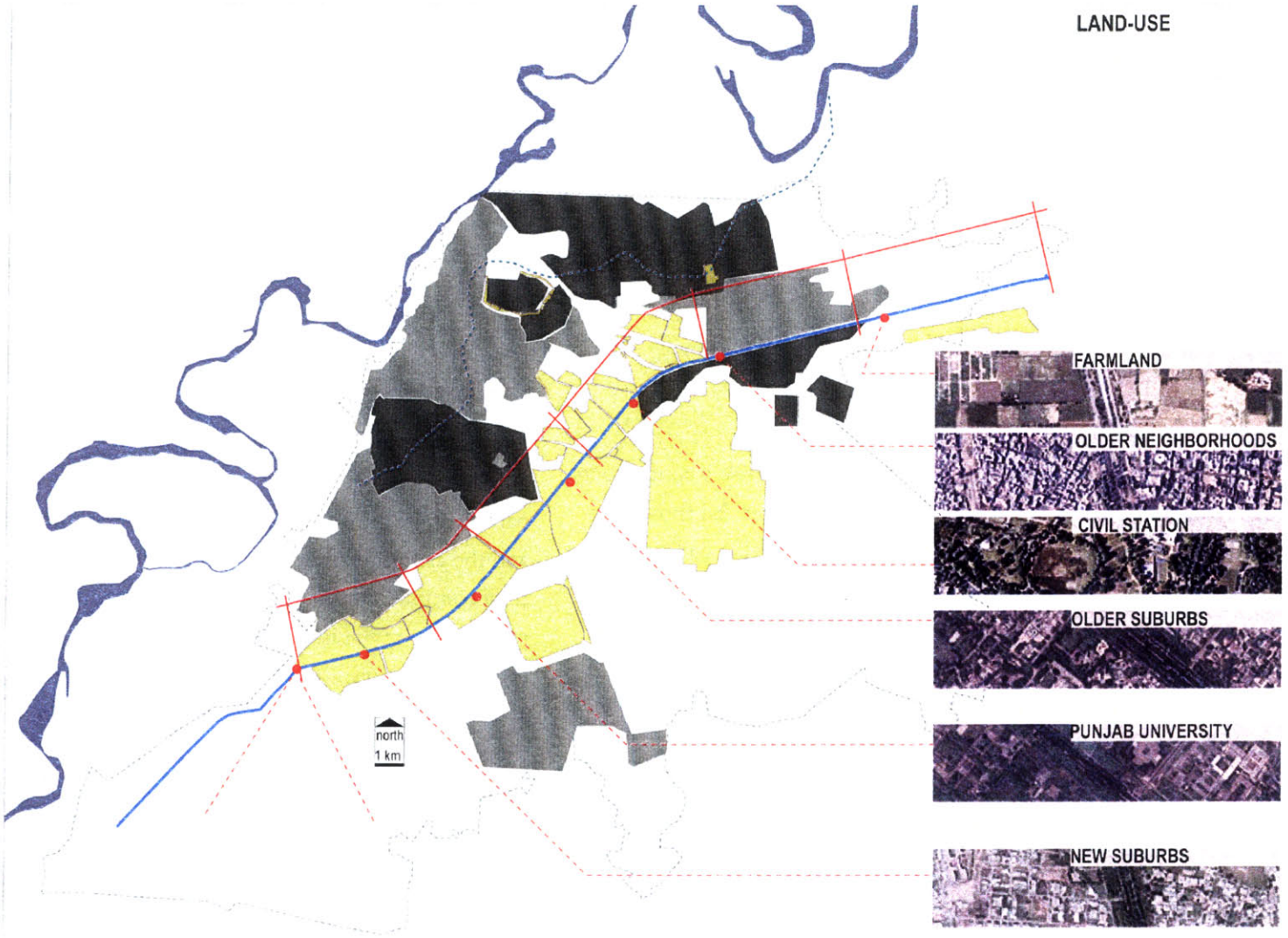


Fig 2. Land-use and density. Source: The author.

bungalow housing and ample tree-lined streets.

Today, the land-use of the neighborhoods along the canal is fairly homogenous. It comprises large campuses including F.C College, Aitchison College, Kinnaird College, Punjab University; private institutions such as schools, clinics and hospitals; older residential neighborhoods such as Gulberg, Shadman, Muslim Town, Garden Town (developed between the 1950's and 1980's) and newer residential 'schemes', some private and others developed as employee housing for government and semi-government bodies such as Tech-Society (developed since the 1990's). The length of the canal is not zoned for commercial development except for a few areas near major intersections. The urban functions and low-density zoning ensure a quiet and peaceful urban character for the canal bank neighborhoods. Except when it is disturbed by the onslaught of peak-hour commuter traffic, the area is an oasis of relative calm in an increasingly chaotic city. Since the early 2000's, with liberalization leading the national economic agenda, Lahore has witnessed considerable market driven growth, the frenetic rise and fall of the real estate sector and infrastructure building. It is interesting to note that the efforts at re-zoning to convert large residential lots for commercial functions, a practice common in other central parts of the city such as Gulberg, have largely remained unsuccessful in the neighborhoods lining the canal bank.

The landscape of open gardens, spacious bungalows and wide roads is not limited to the areas along and near the canal but as the city grows it fans southward in the form of commercially developed residential 'schemes' and gated communities, pushing the city's nebulous limits over agricultural land and rural villages. Lahore's new garden suburbs form not only a great portion of the city's land area but simultaneously define an urban aesthetic culture with promises of "a peaceful, secure and a contemporary lifestyle".[2]

Fig 3. Some examples of gated communities in the southern suburban areas of Lahore. Source: http://www.safarivillaslahore.com/safarivilla/safariweb/5.php

2 http://www.safarivillaslahore.com/safarivilla/safariweb/bahria.php

If the role of the canal as a water resource for Lahore's colonial gardens factored in its capacity to formally order the city, then today this role has shifted to the road along the canal's banks. As one of Lahore's main transportation arteries the canal road has helped facilitate the outward horizontal growth of the city. It is one of the few uninterrupted north south links in the city[3] and has been the conduit for aiding the relatively unregulated decentralized growth of the city toward the south.

The primarily southward expansion of the city was inevitable. The city was definitively prevented from eastward expansion because of the national border with India. And northern or eastern expansion would have to contend with crossing the Ravi. I have already elaborated on the re-orientation away from the river during the colonial expansion of the city.

To head south (via the canal road) is thus the path of least resistance.

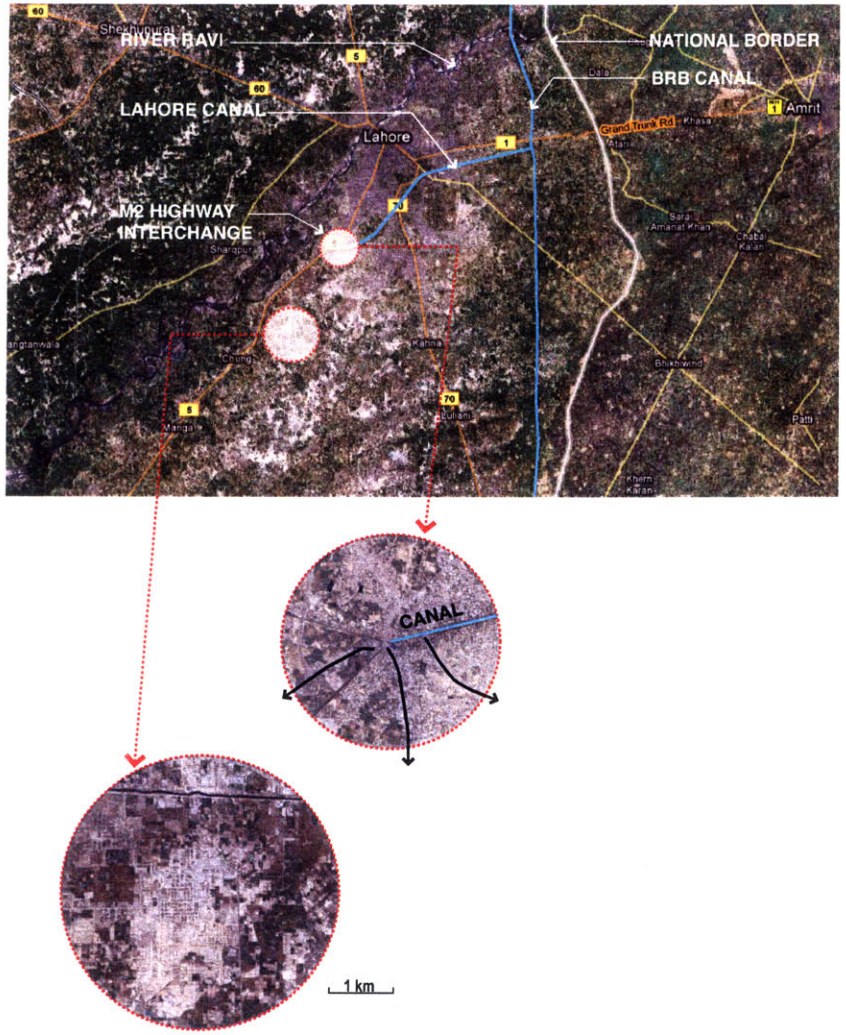


Fig 4. Expansion of the city towards the south. Source: Adjusted diagram based on a google image map.

3 Ferozepur road is the other important north-south artery in Lahore. But unlike the canal, which is relatively more homogenous, Ferozepur road presents a greater transportation challenge because it passes through a diverse series of commercial areas.

While the role of the traffic artery increased in importance, the function of the water artery diminished over time.

Except for some water-courses feeding the areas near the Punjab university, very little canal water is used today for urban irrigation (to supply water to either public or private gardens).

Some of the original distributaries still exist in the city and can be made to function while others remain only in stories and recollections.[4] Canal water is thus mainly used to irrigate farmland outside of the main metropolitan area. The diminished urban water function, I argue has allowed the canal to become more an aesthetic rather than productive element in the city.

In Lahore's long and hot summers, the canal serves another, unanticipated function when many of Lahore's youth (males) take a dip into the canal water for much needed relief from the heat. By doing so, the disenfranchised populace- who lack (amongst other things) any other means to cool off- are defying not just the government's ban on swimming in the canal but also norms and refinements of the sanitary city as envisioned under colonial urban reform.

4 information gathered from interviews in the city.

Fig 5. The city's biggest public swimming pool. Source: Unknown

The Canal as a Site- Part I

The main focus of planning along the canal today is the challenge to improve mobility and reduce congestion along the canal bank. As mentioned in the previous pages, the canal road is a critical conduit to the southward oriented growth of Lahore.

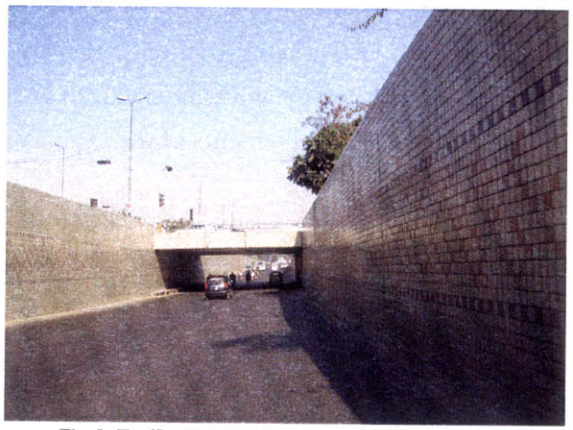


Fig 6. Traffic along the canal road. Source: Unknown
Fig 7. Underpass at Dharampura. Source: Unknown

In the last few decades, the emphasis on road planning resulted in several, mostly haphazard, road expansion efforts. For example in the 1990's several underground tunnels were built to ease congestion and maintain through-flow at the road's main intersections. The first two underpasses, at alternate intersections, were built on the left hand side of the road despite the left-hand rule of the road. When the error was discovered the remainder of the tunnels were built correctly on the right side. However for a stretch of four kilometers, the road now alternates between left and right hand underpasses, creating a dangerous traffic situation.

During that time other measures intended to improve mobility along the canal bank included the closing of smaller lateral intersections while widening and improving the major ones. Small foot-bridges as well as vehicular crossings across the canal were also eliminated. As such there was a concerted effort to expand the arterial capacity of the road at the expense of maintaining lateral connectivity across it.

In 2005 the City District Government of Lahore (CDGL) and the Government of Punjab (GOP) announced an ambitious plan to widen about fifteen kilometers of roadway by eighteen feet on either side to alleviate traffic congestion. The plan to expand the road projected a reduction of seven minutes in travel time from the Dharampura crossing to Thokar Niaz Baig.

When the government announced this plan, a consortium of local activists and citizen groups called the *Lahore Bachao Tehreek* (Save Lahore Movement) instantly organized to protest the project. The Canal Road proposal was met with such controversy because it involved a rather obviously destructive feature. The widening of the current two-lane road meant a significant loss of the existing green space along the road and the felling of nearly ten thousand of mature trees. The group, which consisted of individuals such as architects, artists, environmentalists, lawyers and students, as well as other organizations and groups, launched their critique in the local media as well as through organized public presentations. They cited the potential environmental degradation associated the reduction of so much tree cover, the loss of nearly sixty acres of green space, the threats to local fauna and the estimated increase in emissions and pollutants. They also pointed out the general lack of a cohesive transportation strategy and the widely known futility of road widening as a long-term solution towards alleviating congestion and improving accessibility as greater road space correspondingly attracts greater numbers of cars.[5]

Accompanying the purely pragmatic concerns was a deeper sense of loss cited by the members of the *tehreek* as well as other citizens as they reacted to the ominous red crosses marked on the ill-fated trees. "It is precisely because Lahoris identify the canal with the green of their city", wrote lawyer and columnist, Rafay Alam retrospectively, "that they reacted so fiercely to Chief Minister Perviaz Elahi's ill-advised and ill-intentioned scheme to widen the canal to accommodate more traffic."[6] Alam, himself one such fierce voice of the campaign to save Lahore's trees, rightly pointed out the myopic vision (and an unabashed pandering to private real estate and industrial interests) behind of the government's plan:

> If the canal is widened, in 15 years it will represent the great social inequality in the city: a polluted, congested, filthy Lahore on one side of the canal and an automobile-dependant, planned, elite Lahore on the other.[7]

Some members of the *tehreek* highlighted the potential value of developing the green space along the canal as a valuable ecological resource and an opportunity for the city to develop it as a linear park.[8] Indeed, the long strips of densely planted, open public space are no doubt a unique asset to the city but not just as recreational space. In a city where the storm-water drainage infrastructure proves inadequate to weather the yearly monsoons, the sunken green space is also an ideal rainwater catchment area.

5 http://www.lahorechitrkar.com/view-page.php?page=issue-canal

6 alam

7 Rafay Alam, Part II Urban/Urbane- The news international

8 Lahore Chitrkar website http://www.lahorechitrkar.com/view-page.php?page=issue-canal

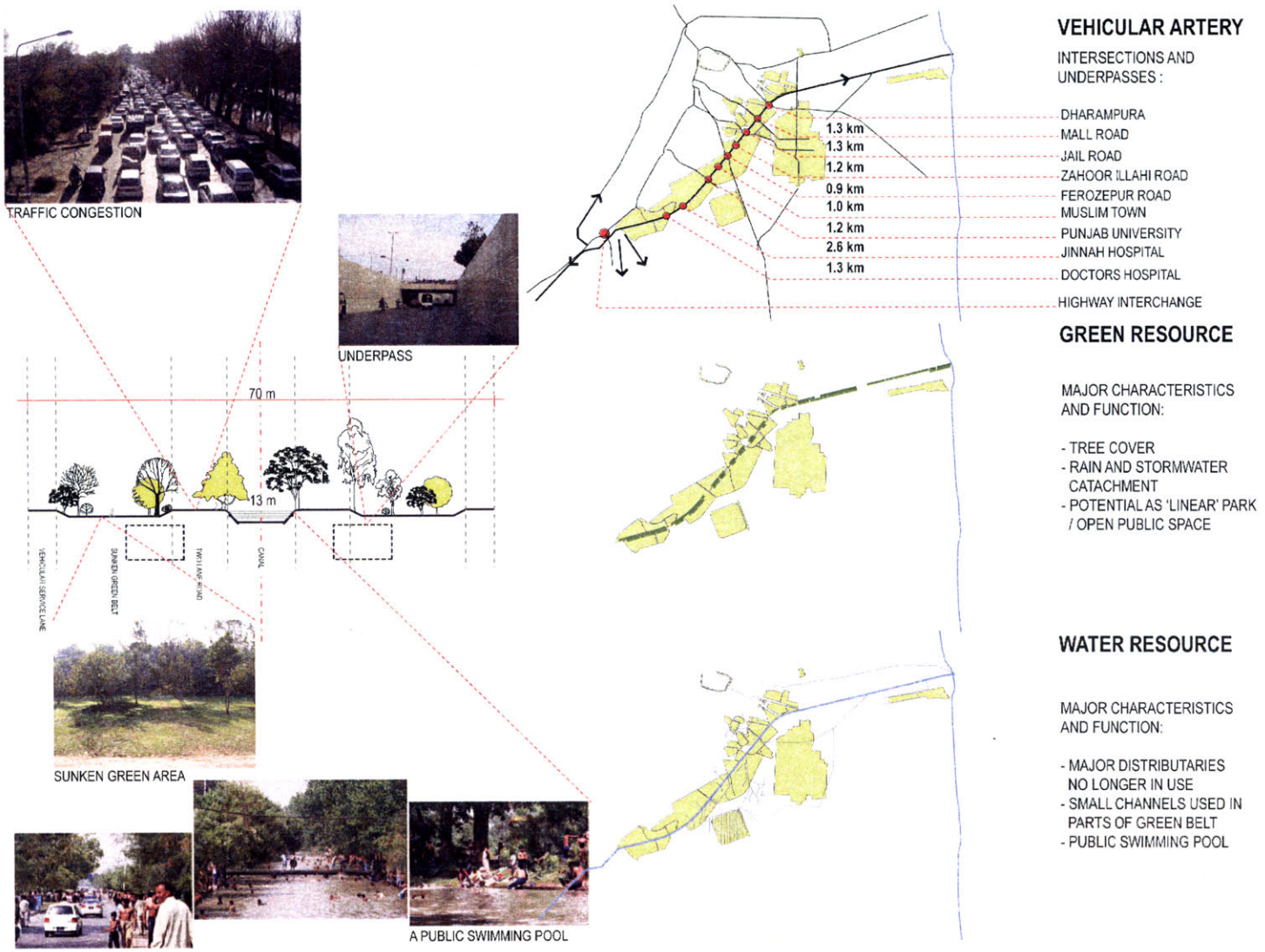


Fig 8. The Canal as a Vehicular Artery, Green Ressource, and Water Ressource. Source: The author.

However, whilst the *Lahore Bachao Tehreek* pointed towards the dangers of losing an important ecological resource of the city and the ineffectiveness or the potential problems of the government's road planning agenda, its members were less concerned with the functional or land-use aspects of the areas along the canal. The general thrust of their critique was the preservation of the trees and with them of Lahore's identity. While this was no doubt necessary, I argue it was an incomplete rebuttal to the government's proposition because it lacked foresight on the programmatic, land-use and density aspects of the areas in question.

In 1917, Patrick Geddes prepared and published a report outlining some future planning directions for Lahore.[9] Typical of his inductive approach to town planning, he criticized the proposed plan for the city for its heavy-handed imposition of "Standard Plans" upon the existing fabric of the city. Remarking on the lack of regard for the physical and social conditions of the old city, he excoriated Lahore's planners for using outdated "Bye-law Methods" which they had learnt "at home as young men".[10] "All this destruction" he wrote "is but preliminary to the Lay-out itself, which ought surely, to be a miracle to justify such sweeping preparations for its advent. But although it is strictly 'legal', convincedly 'utilitarian', professedly 'sanitary' and doubtless also pretendedly 'economical' and all these undeniably (as much so as others of its kind elsewhere), it will be seen, on examination, to be in every respect the very converse of all these".[11]

Much like out-dated 'Bye-Law' planners of the early 20th century in India, the engineers and planners of contemporary Lahore have reverted to solutions that are seen as shortsighted today. Although the CDGL's road widening plan, rightly criticized (and eventually stalled) by the Lahore Bachao Tehreek, might have been effective in countering

9 cite pg report- Town planning in Lahore: A report to the Municipal Council

10 394- He cited that the abolition of the methods of "Bye-law Planning" under the Town Planning act of 1910 in England.

11 pg 396

the short term problems of traffic congestion it would have probably been futile in the long run. It is widely held in transportation planning that extra road capacity eventually attracts more cars and as such is not the most effective approach to improving the accessibility and mobility in a city.

The emphasis on preserving the canal road as a linear artery would further erode its ability to laterally connect the neighborhoods on either side of its banks. The canal would bifurcate rather than connect the city. Furthermore, as criticized by the Lahore Bachao activists, the potential loss of the green space along the canal seems contrary to the more topical ways of thinking about streets in urban areas today where the focus in on traffic calming and reducing vehicular movement in cities rather than expanding it at the expense of ecologically important resources.

The biggest problem is of course the fact that by expanding the road the government intended to follow the model of decentralized growth and planning that privileges the automobile. Lahore's transportation related problems have increased with the growth of the city. The center and arteries leading out of it are very congested and present an immediate concern – however the response lies not in the ad infinitum expansion of road capacity but instead to address the question of public transportation and more importantly the current model of growth based the practice of building low-density 'garden' suburbs.

One of the more pernicious effects of horizontal growth is not just the loss of agricultural land. As development schemes proliferate over the outskirts of the city, rural villages are physically incorporated in the spread as they fall within the unplanned interstices of planned residential settlements. These villages, lacking adequate connections to new infrastructure provided to these new areas, are eventually cut-off from farmland and become what in the local planning lexicon are known as Katchi Abadis or unplanned settlements. This is a historic pattern and cannot be adequately addressed in the scope of this writing except to comment that the proliferation of bungalow suburbs and the particular lifestyle of culture and refinement associated with them creates an inverse condition of neglect and decay, which though ironic, is nonetheless a symbiotic counterpart to the former: The Katchi Abadis provide for the formal and planned city a much needed support system in the form of ready domestic labor.

My purpose here is to stress that there is a co-relation between the historic, socially conceived norms of urban decorum-of envisioning Lahore as a center of cultured refinement that are elaborated in the use of the garden narrative-that manifest in the proliferation of low density housing typologies.

In 1917, Patrick Geddes had also turned his attention to the then expanding suburban landscape of Lahore. He proposed that the large open space programs in the central areas of the city be relocated to accommodate the "growth and movement of the civil station" which he noted was "no less inevitably southwards".[12]

> With the pressure of population, and the consequent rise in land values, even the Race Course and the Polo Ground may some day have to be removed to the further side of the Bari Doab Canal, thus leaving a large quarter open to building.
> Again the modern progress in the treatment of prisoners, and also in that of lunatics, will some day involve the removal of the large group of jails, Penitentiaries and Asylums to more rural conditions; and this migration will yield large and excellent sites, and ample building materials.[13]

Fig 9. Patrick Geddes, from a drawing by Gerald Smith, made in the Outlook Tower in 1912. Courtesy of the New York Public Library.

At the time that Patrick Geddes wrote this report, Lahore's population was 234,000. Had his foresight estimated even a tenth of today's nearly 10 million people, Geddes' proposition for the relocation of open space made a lot of sense in the context of Lahore's anticipated direction of growth.

Today, this aspect of the city's form-the expanses of open space-remains unaddressed. Whilst Geddes was talking specifically about large open spaces rather than the model of low-density suburban expansion,[14] I argue that the under utilization of space in the center of the city is a product of a colonial legacy of reform and an uncritical attachment to the idea of gardens as an integral aspect of Lahore's cultural identity. The current planning visions, emphasizing the linear and arterial over the local roles of the canal bank encourages the low-density model of growth and simultaneously turn a blind eye toward using the central areas for productive functions such as housing. In the following chapter I sketch out such an approach in an attempt to reconcile the need to consider local as well as linear aspects of the canal as the central spine of the city.

12 Patrick Geddes, "Town Planning in Lahore: A Report to the Municipal Council," in *Patrick Geddes: Spokesman for Man and the Environment* (New Brunswik: Rutgers University Press, 1972), 425.

5 : REFRAMING

"Why not (...) put a little park playground on one or other side of the avenue which would connect the old Village and the new?

Patrick Geddes, 1917

A New Methodology

In this chapter I sketch of a design methodology for the canal and the canal bank area based on the insights from the previous chapters. The canal, an infrastructural conduit, was examined in part one with a multi-scalar lens. The commonality of ideas between city and country relating to the improvement of landscape was explored and used to shed light on the idea of Lahore as a city of gardens. In the same way I argue that a multi-scalar approach is necessary to productively bring the canal into the purview of future design. I propose that it is important to understand the canal not just as a *site* but also as *sites*. I follow an inductive approach: zooming into one particular area, the neighborhood of Dharampura, to outline a plan for analysis and a schematic proposition. To do so, I use the three following categories, culled from the analysis from the previous chapters:

1. The transformations of the urban form during the colonial period, from the 1860's onwards (from chapters 1 and 2);
2. The themes of decay and refinement and how they relate either historically to the site or in the present situation; (from chapter 3);
3. The existing situation and recent planning agendas (from chapter 4).

After delineating the analysis and proposition for Dharampura, I zoom back out to the Canal as a site in the entire city. This particular set of operations, zooming to one site and using its specificities to inform a larger scale proposition, is seen as a small experiment. In the end of the chapter I elaborate on the findings, the possibilities of this method when extended beyond the scope of this thesis and ideas for further study.

Analysis: The Dharampura Site

The area that I have chosen for this analysis is simultaneously unique and typical in the context of the city. If the canal is considered to be the central axis of the city, as I have discussed in previous chapters, then the neighborhood of Dharampura and its vicinity is the physical center of that axis. It is located almost halfway along the approximately twenty nine kilometers route from the two ends of the main canal-the headworks at the BRB canal and the junction at Thokar Niaz Beg. The site presents certain particularities, which I explore in the following pages:

1. The site is the conjunction of a number of infrastructures- Other than the canal itself the area is bounded by the triangular intersection of Lahore's railway lines. There were two distributaries branching from the canal: one to the governor house and the other to the gardens around the walled city. Two important roads cross this area as well. One that that connects the Shalimar Gardens in the north to the Cantonment in the South and the other from the old city to the Cantonment. (Fig 3)

2. The site is a point of inflection- Here the canal itself bends from a northeasterly to easterly direction. More importantly, it the point where the urban fabric of Lahore shifts from the primarily older, denser neighborhoods to the spacious colonial suburban landscape. Travelling north of this point one confronts more of the former, while going south the latter: in this site both forms are juxtaposed. (Fig 4)

3. There is a lot of open space in this site but most of it is private and walled off to public access. Since the colonial period, the area was the headquarters of the North Western Railway and today a large portion of the land belongs to the Pakistan Railways. This includes not only the rail yards and workshops but also housing colonies for the railway officers. The only significant open spaces are the linear green belts along the canal but along the southern edge of the canal there are a stretch of government offices housing the Irrigation and Power Department which are built over what would typically be open space. (Fig 5)

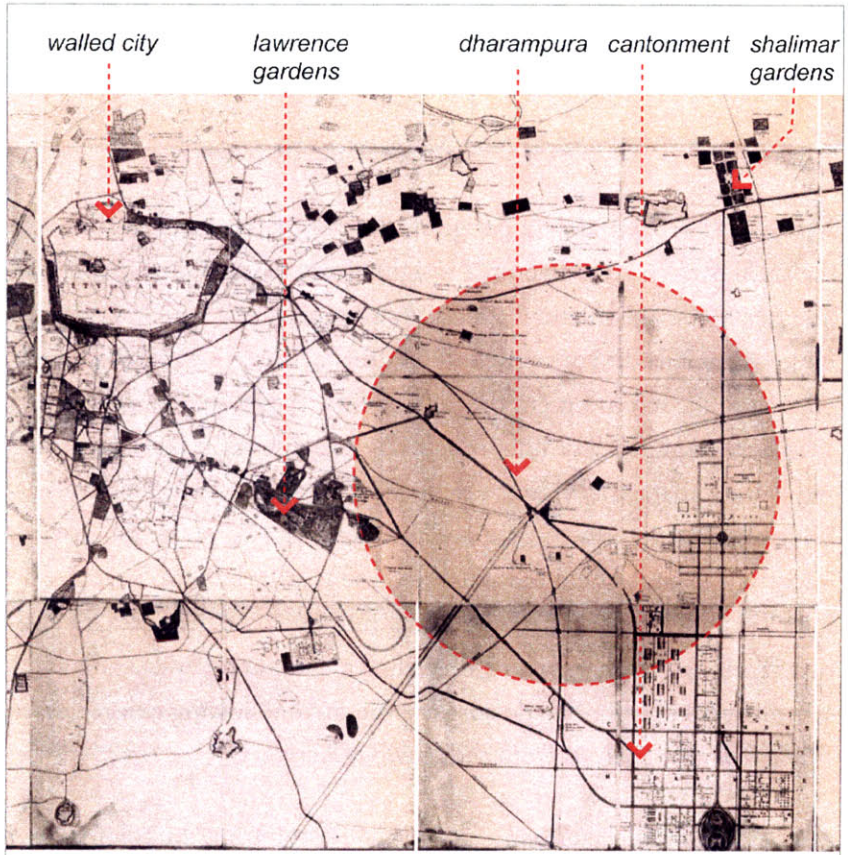


Fig 1. Dharampura Site from 1867 map. ""Plan of the City and Environs of Lahore shewing the Civil Station of Anarkullee and the Cantonment of Meean Meer. "Edited by the Surveyor General's Office in Calcutta in August 1867."

Reframing: The Dharampura Site.

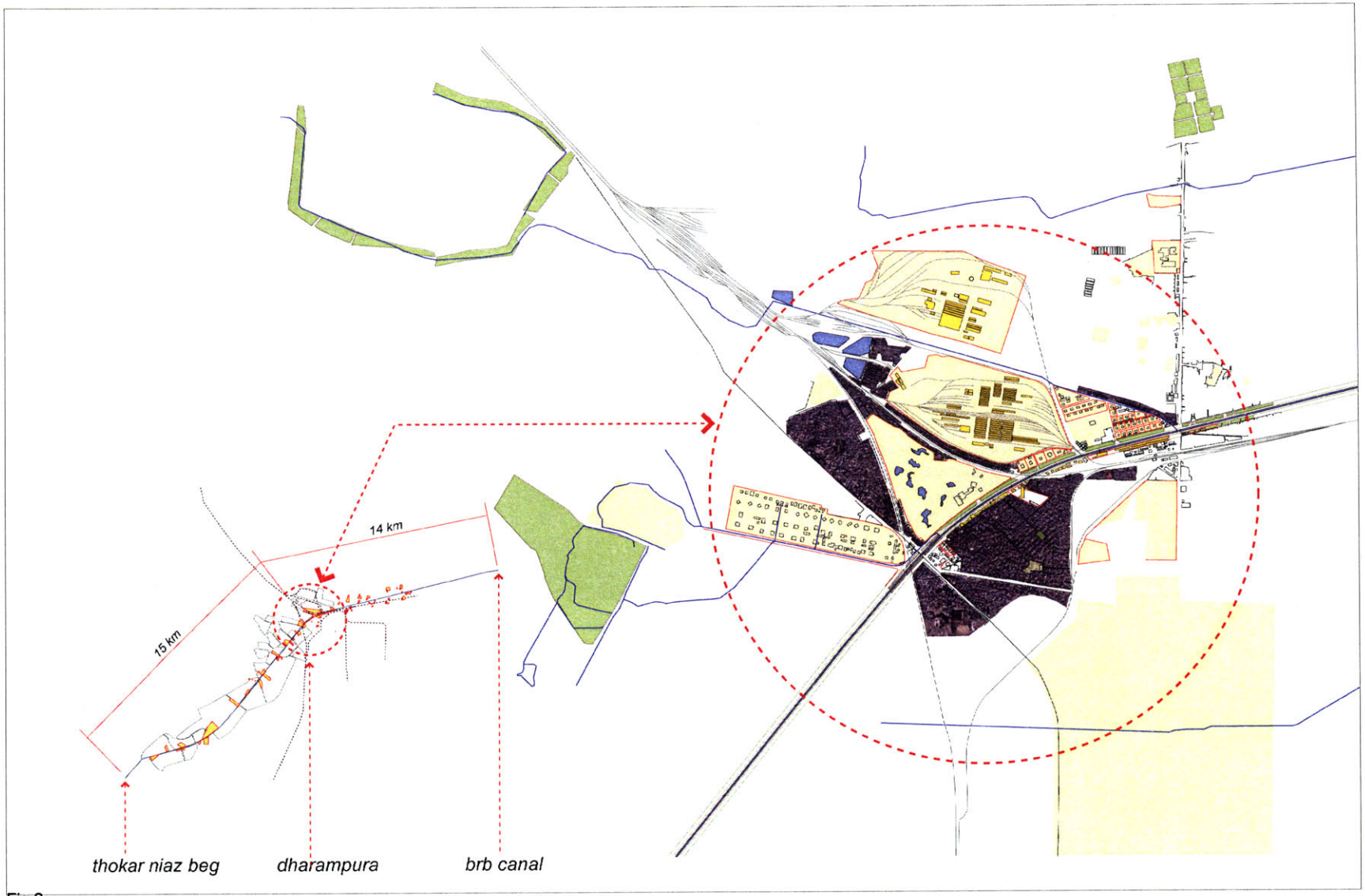


Fig 2

Infrastructure: Categories of Analysis

		1 *The transformations of urban form since 1860.*	2 *The themes of urban decay, improvement and refinement.*	3 *The existing situation*
INFRASTRUCTURE	*Railways*	*The Railways were developed during the 1860's and regional lines were amalgamated as the North-Western Railways in 1886*		*The Railway Lines mark distinct boundaries and ruptures in the urban formcreating problems of access and pedestrian movement* 
	Canal Distributaries	*The City Distributary or Rajbuha was built in 1863 and brought water to the gardens built around the Walled city.* *The Governor House Distributary built in the 1860's to bring water to the Lawrence Gardens, the Governor House and the Race Cource*	*Today, the water channels that supplied water to the improved and cultured suburban landscape have fallen into disrepair* 	
	Roads	*The two main roads that frame the site connected the old parts of Lahore (The areas around Shalimar Gardens and the walled city) with the new cantonment across the canal.*	*These two roads are thus routes from the 'opaque' city to the 'ordered' city. Although the route from the Shalimar gardens also delineates a historic connection with (and appropriation) of the Mughal city.*	

Table 1

Reframing: Infrastructure

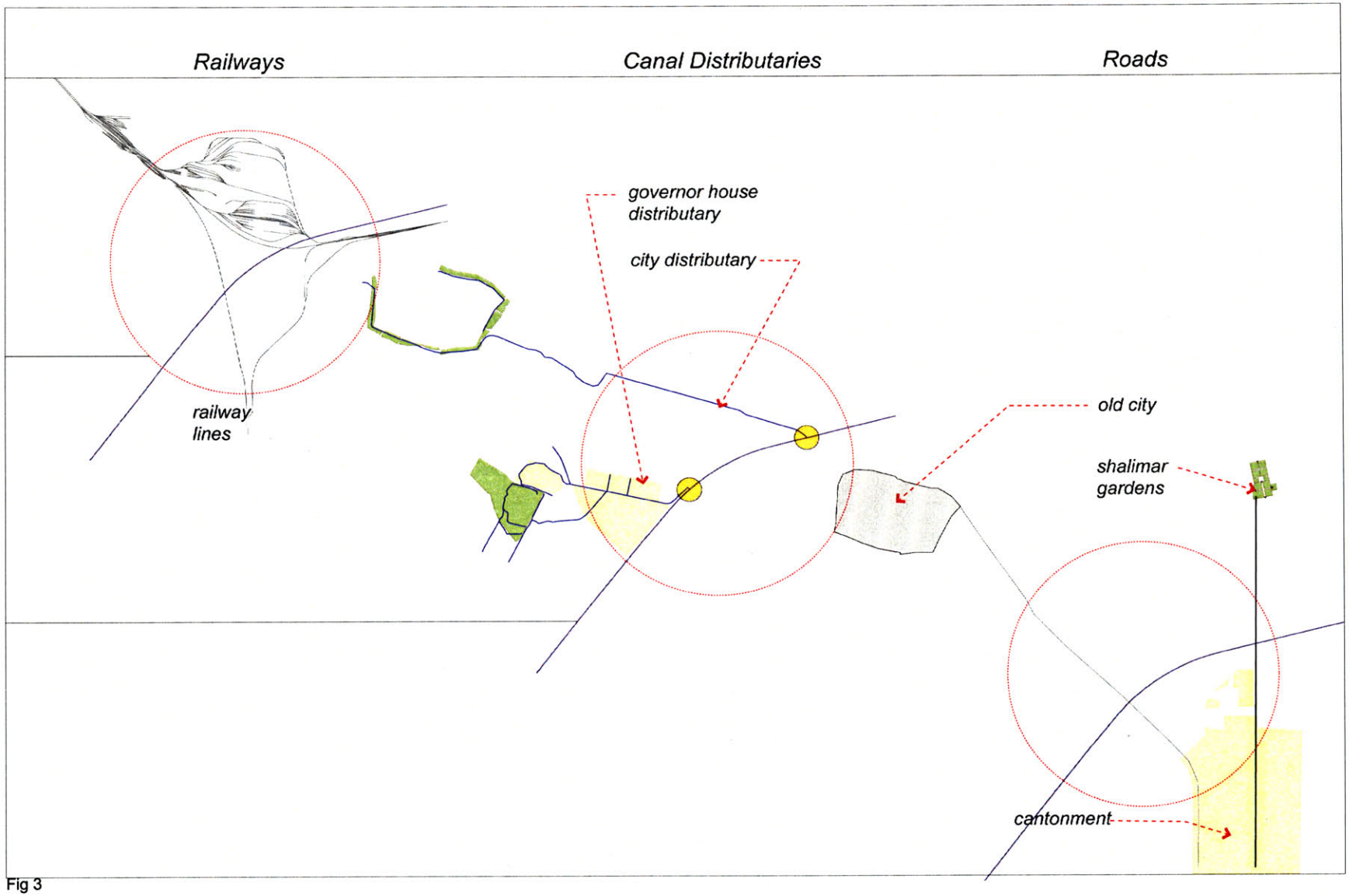
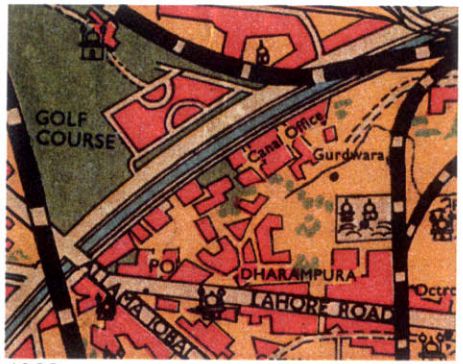


Fig 3

Urban Fabric : Categories of Analysis

URBAN FABRIC

	1 *The transformations of urban form since 1860.*	2 *The themes of urban decay, improvement and refinement.*	3 *The existing situation*
	 *1966*  *1927* **1A**	*The area was part of the 'decaying' environs of Lahore. As indicated by the two maps, the areas between the railway lines and other infrastructure arteries became filled with unplanned growth.* *Today the morphological (and social) contrast between the colonial, planned areas and the unplanned neighborhoods reinforces the narratives of decay and culture.*	*The offices of the irrigation and power department (canal offices) line the canal bank on the south side, marking a facade or boundary between the canal road and the neighborhood of dharampura.*  **3A**

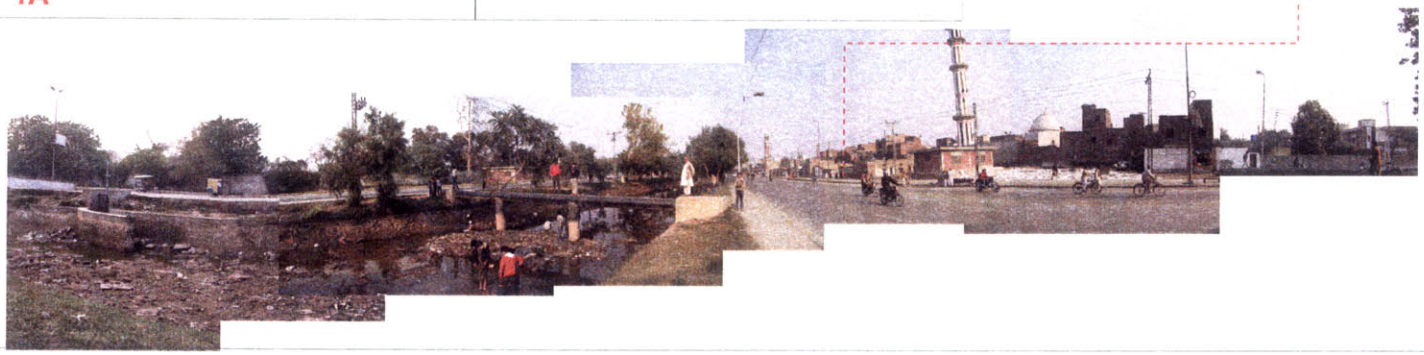


Table 2

Reframing: Urban Fabric

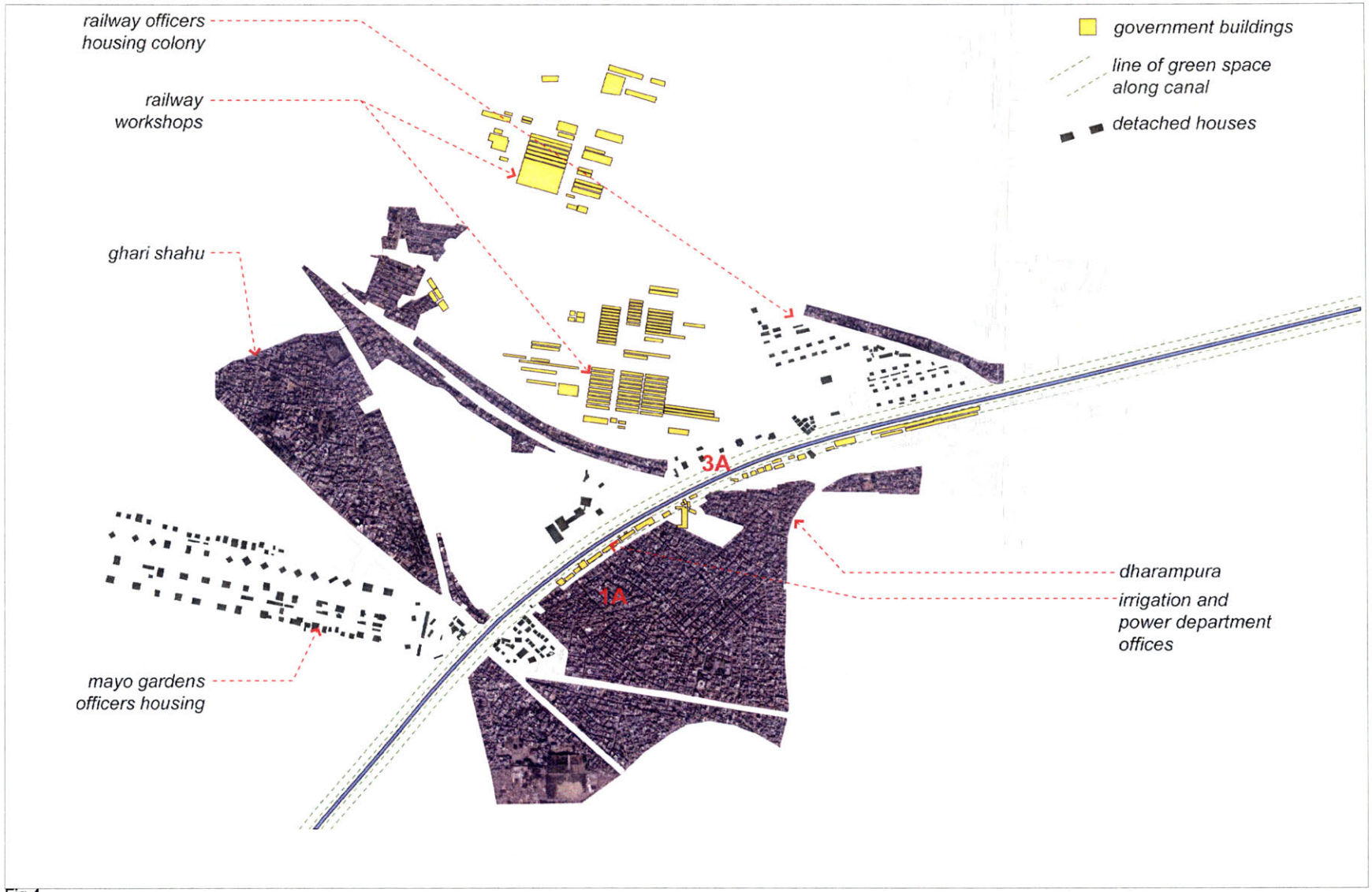
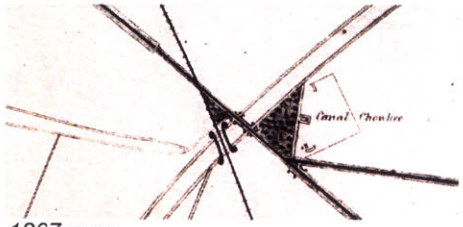


Fig 4

Open Space: Categories of Analysis

GREEN SPACE

1 *The transformations of urban form since 1860.*



1867 map
The canal 'chokee' (the stations for the inspectors and officers located at regular intervals along the canal), has a small garden located at the junction of canal, roads and railways.
1A

Railway yards and workshops, in the heart of the city
1B

2 *The themes of urban decay, improvement and refinement.*

Under utilized land in the heart of the city- a contemporary form of decay
2A

3 *The existing situation*

The residents of Dharampura have little access to public / open space
3A

Under utilized land in the heart of the city
3B

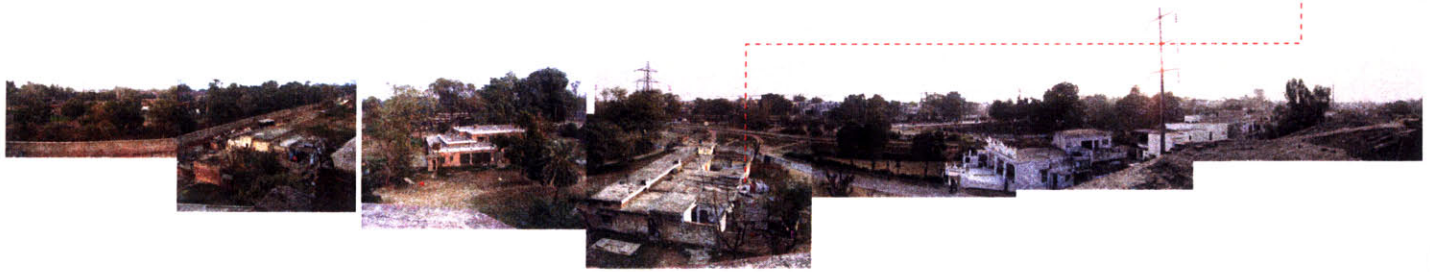


Table 3

Reframing: Open Space

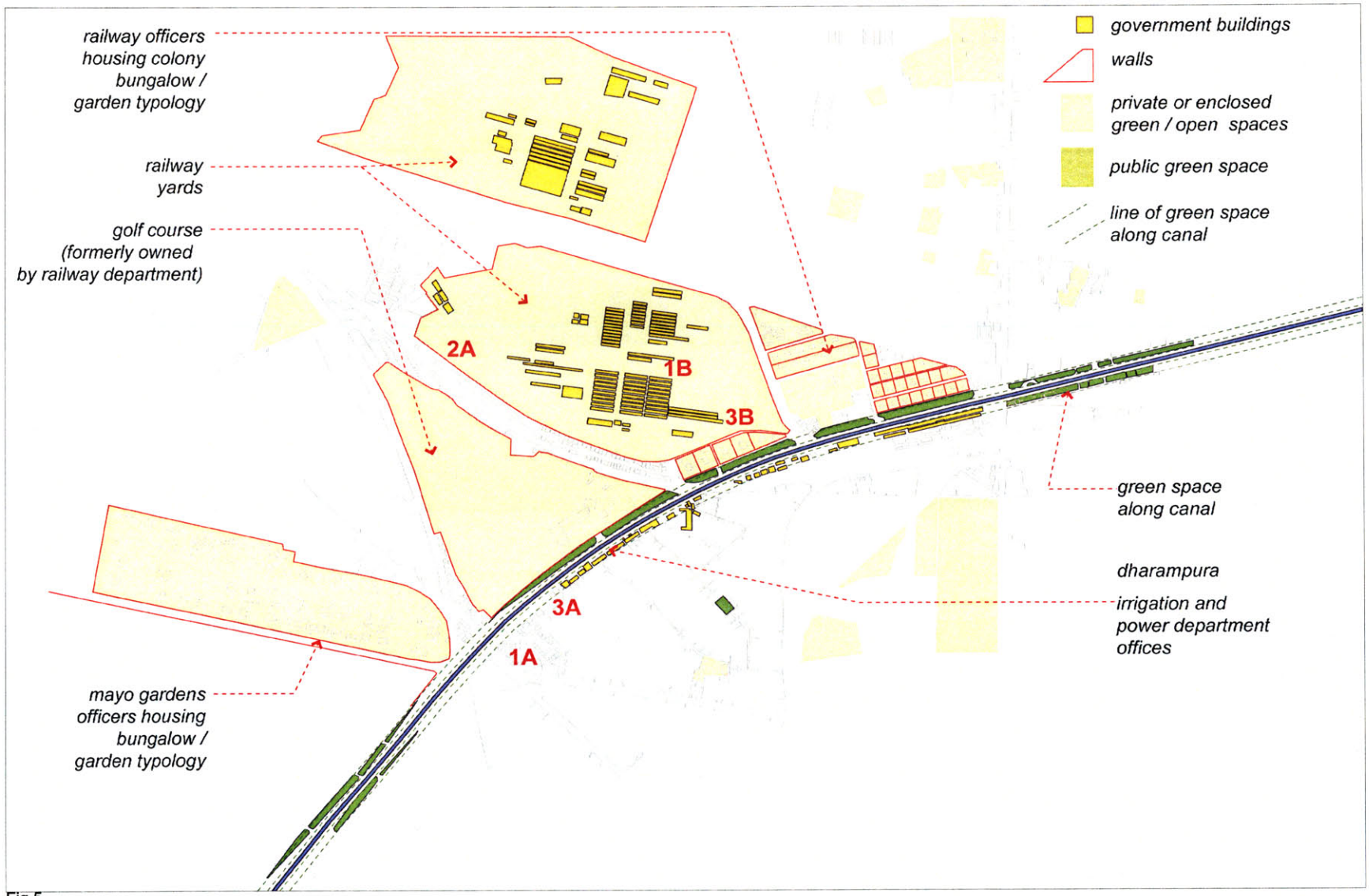


Fig 5

Sections and Urban Conditions along Canal

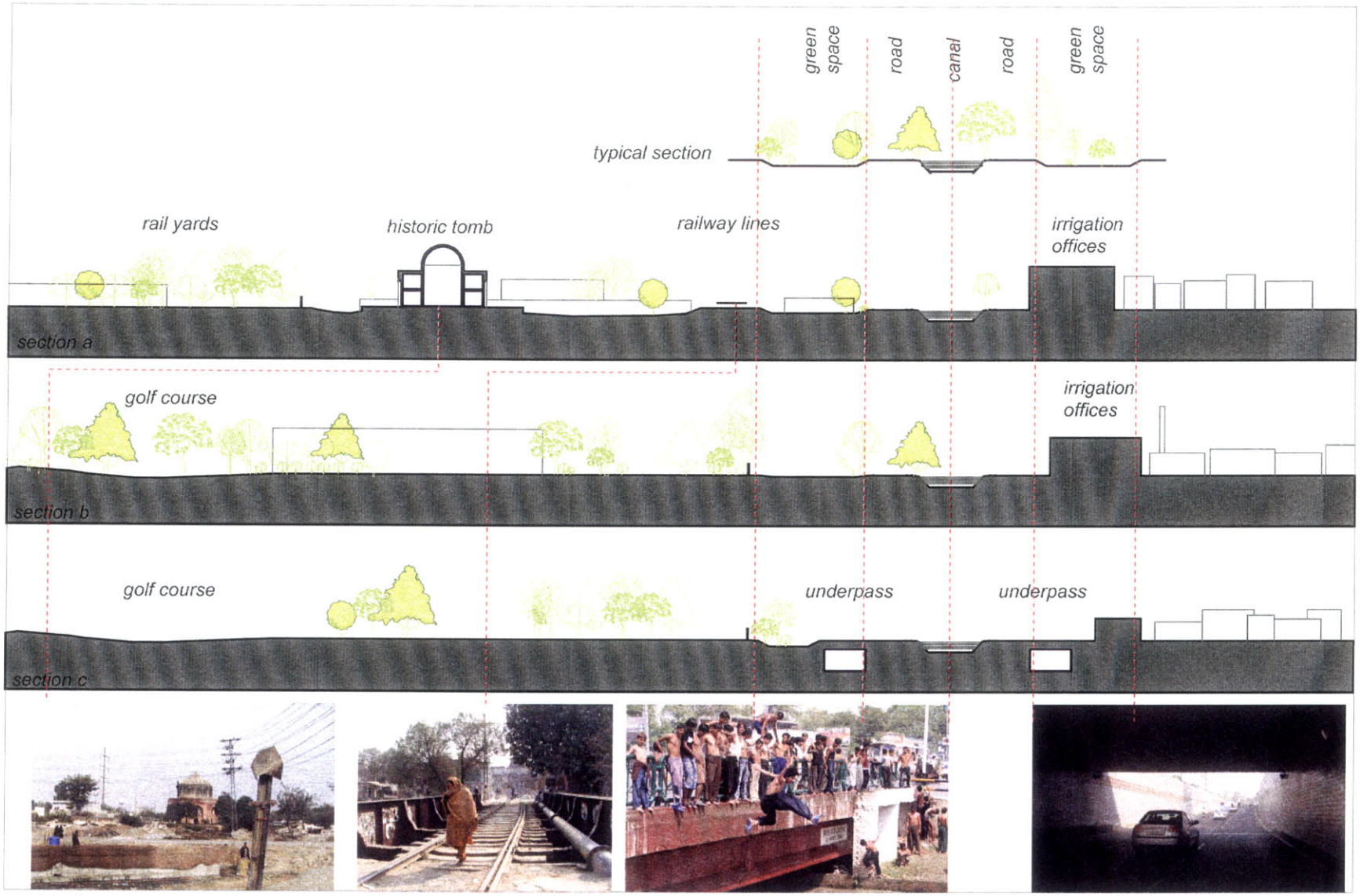


Fig 6

Identification of Sites

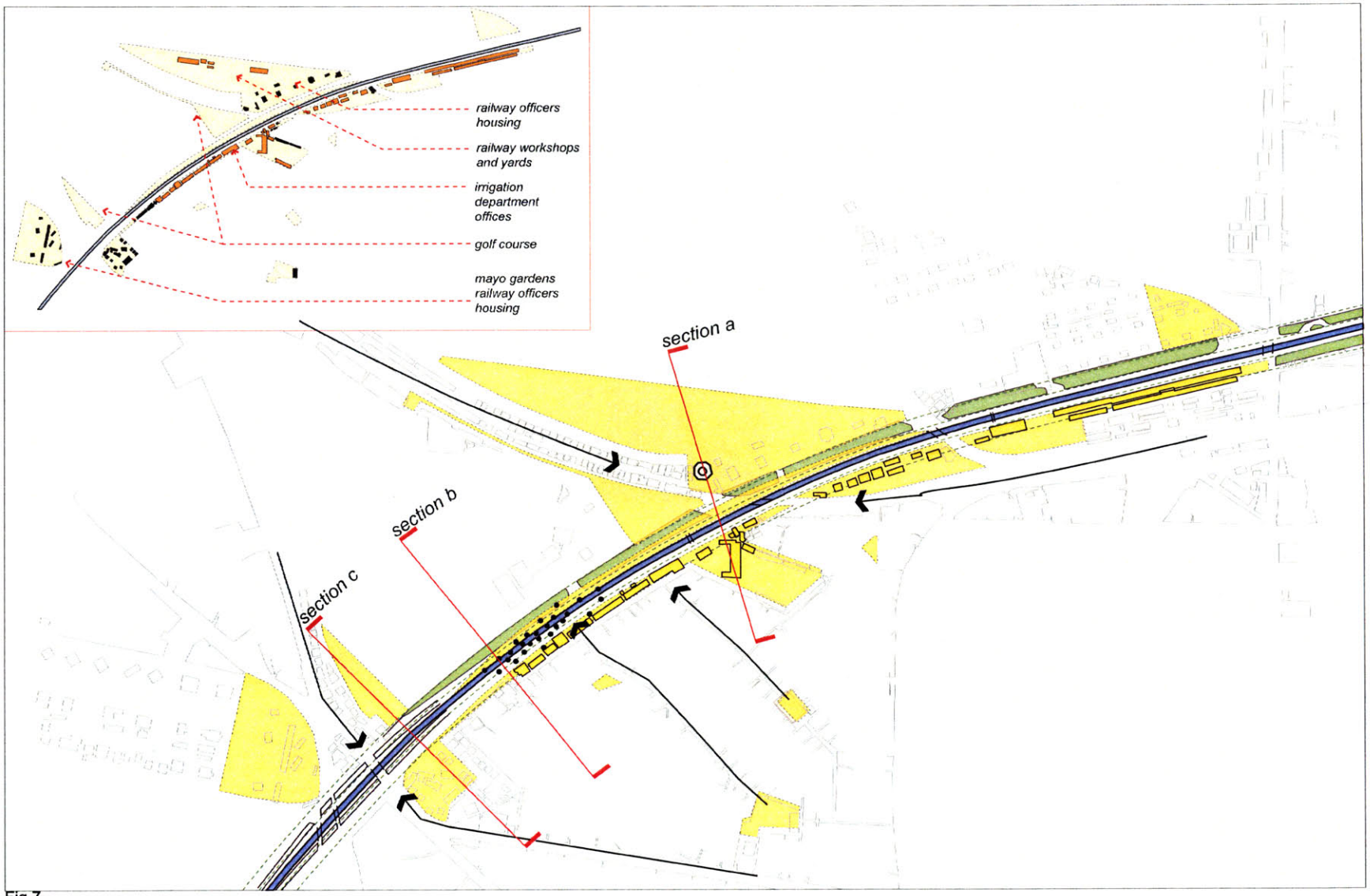


Fig 7

Matrix of Urban Conditions

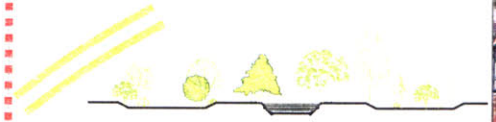
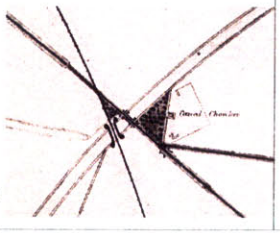
	1 *The transformations of urban form since 1860.*	**2** *The themes of urban decay, improvement and refinement.*	**3** *The existing situation and recent planning agendas.*
new urban water function		 *water function*	
reinforce access			 *access blocked by govt. offices*
restore public green space along the canal	 *green space along the canal*	 *public uses of water banned*	 *green space built over*
identify and appropriate under-utilized space	*large open spaces*		 *under-utilized open space*
a garden at the junction	*the canal 'chokee'* 		 *pedestrian access at junctions compromised*

Table 4

Proposed Plan

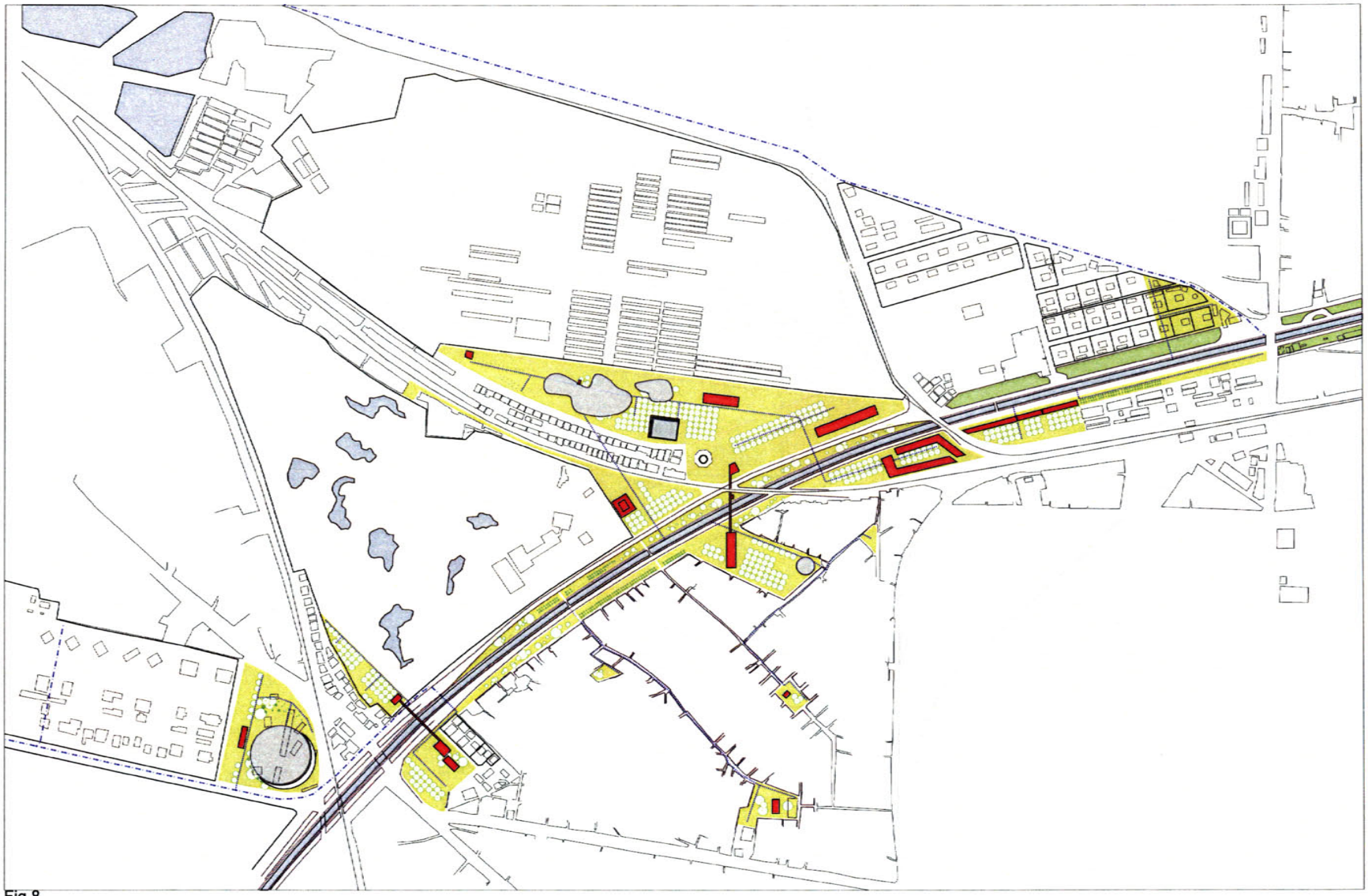


Fig 8

Conceptual Illustration of Proposal

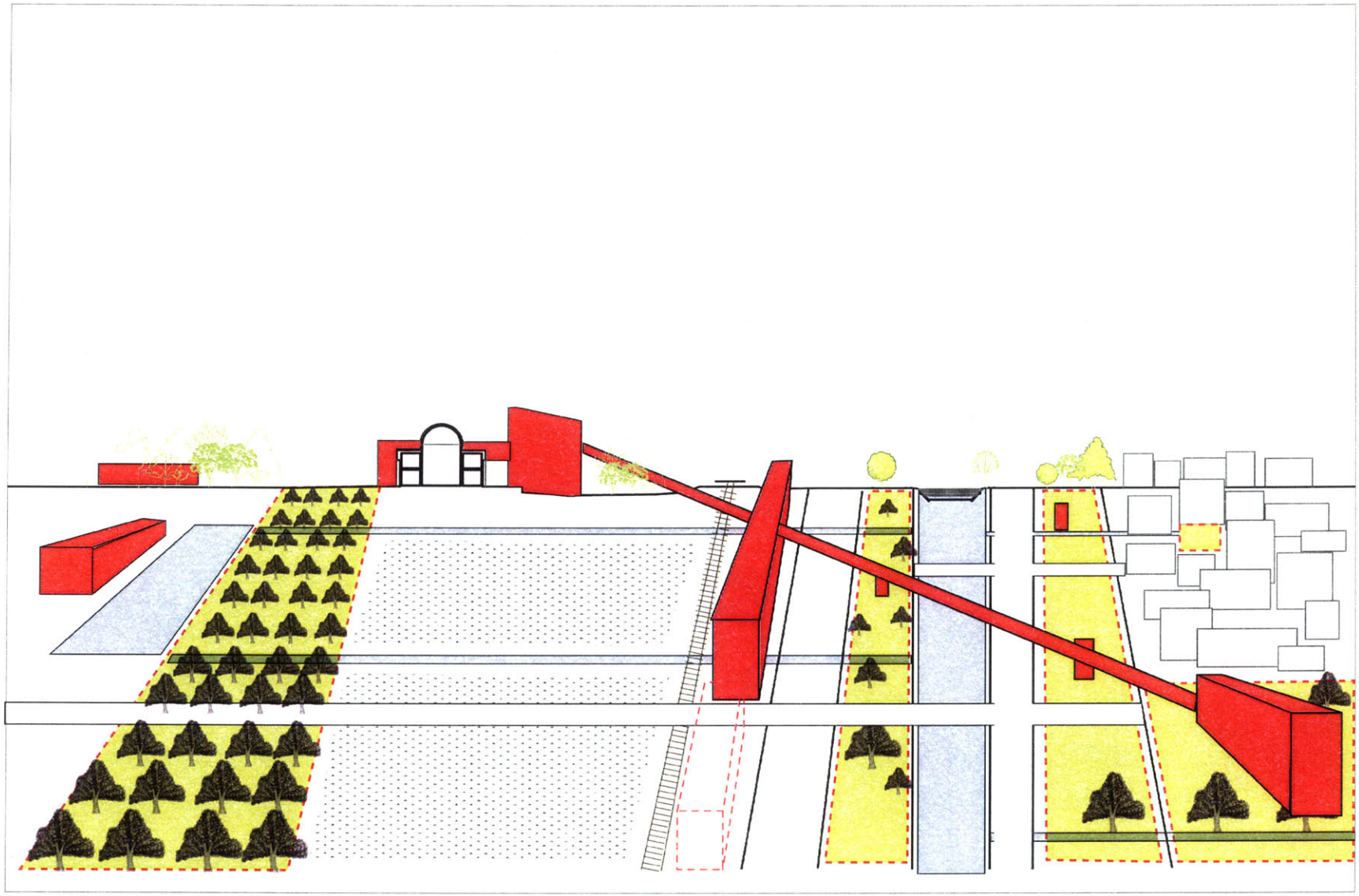


Fig 9

The Dharampura Site: Proposal

Using the categories of analysis noted in the beginning of this chapter, I propose small-scale interventions in the site.

Firstly, the abundance of open spaces that are closed to public access and the simultaneous lack of public space for most of the residents in the neighborhood should be seen as mutually complimentary rather than antagonistic situations. By 'carving' out public space from the large open sites (many of which are under-utilized government land), a new network of small parks can be established. These spaces, programmed with cultural and civic functions and supplied water from a new series of distributary channels would provide recreational and public zones along the canal. The 'canal chokee', a garden at the regularly located inspection stations along the canal, shown in the 1867 map of Lahore is a key trope for this proposal. Rather than a precious enclosed bagh or an amorphously large open space, these junction gardens would also be a means provide formal definition to certain infrastructural intersections where accessibility and urban clarity are compromised in the existing situation.

Layers of the Plan

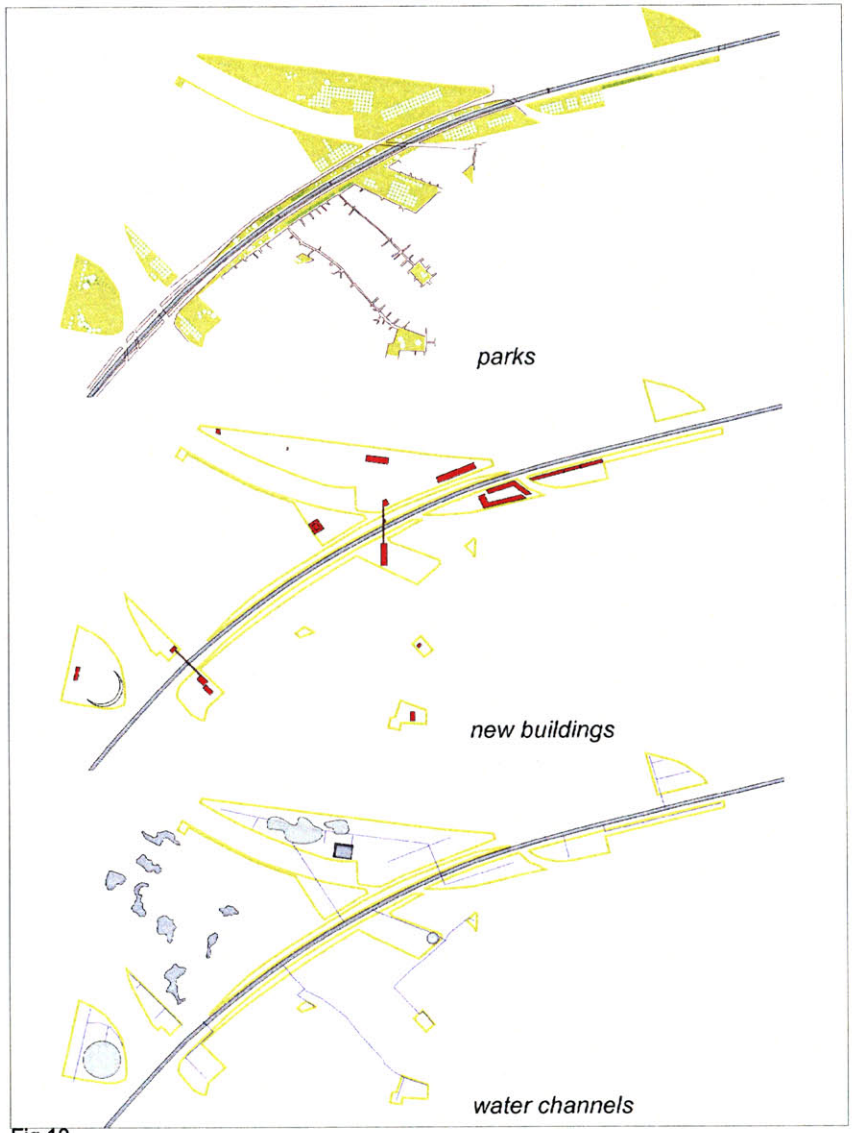


Fig 10

Small Park Network along Canal

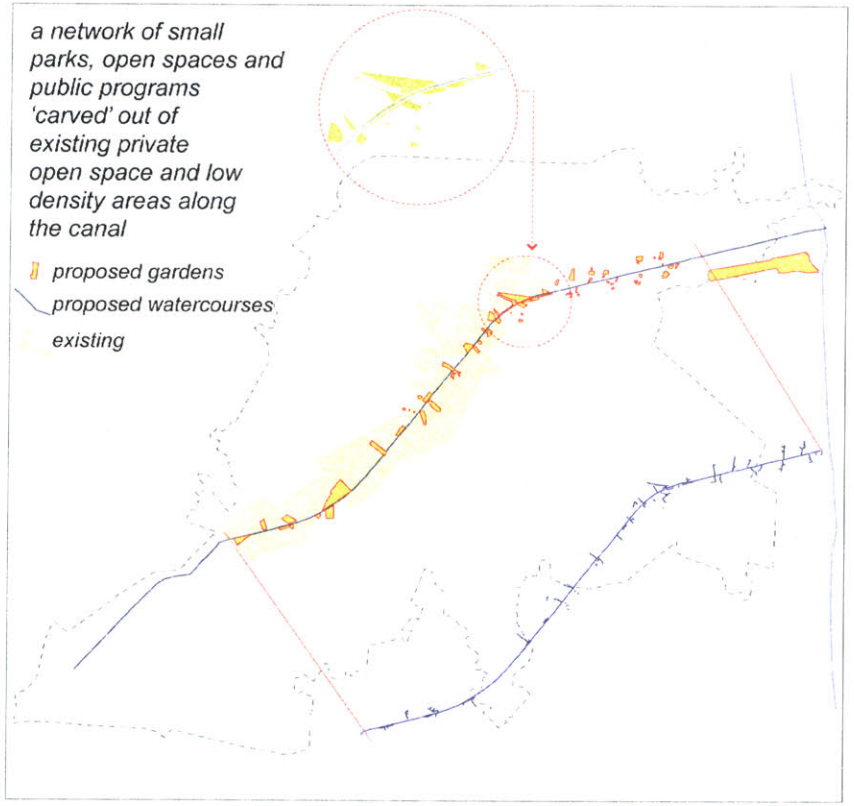


Fig 11

Metropolitan Park Network along Canal

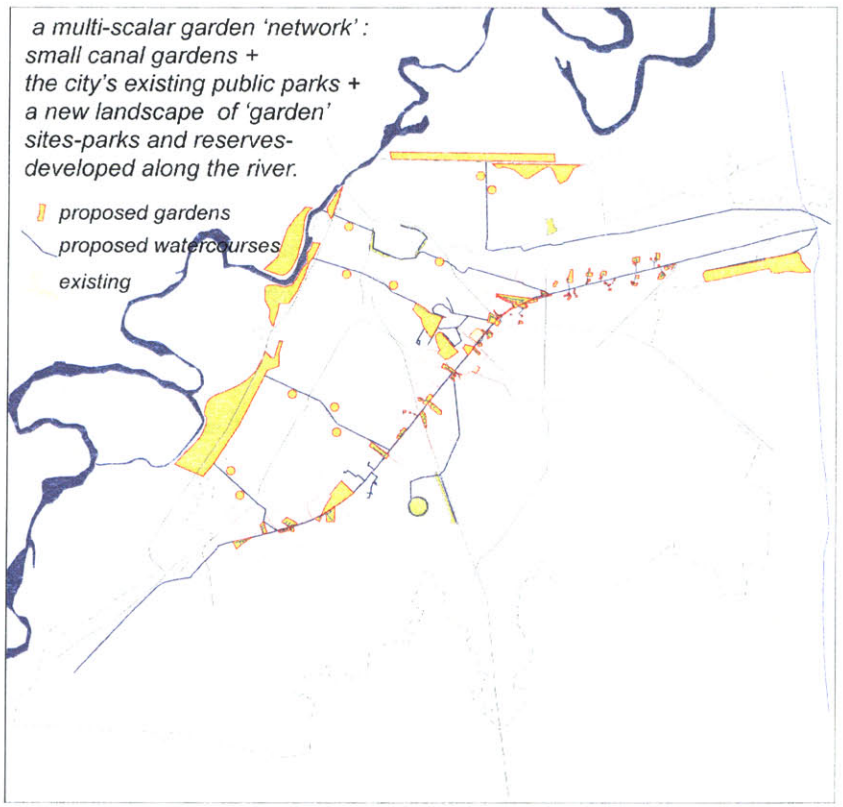


Fig 12

Densification of sites along the canal through rezoning and reprogramming

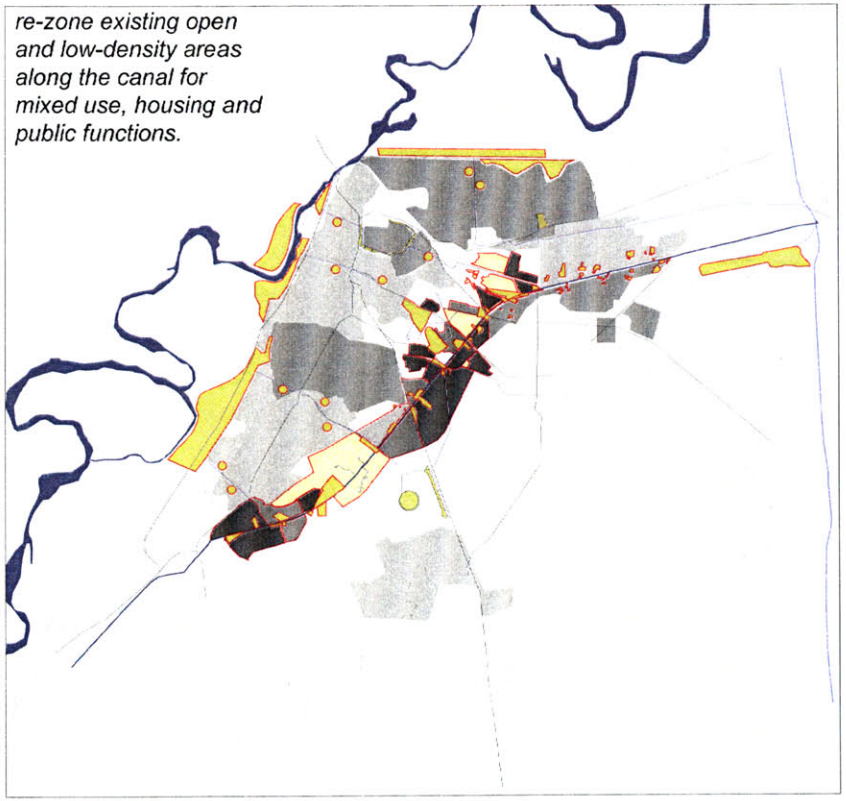


Fig 13

Proposal of Public Transport along Canal as adjustment of Government's proposed city transport plan.

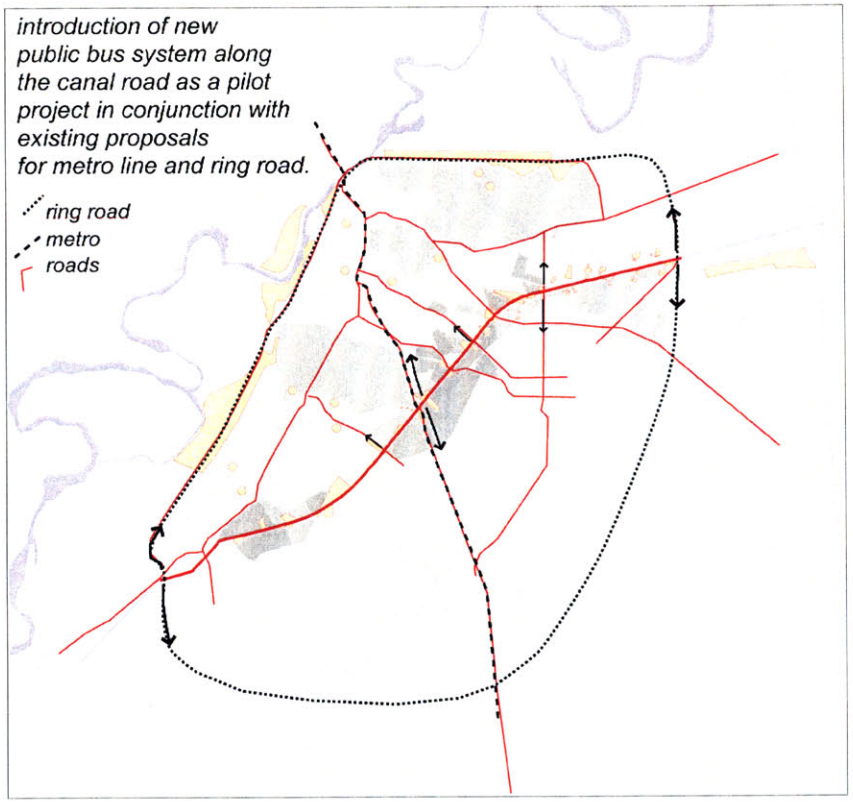


Fig 14

Summary of proposed systems

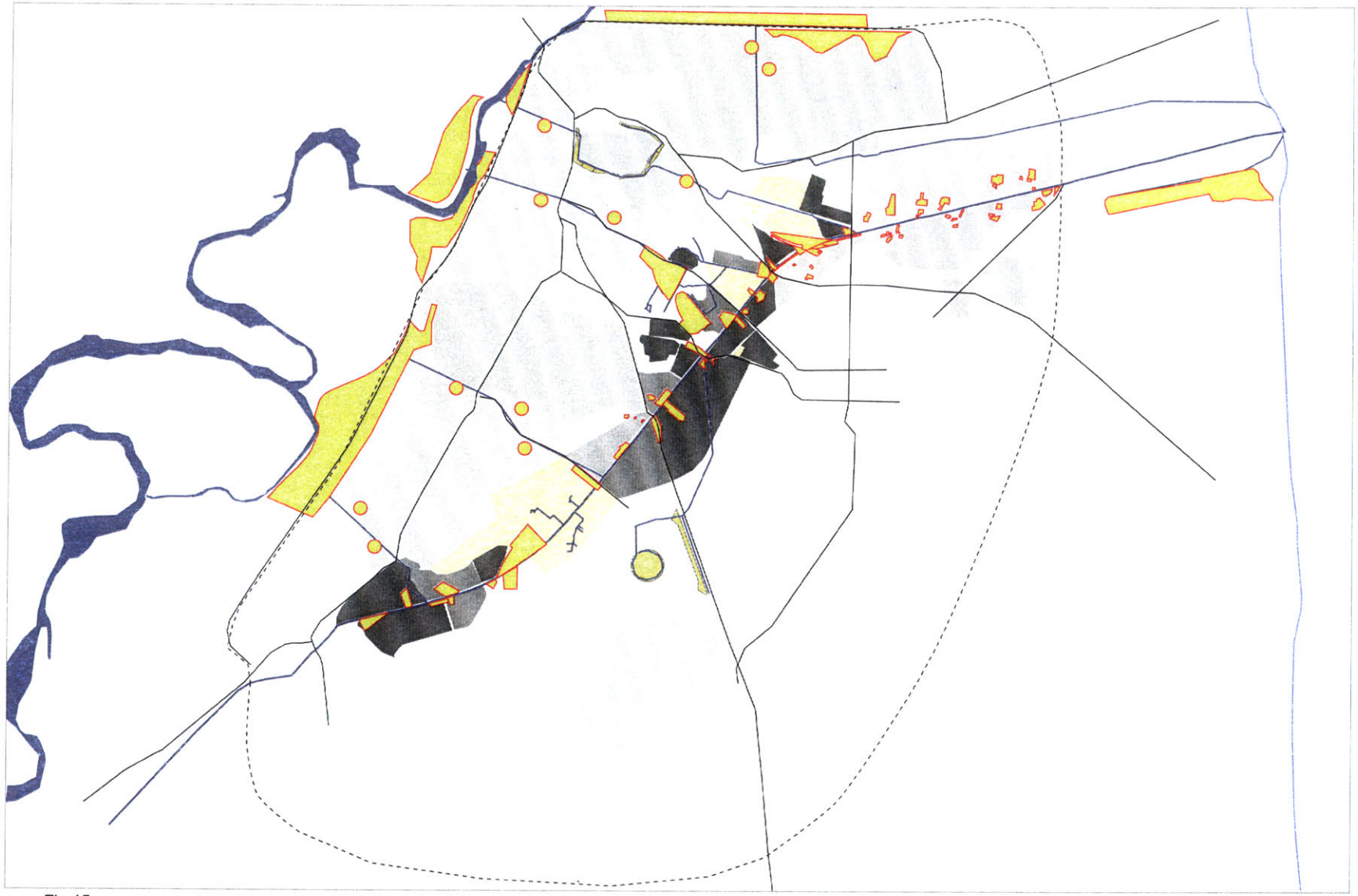


Fig 15

Conclusion

The plans shown in this section, distilled from the imaginative as well as concrete understanding of the city, are a first pass at delineating a methodology for urban study in a city like Lahore.

The city scale propositions, derived from the small-scale analysis are but a window into a more comprehensive approach toward the city. Given that the sites along the canal would present a myriad of issues and concerns, a more expanded version of this approach would be needed so that the eventual 'plan' for the city is rich layering of local concerns. The much longer view of understanding the city's history- its imaginations, stories, poetry- one approach to which is given in Part one is but another series of layers upon the purely physical.

The plan yielded from this study is an intentional provocation at the scale of the city. While considered a site, the canal is also seen as a *conduit* to a design approach for the entire city. In this case I have gained certain insights about the larger landscapes of the city such as the river and the southern suburbs can be reached conceptually via the canal.

POSTSCRIPT

This thesis began with the idea of the colonial 'civilizing mission' under which the vast landscape of the Indus valley in the Punjab was 'improved' through modern irrigation technology in the 19th century.

"Does Improved Technology Mean Progress?" asks Leo Marx in the title of his 1987 essay.[1]

The modern ideals of human progress-the notion that history is a record of the continuous improvement of human life- were forged in the social and political revolutions of the enlightenment. In the industrial era, these ideals were stripped of their radical associations and redefined as a belief in the power of machines, inventions and later technology as the drivers of history.

I have discussed in this thesis how colonial officials, administrators and engineers attributed this power to the networks of irrigation in India. The canals transformed the landscape: a garden emerged right out of a desert in a short span of fifty odd years.

The yoking of technology to the idea of history as a linear march of human improvement is problematic, especially when it is further linked to the desired improvement of subject peoples. This thesis is in part an effort to distort or bend that straight line through the study of Lahore- its form, character and stories.

History and design can serve similar roles, albeit with inverse methods, when used to re-cast this straight-line narrative into more complex and non-linear shapes. If history can help cast new light on the present and the future by thoroughly examining (or constructing) the past, then design constructs a vision of the future based (hopefully) on and understanding of the present and past.

This remainder of this essay delves into the idea of social progress as a foil to technological progress and how the study of cities, in the writings of Patrick Geddes, was a means to reconcile the two. On a more personal level- standing at a professional pivot point- it is also a series of initial rather than concluding thoughts about the subject of the history of technology as it pertains to the historical as well a projective study of cities.

In the final chapters of *Cities in Evolution* Patrick Geddes presented his task: "City by city our civic ideals emerge and become definite; and in the revivance of our city we see how to work towards its extrication from its paleotechnic evils, its fuller entrance upon the better incipient order".[2] Geddes was concerned about the deteriorating social conditions of industrial cities and advocated approaches to urban improvement that would accompany the advance from what he called the paleotechnic to the neotechnic phase of history.

Geddes posited two methods for the study to gain what he termed a "synoptic" view of the city.[3] Here "the scientific (and) the "artistic presentment of the city's life" would be combined. "What is to be our relation to practical life?" He asked. "The looker-on sees most of the game; a wise detachment must be practiced; our observations cannot be too comprehensive or too one-sided. Our mediations too must be prolonged and impartial; and how all this if not serene?"[4] Then almost conversely he stated "Scientific detachment is but one mood, though an often needed one; our quest cannot be attained without participation in the active life of citizenship".[5]

In the chapter entitled *City Survey for Town Planning Purposes, of Municipal and Government*, Geddes elaborated on the latter: a mode of study based on empiric, direct and embedded observation. He suggested that it include detailed city surveying not just of the present condition of cities about also their past and their growth over time. Geographically, cities were to be studied as they were situated within their regional context. Such surveys would include the topography, the lines of transportation and communication and also comparisons with other cities. The data collected would be graphically presented and displayed in the format of exhibitions to incite discussion and criticism (similar to participatory planning today). All this would have to happen, Geddes said, prior to making city plans.

In the next chapter, *The Spirit of Cities,* he fleshed out the need for a longer view on cities, one that was distanced from the direct concerns and biases of the present. After the survey and the exhibition, when town planning would commence, he said the real story of the city was only beginning to take shape: "research should continue and beyond this the need arises of reconstructive imagination and this for past, for present, and for future alike".[6]

Geddes proposed an active approach to the study of history and geography of cities (Indeed, his own language is far more animated in this chapter than the previous one). Talking about how the city grows over its landscape from a "rough jewel" into a "wrought clasp", he used the words "visualize and depict" to suggest a mode of study that would go beyond passive description. Similarly, to approach the history of cities, Geddes proposed, "we design or renew the city's pageant, scene by scene".[7]

As such, to understand the conditions of urban life-more than just urban form- Geddes saw this dual approach as "reaching the very portal of literature". Using the imagination to construct or reconstruct the city, and reconciling the empirical observations with the essence of the city, would yield an understanding not just of the complexities of cities but more importantly the ensuing changes. He noted, "we too readily forget our historic past, and think only of our town in its recent industrial and railway developments, we have come to think of this present type of town as in principle final, instead of itself in change and flux".[8]

For Geddes the need to understand historic change by active imaginative construction was a necessary for the transition to what he saw as the more idealized neotechnic phase (as opposed to what he considered the socially degraded paleotechnic phase).

History was thus a tool to subvert the technocratic idea of progress-

with the improvement of machines elevated as the goal above than the improvement of life-to the more socially situated ideals of progress. As Lewis Mumford had elaborated in *Technics and Civilization*, (drawing heavily from Geddes' terminology and writing) in industrial cities, social advancement had not followed the forward oriented linear march of technical advancement. In the paleotechnic period it had instead gone backwards. In situating their own work, Mumford and Geddes anticipated the coming of the more idealized, neotechnic future.

Whilst the study of technology itself might show us a linear march, a continuous improvement and indeed technologies have continued to become better, faster, more efficient, stronger etc, it is when we place the technologies in their social context (of production or reception), when we start to see the straight line becoming wavy or cyclical. The non-linearity of social change-the cycles of physical and social decay and improvements-are read most palpably in the form and life of cities.

Endnotes

1 Leo Marx, "Does Improved Technology Mean Progress," *Technology Review*, January 1987: 33-41.

2 Marshall Stalley, *Patrick Geddes: Spokesman for Man and the Environment* (New Brunswik: University of Rutgers Press, 1972), 270.

3 Ibid 256.

4 Ibid, 245.

5 Ibid, 255.

6 Ibid, 268.

7 Ibid.

8 Ibid 269.

BIBLIOGRAPHY

Books

Adas, Michael. Machines as the Measure of Men, Science Technology, and Ideologies of Western Dominance. Ithaca, London: Cornell University Press, 1989.

Ali, Imran. "Malign Growth: Agricultural Colonization and the Roots of Backwardness in Punjab." Past and Present (Oxford University Press), 02 1987.

—. The Punjab under Imperialism 1885-1947. New Dehli: Oxford University Press, 1989.

Chakrabarty, Dipesh. Habitations of Modernity Essays in the Wake of Subaltern Studies. Chicago: University of Chicago Press, 2002.

Chaudhry, Nazir Ahmad. Lahore : glimpses of a glorious heritage . Lahore: Sang-e-Meel Publishers, 1998.

Cronon, William. Nature's Metropolis, Chicago and the Great West. New York: William Norton, 1992.

Daechsel, Markus. "Between Suburb and World Politics, Middle-class Identities and the Refashioning of Space in Late Imperial Lahore, c. 1920-50." In Beyond Representation Colonial and Postcolonial Constructions of Indian Identity, edited by Crispin Bates. New Delhi: Oxford University Press, 2006.

Dar, Saifur Rahman. Historical Gardens of Lahore. Lahore: Aziz Publishers, 1982.

Geddes, Patrick. "Town Planning in Lahore: A Report to the Municipal Council." In Patrick Geddes: Spokesman for Man and the Environment, by Marshall Stalley. New Brunswik: Rutgers University Press, 1972.

Geertz, Clifford. The interpretation of cultures: selected essays. New York: Basic Books, 1973.

Gilmartin, David. "Scientific Empire and Imprerial Science: Colonialism and Irrigation Technology in the Indus Basin." The Journal of Asian Studies (Association of Asian Studies), 1994: 1127-1149.

Glover, William J. Making Lahore Modern: Constructing and Imagining a Colonial City. Minneapolis: University of Minnesota Press, 2008.

Hughes, Thomas P. "The Evolution of Large Technological Systems." In The Social Construction of Technological Systems, edited

by Wiebe E. Bijker, Thomas P. Hughes and Trevor Pinch, 51-82. Cambridge, MA: The MIT Press, 1987.

Jefferson, Thomas. Notes on the State of Virginia, edited with an introduction and notes by Frank Shuffelton. New York: Penguin Books, 1999.

Khan, Asim R., M. Kareem Ullah, and Saim Muhammad. "International Network of Basin Organizations." Water Availability And Some Macro Level Issues Related To Water Resources Planning And Management In The Indus Basin Irrigation System In Pakistan. http://www.riob.org/ag2000/pakistan.htm (accessed 05 21, 2009).

Kureshy, K.U. A Geography of Pakistan. Karachi: Oxford University Press, 1977.

Latif, Syad Muhammad. Lahore: Its History, Architectural Remains and Antiquities. Lahore: Sang-e-Meel, 1994 c1892.

Marx, Leo. "Does Improved Technology Mean Progress." Technology Review, January 1987: 33-41.

Merrey, Douglas J. "Reorganizing Irrigation: Local Level Management in the Punjab (Pakistan)." In Desertification and Development: Dryland Ecology in Social Perspective, by Brian Spooner and H. S. (Ed.) Mann. London: Academic Press, 1982.

Michel, A. Aloys. "The Impact of Modern Irrigation Technology in the Indus and Helmund Basins of Southwest Asia."

Murray, John. Report on the Treatment of Epidemic Cholera. Calcutta: Office of the Superintendent of Government Printing, 1869.

Paustian, Paul W. Canal Irrigation in the Punjab, An Economic Inquiry Relating to Certain Aspects of the Development of Canal Irrigation by the British in the Punjab. New York: Columbia University Press, 1930.

Rehman, Abdul. "Garden Types in Mughal Lahore according to Early-Seventeenth-Century Written and Visual Sources." In Gardens in the Time of the Great Mughal Empires: Theory and Design, by Attilio (ed). Petruccioli. Leiden: E.J.Brill, 1997.

Saunders, Leslie S. Report on the Revised Land Revenue Settlement of the Lahore District in the Lahore Division of the Panjab, 1865-69. Lahore: Central Jail Press, 1873.

Sheikh, Majid. Tales Without End. Lahore: Society for the Advancement of Education , 2006.

Sidhwa, Bapsi. City of Sin and Splendour: Writings on Lahore. Edited by Bapsi Sidhwa. New Delhi: Penguin Books, 2005.

Spooner, Brian, and H. S. (Ed.) Mann. Desertification and Development: Dryland Ecology in Social Perspective. London: Academic Press, 1982.

Stalley, Marshall. Patrick Geddes: Spokesman for Man and the Environment. New Brunswik: University of Rutgers Press, 1972.

Stone, Ian. Canal Irrigation In British India, Perspectives on Technological Change in a Peasant Economy. Cambridge: Cambridge University Press, 1984.

Wescoat, James L, Michael Brand, and Naeem Mir. "Gardens, Roads and Legendary Tunnels: The Underground Memory of Mughal Lahore." Journal of Historical Geography, (Academic Press), 1991.

Wescoat, James L. "Gardens, Urbanization, and Urbanism in Mughal Lahore: 1526-1657." In Mughal Gardens: Sources, Places, Representations, and Prospects, edited by James L. Wescoat and Joachim Wolschke-Bulmahn, 139-170. Washington DC: Dumbarton Oaks Research Library and Collection, 1996.

Administrative Reports

Davies, R. H., R. E. Egerton, R. Temple, and J. H. Morris. "Report on the Revised Settlement of the Lahore District in the Lahore Division." Lahore, 1860.

Kaul, Hari Kishan, and L. L. Tomkins. Report on the Question Relating to the Administration of Criminal and Wandering Tribes in the Punjab. Lahore: Government Printing, 1914.

Nisbet, R. P. "Letter from the President Municipal Committee, Lahore, To The Commissioner and Superintendent, Lahore Division, On the Subject of Water-Supply and Drainage of Lahore 1876." 1876.

Punjab, Irrigation Department. Statistics of Irrigation, Water Distribution and Working of Distributaries of the Canals in the Punjab for the year 1899-1900 . Lahore: The Civil and Military Gazette Press.

Ram, Lala Kashi. Notes and Suggestions on Sanitation in the Punjab. Calcutta, 1884.

Walker, G.C. Gazetteer of the Lahore District. Lahore: Lahore Civil and Military Gazette Press, 1894.

Other

Alam, Ahmed Rafay. "Chowk." June 29, 2006. http://www.chowk.com/articles/10901 (accessed April 19, 2009).

Authority, Punjab Irrigation and Drainage. Punjab Irrigation and Drainage Authority. 2008. http://pida.punjab.gov.pk/background.htm (accessed 05 21, 2009).

Contributors, Wikipedia. Lahore. 05 2009, 20. http://en.wikipedia.org/w/index.php?title=Lahore&oldid=291183278 (accessed 05 2009, 21).

The News International. "Lahore to be again made 'city of gardens': Shahbaz." The News International. 11 05, 2008. http://www.thenews.com.pk/daily_detail.asp?id=144971 (accessed 05 01, 2009).