



ASSESSMENT OF URBAN FORMS IN PAKISTAN

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Abstract

The research addresses the challenges in urban planning at a neighborhood level for the newly arriving and frequently in transit population in selected urban forms of Lahore and aims to understand the relationship between the physical layout of the neighborhood and the social cohesion among the residents. The study uses spatial analysis to understand the unique physical features of the urban forms while studying the people's behavior by an observation analysis. The experiences of the residents are addressed through qualitative analysis, which provides insight into various sociocultural aspects. Sustainable living and well-being are key indicators for happy residents of a city. The research, therefore, seeks to re-introduce the concept of community living, and contribute knowledge on creating a sustainable, livable, socially cohesive city. As a multicultural city, Lahore's population is seeing a booming increase, and as the pressure of this influx increases, a new approach to urban planning is required. A fresh, people-centric guideline is required.

Keywords: Sustainable, social, urban, forms

1. Introduction

Urbanization is a rapidly growing phenomenon in Pakistan, leading to numerous challenges in the country's urban forms. Pakistan has one of the highest population growth rates in the world, resulting in immense pressure on urban infrastructure and resources, limited availability of housing and increased slum areas, overburdened healthcare and education systems. In recent years, there has been an increasing recognition of the importance of social capital in shaping urban forms and their development. Assessing social capital helps identify the level of trust, connections, and cooperation among individuals, leading to stronger community bonds and enhanced social cohesion, strong community ties foster a sense of belonging and shared responsibility. Understanding the role of social capital in urban areas is crucial as it has a significant impact on various aspects of urban life, including governance, economic development, and overall well-being of the residents. Pakistan, with its rapidly growing urban population, faces numerous challenges in urban development and planning. As cities expand, it becomes essential to assess and evaluate the level of social capital in different urban forms, such as neighborhoods, communities, and districts. This assessment can provide valuable insights into the social dynamics and strengths of urban areas, ultimately guiding policymakers and stakeholders towards more sustainable and inclusive urban development strategies.

In Lahore, the urbanization over the last few decades may be related to the targeted development of the city as an educational, professional and social hub. Making promises of a successful life to all those who pass the gates of Lahore, as well as being known as a cultural hub of Pakistan, has led to a predictable yet unprecedented increase in the populace (Bhatti, S. H.,2021). The social fabric of this city has transformed. It is, for housing this vast surge, as well as keeping the image of Lahore as a city evolving with the times, that the urban and architectural development has been hasty in some measures. Each new housing scheme aims to be more technologically, structurally and logistically advanced than its predecessor. Instead of connecting this city further, it has been isolated into individual packets, where even these packets are not developed with the idea of social capital in mind. In a sense, the residents of Lahore have been driven further apart than was the case at the inception of Pakistan.

2. What is Urban form?

The term "form" refers to what is directly perceived by the senses. The concept of form denotes the presence of anything that sets it apart from other subjects. The philosophical essence of something that is positioned opposite casual aspects is called form. The urban form refers to the physical patterns, layouts, and structures that make up an urban core(P. Sharma & Gupta,2020).

It can simply be used to define an urban area's physical qualities, suggesting a collection of aspects or traits connected to land use patterns, transportation systems, and urban planning. Lynch defined urban form as “ the spatial pattern of the large, inert, permanent physical objects of the city”. Non-physical characteristics are also included in certain definitions. Size, shape, scale, density, land uses, building kinds, street patterns, urban block layout, and green space distribution are all characteristics that are commonly addressed.

Different scientists and socialists enacted different definitions and concepts related to the morphology or form of the urban area. According to Lynch, there are six distinct aspects of urban form, which are as follows:

- Physical form
- Use/ activities/ movement
- Control
- Perception
- Continuity/change
- Movement or flow of material and information



3. Approaches for urban form

Based on the analysis of different researchers about urban morphology the urban form can be divided into four major approaches. These approaches are as follows:

- The spatial analytical approach
- The configurational approach
- Process typological
- Historio- geographical

a. The spatial analytical approach:

The work of Michael Batty and the Centre for Advanced Spatial Analysis at University College London epitomizes the spatial analytical method. Batty uses a variety of methods and models, such as GIS, cellular automata, agent-based models, and geometric, to study the spatial structure and dynamics of cities as complex, emergent phenomena in which pattern emerges from local

activities. Batty views the city as a challenge of organized complexity, which he attempts to solve using the notions of emergence and evolution. Batty's models, which he cites, are declared to have a shaky relationship with the magnitude of the phenomenon being modelled (Kropf, 2009).

The concept of a 'neighborhood' is crucial to the multicellular automaton's functioning as a model, but it is defined explicitly in terms of the model's structure rather than the phenomena it models. What's more, there's some uncertainty in what's represented when it comes to 'shape' and 'usage.' Much of the research referenced by Batty is concerned with land use and land cover, expansion, and division, as well as the diffusion or migration of resident populations as a result of a variety of circumstances. According to Batty, the models are designed to "reduce the processes of city expansion to their bare elements, and therefore to unveil the core mechanisms at action," rather than to provide precise or predicted explanations (Kropf, 2009).

b. The configurational approach:

Space syntax is a configurational approach to urban morphology that uses a variety of analytical tools to comprehend the spatial structure of communities. The link between spatial structure and the general function of mobility is the conceptual underpinning of the method at the level of towns. (Hillier, 2007)

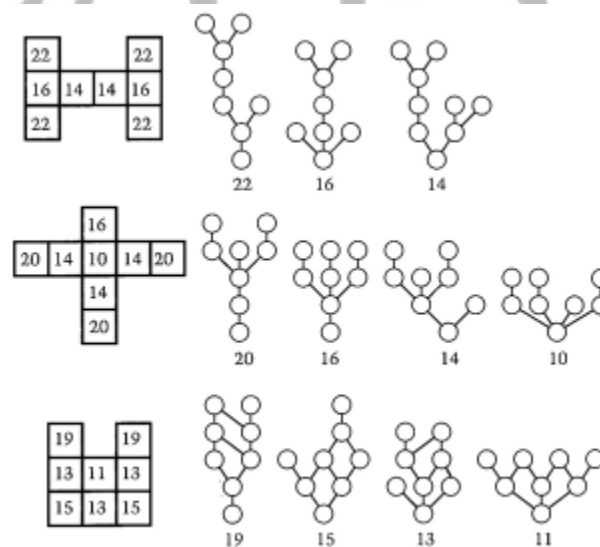


Figure 1: Examples of j-graphs, which illustrate the abstract connections and relative positions of a spatial configuration

Source: (Hillier, 1996)

Movement is the primary correlate of spatial configuration. This is true both in terms of determining urban morphology, in which movement mainly influences how space in the city is configured and in terms of spatial style's impacts, in which mobility is mostly regulated by spatial configuration (Hillier, 1996).

According to Hillier the urban form is the arrangement of the arrangement of spaces with explicit regard to the position of any given space within the structure of the configuration as a whole and is referred to as 'spatial form.' The solid that defines the space or emptiness must be implied or assumed in this expression. The many analytical tools used within the space syntax describe hard and empty structures in various ways. The solid is not represented in more abstract approaches such as j-graphs (Kropf, 2009). However, the solid must still be considered to define the vacuum for the research to sound right. The solids are explicitly drawn, or at least used to construct the axial and convex maps, in the case of axial and convex space mapping, and correspond to street-blocks.

It's vital to remember that axial and convex space mapping are meant to depict what a human can see in a given space. As a result, the method implicitly considers the relationship between humans and their physical shape. Space syntax includes the following features in addition to the ones listed above:

- Use/ occupation/ movement
- Perception
- Space / physical form (Kropf, 2009)

c. The process typological approach:

The process typological approach to urban morphology is based on the work of Saverio Muratori, an Italian architect, but is best represented by the work of Gianfranco Caniggia, an architect and urbanist who studied under Muratori. The method they devised aims to inform their architectural and urban proposals with a thorough grasp of the built environment, as well as the historical process that led to its construction. This schema is first applied to specific buildings, using bricks, timbers, tiles, and other building materials as elements. The associations of building materials within objects like walls, internal floors, and roofs form the structures of elements. The organism is the building, and the systems of structures are the divisions of the latter into rooms, staircases, and corridors. A similar technique is used in cities, with buildings serving as elements (Kropf, 2009).

Caniggia and Maffei refer to the functions of various types of forms at various levels in the hierarchy throughout their books. While diverse local processes lead to different shapes, the derivation process has a generic resemblance. The form of a building is based on an idea or concept generated from the common experience of prior buildings or alterations of them at the time of construction. According to Caniggia and Maffei the urban form can be divided into the following distinct forms.

- Physical form
- Use of Function
- The idea of building and form
- The method of construction

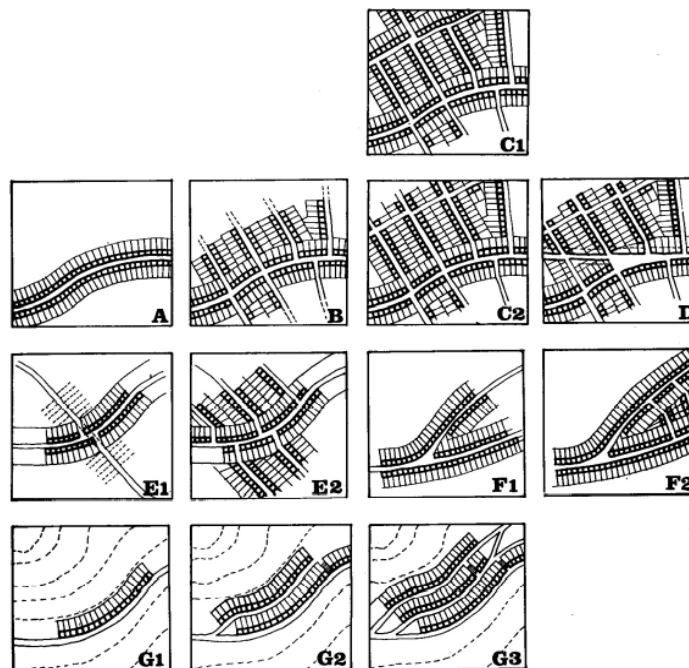


Figure 2 The formation of urban tissue or aggregates in different generalized situations

Source: (Caniggia and Maffei, 2001)

d. The historio-geographical approach:

This concept was developed by a geographer M. R. G. Conzen. The major purpose was to describe the spatial structure and character of towns by examining their fundamental elements and their evolution across time. He described five aspects of urban form:

- Site
- Function

- Townscape
- Social and economic context
- Development

The townscape was further divided into three complexes such as

- Town plan
- Land utilization pattern
- Building fabric (Kropf, 2009)

The town plan was further divided into street system, plot pattern and building pattern.

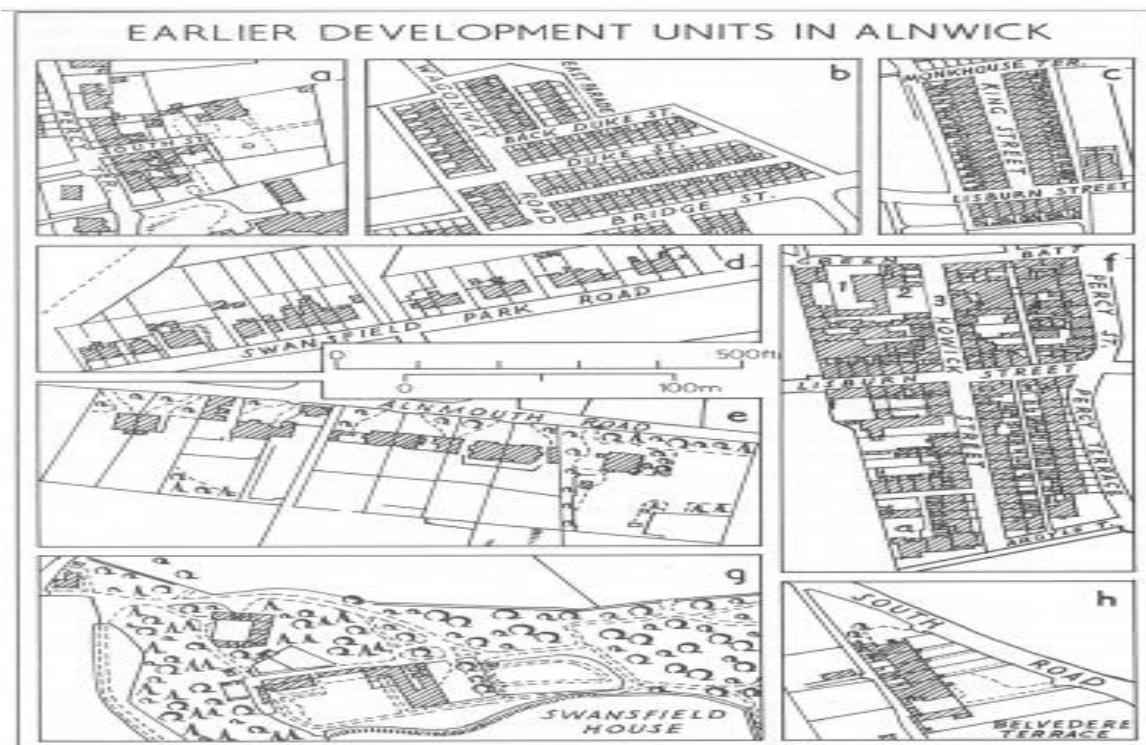


Figure 3: Plan Units Alnwick, Northumberland

Source: (Conzen, 1969)

4. Urban Form in Europe (Bosnia and Herzegovina):

At the turn of the twentieth century, a serious socialism dilemma led to the downfall of the SFRJ's whole national structure. The major problem, in the shape of unsustainable economic systems, had moved to the realm of political and religious animosity, resulting in violent conflict in the 1992–95 period due to the high intensity of the activity and the impossibility of resolving accumulated difficulties by peaceful methods. During this time, in the Balkans and Bosnia and Herzegovina, an

evolutionary process of social growth gave way to revolutionary supremacy, changing the kinetics of numerous processes and policy options (Brankica, 2012). A careful study of Banjulaka was carried out to find out the patterns of urban form in Bosnia and Herzegovina.

Banjulaka:

- Urban development from 1945 -1969:

Following World War 2, a period of stagnation and devastation of the urban form began, followed by a period of communist construction. The new era of urban development is marked by architecture and urbanism that can be analyzed through the lens of established policies and procedures in the former Yugoslavia at the time but taking into account the unique characteristics of Banjaluka. The tremendous influence of industry on urban development began with the major goal of political decisions in the former Yugoslavia. In most towns, the changes were obvious in the shape of new factories on the outskirts of urban centres. Banja Luka was the birthplace of the chemical, metal, electronic, and food industries. The development of new towns thereafter proceeded (Milojević, 2013)

The earliest documentation demonstrating urban planning was recorded after 1945. Engineer Anatol Kirjakov prepared a "General Urban Plan" in 1952, but it was never accepted. Then, in 1967/68, the "Program for General Urban Plan of Banjaluka" was created, which came before the "Urban Plan" of 1975-1995 (Brankica, 2012).

- Urban development 1969-1992:

The morphological form of the latter period was defined by the results of the urban form destruction and intensive urban building that followed the terrible earthquake that struck Banjaluka in October 1969. Due to the sheer bad conditions following the earthquake, many important structures that contributed to the city's identity had to be demolished. They are gone, as well as having lost their spirit and memory as a result of the construction of new buildings, which marked the beginning of a new urban morphological stage. Following the earthquake, new apartment colonies were developed, resulting in the formation of a new urban figure (Milojević, 2013).



Figure 4: Transformation of Downtown after earthquake

Source: (Milojević, 2013)

- Urban development during transitional period (1992-today):

Trebinje, like other towns in Bosnia and Herzegovina, has been developing under transitional conditions since 1992. The flats were constructed in the town centre (Bregovi area) and on the periphery. The construction in the southern and western parts of the nuclear urban area goes against the historical orientation of the town's agricultural region is protected. Trebinje's political importance in the RS prompted the establishment of new public institutions. New commercial premises for "Elektroprivreda RS" were built in the centre of Trebinje, on the western border of the town park, in 2002. A customs agency was established nearby, and the abandoned buildings of the southern military camp began the process of conversion to change their function. During this era, religious buildings were constructed which proved to be a great source of religious tourism(Milojević, 2013).

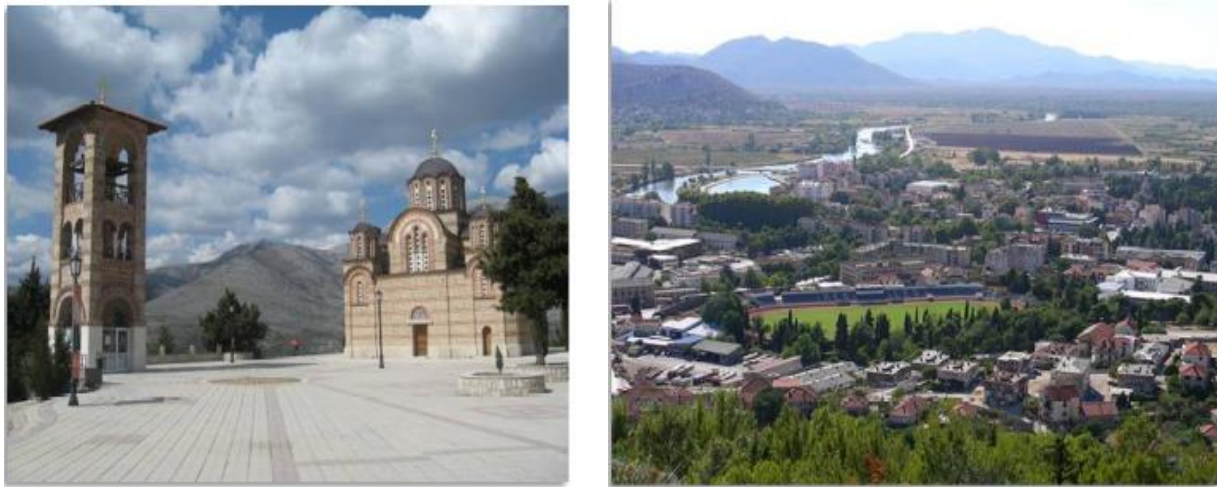


Figure 5: Church near urban area

Urban Form in North America:

The industrial revolution and related advances in agriculture, transportation, manufacturing, and telecommunications accompanied or spurred modern urban/suburban developments in North America. With smoke and grime from factory chimneys and wastelands of railyards, brownfields, and obstructed waterfronts, the industrial energy of the 19th and early 20th centuries drove urban growth and changed the landscape of downtowns. Extensions were made to public health and safety measures, as well as new concepts for rethinking the geographical and socioeconomic distribution of urban functions. Since the 1960s, the middle and upper middle classes have been moving to the suburbs, and suburban sprawl has dictated the development patterns of the North American built environment (Kashef & El-Shafie, 2020).

The urban form in the United States took place in three phases. The first phase is called assembly or integration of city components. The second phase is called fragmentation or disassembly of the cities and the present phase is called as reassembly period.

Assembly phase:

This phenomenon existed for almost a thousand years, during which the mediaeval city gave way to the renaissance order, and then to baroque spatial ambitions, which enlarged urban functions and developed a diversified network of highways, parks, and public spaces. The urban phenomena are known today as traditional cities are the outcome of the medieval, renaissance and baroque hodgepodge. The assembly phase discussion also alluded to the influence of industrialization on cities in 19th and early 20th century Europe and America (Kashef & El-Shafie, 2020).

During medieval the statement “City air makes one free” was used for the creation of social and political formations which are still visible in modern infrastructure. Medieval cities assumed many different forms and, unlike classical cultures, did not tend to construct formal models. They were able to adapt freely to the geographical, economic, and social conditions that influenced the evolution of their physical shapes.



(a) Late Medieval City, 12th

(b) Renaissance City, 15th

(c) Baroque Plan in D.C., 1792

Source: (Kashef & El-Shafie, 2020)

In early medieval European towns, the public and private realms were coordinated through intermediary entities such as professional guilds, vocational groups, and religious institutions, despite the socioeconomic hardships of the aristocracy. Passageways, alleys, and courtyards all played an important role in the group dynamics of the urban community.

Renaissance architects strove to impose a formal classical order on mediaeval cities' organic polymer. Simple geometric and elegant shapes were preferred by Alberti, Palladio, Bramante, and other Renaissance architects–planners (15th century). Thus, the thick mediaeval urban maze was physically constructed out of vast plazas and straight roads with symmetrical compositions and strong axes. The cramped mediaeval urban fabric was not completely eradicated by Renaissance planners, who instead juxtaposed massive squares and straight roadways with the old irregular streets.

For the medieval–renaissance mush, Baroque planning aimed to build an organised design structure (Fig. c). The goal was to establish a mobility system that would bind the city's most important elements together and improve the city's overall visual order (Kashef & El-Shafie, 2020).

Disassembly Phase:

The modern method to realizing new urban ideals was diametrically opposed to its forerunners. Modern planners seek to eschew historical cities in favor of a "Clean Slate" approach. Congestion, pollution, and declining housing conditions in nineteenth-century cities fueled modern utopian fantasies that sought to separate or detangle planned new projects from existing cities¹. Such discoveries heralded the start of a new age in city construction, named the "Disassembly phase". In the last two decades of the nineteenth century, the creation of the safety elevator and the steel frame freed limits on building heights, prompting architects to consider the tower as a preferable form of urban development. Le Corbusier, in particular, sought to deconstruct all types of pre-modern urbanism. He proposed that congested metropolitan areas be demolished and replaced with soaring structures mixed with mega motorways and vast swaths of green space. Le Corbusier imagined a city with millions of people living in towers that took up less than 5% of the area. His urban vision was largely responsible for the "tower in a park" concept that now pervades modern cities, demonstrating his enormous effect on modern architecture and planning (Kashef & El-Shafie, 2020).

The vehicle began to supplant other modes of transportation around 1885 when the first high-speed internal combustion engine was built. Automobiles had become the uncontested form of urban mobility in North America by the 1960s. The inaugural National Conference on City Planning in Washington, D.C., in 1909, called for the transformation of highways to cope with the increased speed of motor travel. The Conference recommended communities to construct motorways that would allow traffic to bypass the city core, allowing for the development of industrial and commercial space on the outskirts. During the first three decades of the twentieth century, New York built a number of limited-access roadways (Kashef & El-Shafie, 2020).



Figure 6: Cars and highways of 1950-1960, and urban decentralization

Source; (Kashef & El-Shafie, 2020)

Reassembly phase:

His period coincided with a major movement in western thought and culture from "modernism" to "postmodernism," which sparked tensions and endless arguments in a wide range of fields, including philosophy, social and political sciences, economics, arts, architecture, and planning.

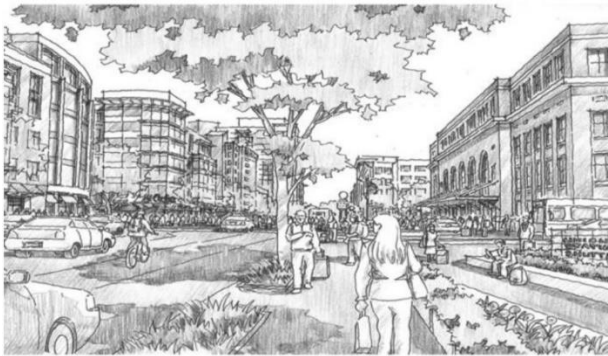
According to Wellmer modernism's dominant themes, forms, and modes of thought were ruptured, broken, or separated from postmodernism's dominant themes, forms, and modes of thought. He claimed that postmodernism arose from a belief that modernity's uniting principles had been "torn to smithereens." The progressive confidence in science and reason as a foundation for human emancipation and progress was challenged by postmodernists(Kashef & El-Shafie, 2020).

The new urbanism form:

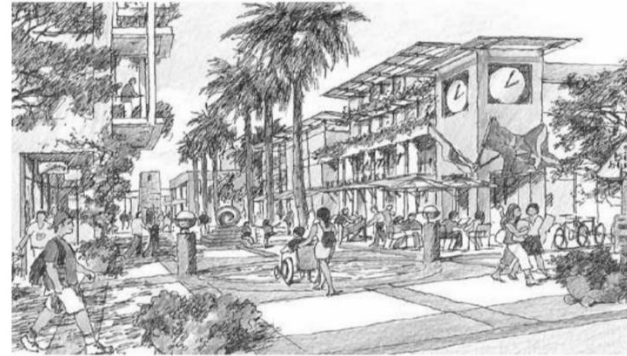
Modernist urban form and land use laws, according to New Urbanism proponents, reinforce inequality and present intractable challenges for low-income people. Low-income populations were successfully isolated in inner city regions without meaningful job opportunities or affordable means of transportation to connect them with suburban employment as employment sources relocated to suburban places that often lacked cheap housing. Modernist urban networks, according to the New Urbanists, also undercut the social and cultural roles that children, teenagers, and the elderly could perform. These groups' mobility is hampered by the lack of access to private automobiles, which inhibits them from participating in productive and culturally valuable urban activities.

The goal of New Urbanism is to reassemble the disjointed, sprawling, and/or fractured city into interconnected compact villages with land uses and high densities. The resulting spatial and architectural arrangements would use less land and natural resources, maintain the environment, reduce automotive reliance, stimulate walking and biking, and support public transportation.ⁱⁱ

With their inventive visions and new approaches that challenge standard practice, the New Urbanism philosophies energized the planning and design sectors. They reintroduced conventional spatial and urban vocabulary into the design and planning literature in full force. Real-world developments in North America and elsewhere began to internalize the New Urbanism ideas and mark a transition to the reassembly phase in urban planning, albeit on a small scale and with limited reach (Kashef & El-Shafie, 2020).



(a) Community Plan Rendering, City of New Haven, Connecticut (<https://www.goodyclancy.com/projects>)



(b) Rendering of a proposed Activity Center in Santa Monica by LUCE (www.santamonicanext.org/2015)

Source: (Kashef & El-Shafie, 2020)

Urban form in South America:

South America is one of the world's most urbanized continents, with about 84 per cent of the population living in cities, higher than both North America (82 percent) and Europe (82 percent) (73 percent). Most Latin American cities have little knowledge of spatial dynamics, their structure, key features, land consumption rates, spatial layout, disintegration levels, and comparison (Inostroza, Baur, & Csaplovics, 2013).

Macroeconomists have widely characterized the South American continent's development trajectory in the 1980s particularly in light of the financial meltdown and the ensuing burdensome structural adjustment programs. Nonetheless, the region may have experienced a second, albeit less noticeable setback in the 1990s, from which it has just recently attempted to recover. While many South American countries experienced rapid socioeconomic, technological, and regulatory change, with often huge ramifications for cities and metropolitan areas, there was a surprising lack of a solid and transparent institutional and legal framework to guide transitions in South American urban and metropolitan areas in an environmentally friendly approach (Burdett, 2008).

Globalization and its associated forces appear to be transforming the structure of major Latin American cities like Buenos Aires, Lima, Sao Paulo, and Mexico City into a polycentric form, with much of the growth occurring outside of the urban perimeter, in smaller towns and secondary cities within larger metropolitan regions. As a result, there appears to be deconcentrating of population and economic activities in Latin American cities.

Urban Form in India:

There were common laws concerning city form in India in the past, such as the presence of a consolidated and uniform generality, conformity to nature and living environment, conformity of

residential units and urban elements, observing artistic and aesthetic considerations, and finally observing hierarchy.(S. N. Sharma, 2014)

The urban form has changed dramatically in recent years, with no regard for prior laws and restrictions. These changes have had an impact on the relationships between mass and space, city form and natural environment, culture and social interactions, and have shattered prior city linkages and identities. As in the field of urban planning, the brainpower of a group of scholars has resulted in the development of some techniques that focus on the impact of culture and its different forms on city shape. Understanding philosophical ideas, norms, and regulations, as well as the design process and its implications, will be extremely useful in influencing the city's shape in a positive way (S. N. Sharma, 2014).

According to the Ministry of Urban Development (MOUD), roughly 377 million Indians live in built-up urban areas, out of a total population of 1210.2 million in 2011. In the last decade, the population of inner-city neighbourhoods has increased by around 91 million people. The proportion of people living in towns to the total population of the country is only 31.6 percent. Between 2001 and 2011, the proportion of India's population living in cities increased by 3.4 percent. According to the preliminary results of the "Indian Census 2011," there has been an increase of 2774 towns during the decade, with 242 constitutional and 2532 ballot towns. The population growth rate in urban areas was roughly 32% (P. Sharma & Gupta).

Factors Affecting Urbanization in India:

Economy	Society	Nature
<ul style="list-style-type: none"> • Type of livelihood • Per Capita Income • Work Power • Management • Government Policies • Sources • Profits 	<ul style="list-style-type: none"> • Chronological and Historical Background • Science and Art • Creation of the universe and a set of ideas • Technology and Knowledge • Mentality • Population • Language and Race 	<ul style="list-style-type: none"> • Geographical Location • Topography • Ecological and Climatic Features • Flora and Fauna • Water • Rain • Soil

Urban Form of Nagpur City:

Nagpur has a 300-year history, and its urban growth grew out of the ancient core. The method of Alain Bertaud for examining a city's spatial organization is used to determine whether Nagpur has a monocentric, polycentric, or composite model. The spatial organization of a city is defined here as the combination of two patterns: (i) the spatial pattern of population distribution within the city's built-up region when people are at home, and (ii) the sequence of mobility people make around the city throughout the day. Therefore, the conceptual model for Nagpur city is found to be a composite model, a mono—polycentric model with a dominant center and several sub-centers, after projecting the 2 trends, demographic structure and people movement pattern (Kotharkar, Bahadure, & Sarada, 2014).

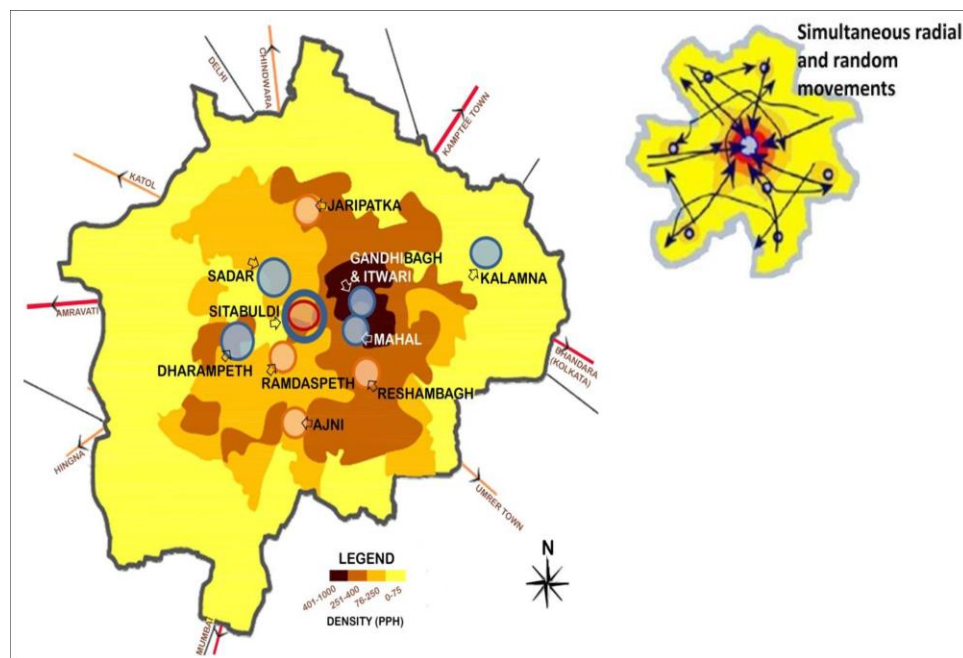


Figure 7: Nagpur's composite model of spatial organization: Density Distribution; Traffic movements; Sub-Centers and Sitabuldi area as CG.

Source: (Kotharkar et al., 2014)

According to the Nagpur Development Plan 2000–2011, only 8340 hectares (38 percent) of the total area accessible within the Municipal Corporation limits was notified for development. Another 38% of the area was dedicated to agricultural and forest cover, while 4% was dedicated to nallahs (rivulets) and water bodies. The land use distribution of developed area (as recommended in the Development Plan) corresponds to the standards in the case of home usage,

according to the Urban Development Plans Formulation and Implementation (UDPFI) guidelines. Much of the agricultural green belt is currently being encroached on and developed as built-up residential sprawl. The city has a lot of agricultural land, forest cover, and institutional open spaces, which helps to make up for the lack of parkland (Kotharkar et al., 2014).

Urban form in Middle East countries:

Middle East countries are mostly Islamic countries. So they have a glimpse of Islamic values in their urban form. The expression of Islamic architecture is not based on formal instructions but it varied from time to time and from region to region(Bianca, Orts-, & Landesplanung, 2000).

The Middle East is undergoing significant economic and social transformations. Although the processes in each country differ in detail, they can nonetheless be grouped as an industrial and urban revolutions. The economic and social repercussions, on the other hand, are simply a stage in a much larger evolution that societies go through, from a preindustrial and pre-urban nature to a largely urban, industrial economy-based nature (Roberts, 2020).

This process consists of three phases, each having concurrent elements of industrial sophistication and urban expansion. When it is realized that industrialization is part of a process of specialization of human influence, the tight linkages between the two may be recognized. Individual or group commercial sectors become supportive of one another over a period throughout this mechanism. These three stages of the urban revolution are described in the following table.

Table 1: Status of Society

Industrial Status of the Society	Urban Status of the Society
Preindustrial	Pre urban
Transition	Transition
Labour oriented industry	Partially urban society
Transition (Industrial revolution)	Transition (Urban Revolution)
Capital oriented industry	Predominated urban society

Source: (Roberts, 2020)

Changes in Urban Form in Saudi Arabia:

Saudi Arabia's rapid and global urbanization has resulted in significant changes in many aspects of villages, towns, and cities. However, the approaches of city planning and architectural design used to deal with these pressures were commonly adopted without careful thought for the character of their origins, as well as the reality that they were tied to various social and economic situations.

The fall, alteration, and rise of architectural and urban patterns are well-documented phenomena that are part of the cultural and societal shifts spreading Saudi Arabia. Some adjustments in traditional towns were required to accommodate economic and technological improvements, particularly those related to housing constraints caused by fast population expansion and migration from rural to urban regions (Saleh, 2001).

The Southwest region of Saudi Arabia consists of four geographical zones, the mountainous Tihamah zone, the Sar'at (cliff) which runs north-south and a mountainous transitional zone leading into the central Arabian plateau. This section will explain the changes in urban form in the southwest region of Saudi Arabia.



Figure 8: Southwest Region of Saudi Arabia

Source: (Saleh, 2001)

The changes in urban form in this region occur in different phases which are discussed below.

- The decline of vernacular architecture and urban forms:

The decline of traditional architecture and urban form in the southwest region is visible through the remains of old buildings present in the town and villages of these areas. The socioeconomic condition could be one of the reasons behind this decline. Technical faults are also one of the main causes of this decline. Other elements can be linked to change's quickness and speed. Internal and external forces resulting from major population movements, financial influx, and property investment may have just transpired too quickly to allow for the smooth creation of an effective

new system of development restrictions. Likewise, political and economic influences from outside the region are largely to blame for the demise of vernacular architectural qualities in the area (Saleh, 2001).



Figure 9: A deteriorated buildings in an abandoned village

Source: (Saleh, 2001)

- The rise of new urban form

Each town in southwest Saudi Arabia is a unique and intricate combination of urban and architectural environments, expressing people's detachment and connections, seclusion, migrations, and occupations. In this era of the rise of new urban form the master builders and accessible building materials restricted and controlled indigenous construction methods and designs. Building form and spatial order were developed in a highly congruent way and representative of native occupants' cultural identity, and the built form of villages, the use of building materials, building techniques, and architectural features were developed in line with citizens' practices and traditions, as well as their need to respond to local environmental conditions, particularly climate and social structure, largely as a result of this system (Saleh, 2001).



Figure 10: Expansion of Urban Development near the traditional village

Source: (Saleh, 2001)

A survey was conducted in the southwest region in 1970 to collect information about the resources and problems of this region. This survey revealed the shortage of housing for the inhabitants of traditional villages. As a source for economic development, modern town planning and international style movements led to the creation of master plans and buildings for Saudi villages, towns, and cities by foreign consultants and architects. These plans also established other zones near these towns. These zones consist of governmental sectors, industrial sectors, and protected areas near beaches, woodlands and parks (Saleh, 2001).



Figure 11: Integration between new urban development and traditional landscape

Source: (Saleh, 2001)

This era also brought some changes in the method of constructing houses at an individual level. Now the residents are bound to take prior permission from the planning department before

constructing their houses. Funds were developed to provide loans to the people for the construction of houses.

- The rise of order

The dissemination of ordered rules and regulations, which allow for the equitable and logical development of the property to benefit the largest public goods, is one of the primary tools of professional planning and design. People whose sense of legitimate authority is based on tribe and familial membership, on the other hand, resent such limits and see any plan or building regulation as an unjustified intrusion on their right to private property usage (Saleh, 2001).

Due to the overwhelming chaos and difficulty in enforcing building and land use rules in southwest Saudi Arabia today, the institutions charged with ensuring public safety and security have been hesitant to utilize their legal authority. In the absence of supportive institutions, municipal authorities, judges, and magistrates have also been reticent to launch criminal or judicial actions. Even when infractions have been identified, legal action has been largely ineffective (Morris, 2013).

Recently, certain attempts have been done to address the enforcement aspects of the aforementioned issues. Newer regulation has been relatively successful in correcting prior gaps caused by the adaptation of innovative building designs and techniques by tighter control over building permits, architectural aesthetics, and land parcelization. The best solution for the problems of conflict between modern and traditional urban forms is the integration of these two forms with one another. Some attempts have been made to integrate old buildings with new ones (Saleh, 2001).



Figure 12: Integration of New building with the old one

Source: (Saleh, 2001).

5. Pakistan and Its Urban Form

Pakistan's urban population accounts for roughly two-fifths of the country's total. Karachi, the capital of Sindh province (and the country until 1959), and Lahore, the capital of Punjab, have a dominant position. Government policy has aimed to disperse industry, which had grown strongly concentrated in Karachi, since the 1960s. As a result, urbanization has been more evenly distributed throughout a number of cities. Karachi remains the main port and commercial and industrial hub.

In Pakistan, the urban population is growing. It was more than 32% in the 1998 census. Squatter communities have sprung up in the centre of major cities as a result of a widening mismatch between demand and supply for housing. In 1998, 32.5 percent of the population lived in cities, compared to 28.3 percent in 1981 and 17.8 percent in 1951. At the same time, the present population is growing, necessitating new homes. The severe option of unlawfully taking a vacant piece of land to build a primitive shelter is the only option available to people who choose to live in huge cities with limited financial resources.

Capital of Punjab (Lahore):

Lahore is the capital of Punjab province and Pakistan's second largest metropolitan area. Various historical sites, buildings, and gardens may be found around the city. The city grew as a hub of commerce and trade in the region throughout the Mughal era (1524–1752) and British colonial control. From 1999 to 2011, the built-up area nearly doubled, and it is anticipated to increase at a similar or even faster rate in the future, putting further strain on the city administration to manage infrastructure and squatter settlements (Rana & Bhatti, 2018).



Figure 13: Location of Lahore in Punjab Province

Due to persistent urbanisation, expanding socio-economic inequities, and the lack of urban regeneration strategies, Lahore is experiencing significant challenges. City management competence is ineffective in dealing with these difficulties. Urbanization adds to the strain on already overburdened urban infrastructure. Despite the rash conversion of hectares of agricultural land to residential zones, the housing backlog continues to grow. The socio-economic inequities that the British created in the twentieth century by building settlements for lords and commoners are widening (Aziz, Ahmad, Mayo, Hameed, & Nadeem, 2015).

History of Lahore:

Lahore is a historically significant city. It has a 1,000-year history that has been documented. The city's history dates back to the year 990 A.D. It is mentioned in papers from the second century A.D. as well as Hindu mythology from the pre-Christian era. This territory has been ruled over by people of several religions, including Hindus, Sikhs, and Christians. As a result, throughout history, the evolution of Lahore city has been marked by a distinct culture and origin. The Turko Persian character, on the other hand, left lasting and overwhelming effects on this city. It has been a significant center for controlling the nearby region, and it has remained the heart of northwestern India in one manner or another.

People of different religions, such as Disbelievers, Hindus, Muslims, Sikhs, and the British, created buildings that reflected their religion, culture, and economy. According to tradition, the Hindu prince Loh, son of Rama and hero of the Hindu epic Ramayana, built Lahore. The subterranean Temple in the northern part of Lahore Fort, and a diary of its ancient past attributed to Rama, serve as proof. Religions such as Hinduism, Sikhism, and Islam built an architecture that symbolized their faith in addition to secular structures such as palaces, bridges, and forts (Kabir, 2017).

The following sections will discuss the historical changes in the urban form of Lahore in different eras.



Figure 14: Tomb of Malik Ayyaz built in 1040

Urban Form in Hindu Period:

Hindu temple architecture consisted of a single room with a modest entranceway connected, supported by one or two pairs of columns. The classical temple included numerous columned halls, tanks, and courtyards with massive gateway towers to display the temple's wealth and might. The Temple's entrances were square-headed, with corbelled brackets at the corners, which continued above in the shape of a pyramidal-type roof. The ornamentation of the temples' supporting columns received a lot of attention, and competent masons used a lot of inventiveness in the multiplication and outlining of the outside walls.

Urban Form during Muslim Period:

Sultan Mahmud of Ghazni seized the city in the 11th century. After a long siege, he burned and devastated the city. Then, in 1021, he chose Malik Ayaz, his slave, as the first Muslim governor of Lahore. Ayaz renovated and repopulated the city before turning it into the capital of the Indian Ghaznavid Empire. During his reign, the city grew into a major cultural and scholarly centre in northwestern India. He built a fort and added city gates to Lahore between 1037 and 1040.

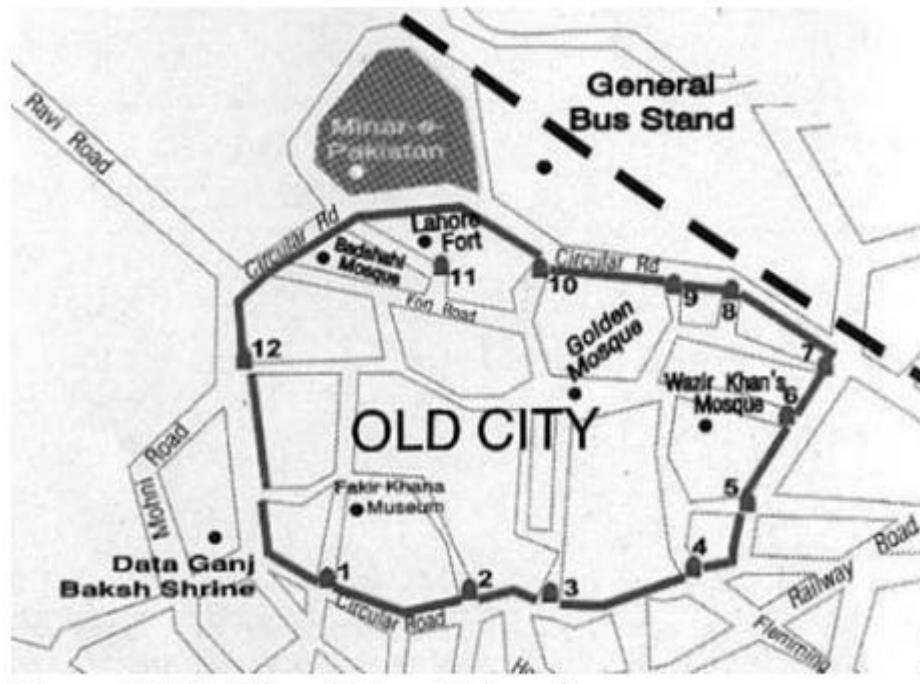


Figure 15: Walled City Lahore

Urban Form During Sultanate period:

For nearly 150 years, the Ghaznavids had been popular and tolerant rulers. Shahab ud Din Muhammad of Ghor took control of the city in 1186, after destroying and conquering Lahore and then seizing Delhi. When he returned to Ghor, he appointed Qutb-ud-Din-Aibak as the region's governor. In 1206 Sultan Qutb ud Din Aibak became the first Muslim King of South Asia (Latif, 1892). Lahore was dubbed the "Ghazni of India" during his reign. Following the fall of the Ghaznavid Empire, Lahore was ruled by a series of Turk dynasties known as the "Delhi Sultanate," which included the Khiljis, Tughlaqs, Sayyids, Lodhis, and Suris, until 1524, when it was annexed by India's Mughal Empire.

Urban Form during Mughal Period:

The Mughals have had an indelible impact on Lahore's art and culture, more so than any other dynasty. They almost made Lahore the second capital of India during their nearly two-century rule (185 years). Lahore was characterized as a large and bustling city with bazaars full of rich items by a traveller from Europe in the seventeenth century. Lahore's principal distinction as a heritage city comes from Mughal architectural structures. Mughal structures have a unified construction and character. They are distinguished by their symmetry, proportion, and balance. Their structures had stunning geometrical patterns. The gardens were designed in the style of Chahar Bagh. Bulbous domes (single and double), slender minarets and cupolas at the four corners, vast central

hall, gigantic vaulted gates, arched crenellation, and kiosks with chatris are all Mughal architectural characteristics (cupolas).

In 1526, Babur, the first Mughal Emperor, took Lahore. Later, under the reign of Akbar (1556-1605), the 3rd Mughal Emperor, Lahore served as India's capital for 14 years, from 1584 to 1598. The famed Masjidi Gate, located directly across from the Lahore Fort's eastern gate, was built in 1566 A.D. Emperor Jahangir, his successor, was fond of this city and held courts here. His and Empress Noor Jahan's mausoleum is located on the northwest outskirts of Lahore.

He is also known for building Hiran Minar, a hunting resort on the outskirts of Lahore. Shah Jahan, who was born in Lahore, was the next heir. In 1642, he constructed the famous Shalimar Garden. He was known as the "Great Builder" among the Mughal Emperors. Lahore was transformed into a royal residence where Mughal emperors spent part of each year. Lahore has acquired many Mughal architectural treasures as a result of its royal connections. The construction of mosques, tombs, gardens, palaces, royal courts, caravan-sarais, hammams, city walls, and havelis (royal homes) was among Jahangir and Shah Jahan's architectural contributions. Mughal not only left the city with a long architectural legacy but also laid the foundations for its social order.

Urban form during Sikh Period:

With the loss of Mughal rule, Lahore's population and riches dropped as well. Rangit Singh, a powerful and aggressive warrior, ravaged Mughal Lahore during the reign of Aurangzeb, when battles in the Deccan had moved the Mughal emperor's focus to the south dominions. He united the numerous Sikh bands and became the Emperor of Punjab after the capture of Lahore. His capital was moved from Gujranwala to Lahore. For nearly fifty years, from 1799 to 1846, Lahore recovered under the patronage of Ranjit Singh and his successors. The predominant elements in Sikh-controlled Punjab are a mix of Hindu and Muslim styles. A hemispherical dome (three-quarters of a sphere) is the crowning feature of a Gurdawara, which is fluted or ribbed and sometimes plain.

Urban Form during British Colonial Era:

After Ranjit Singh's death, his successors were unable to contend with the British force. So, almost a century later, in 1849, the Punjab province was annexed by British India. Lahore was once again home to the provincial and military headquarters. As a result, this country saw a period of western influence. The British built the railway station and adjacent buildings, law courts, town hall, museum, telegraph and post offices, banks, and health and educational buildings shortly after the

takeover to establish their institutional hold over the city. They also established a new town for themselves, called "Donald Town," to the south and southeast of the walled city.

Lahore, the capital city of Mughal emperor Akbar and the heart of the Sikh Kingdom, was transformed with a dual-faced identity at the end of the British administration. The old city was on one hand, and the colonial extensions of the Cantonment and the Civil Lines were on the other. The disparity was obvious not just in terms of the places' relative cleanliness, but also in terms of the urban structure, house design, shopping habits, living styles, and cultural ethos. The courtyard of Anarkali became the main focus of this colonial metropolis, with the Mall serving as an arterial route to the cantonment.

Following their conquest of this region, the British made some efforts to preserve the historic structures. They even built buildings in the "Indo-European" style in Lahore. The Lahore Cantonment is regarded as one of Pakistan's best cantonments due to its tree-lined broad residential lanes and magnificent white homes set inside huge shady gardens. However, as the capital of Pakistani Punjab since 1947, Lahore has swiftly expanded to the south and east. Because the British had replaced the Mughals as the dominant power in India, inspiration for Indian architecture came from the British Isles; at the same time, Indian architecture became increasingly linked to what was going on in Britain, imitating the Neo-Romanesque, Neoclassical, and Neo-Gothic styles.

The modern urban form of Lahore:

Considering the importance of its geographic location, Lahore, formerly known as "the Paris of the East," continues to be a popular tourist destination, particularly in recent years. Lahore is currently divided into three regions: the first is the old Walled City, which has existed for over a thousand years and is bounded by the Circular Road. The second region is the Civil Lines, a part of Lahore built by the British, and the third region is the extended Lahore, which includes various new schemes such as "EME Colony, Bahria Town, Defence Housing Authorities, The Greens, Valancia Town," and several other areas developed after the subcontinent's partition.

Muhallas and Kuchas in Lahore:

Lahore is one of the oldest cities in Punjab with a rapidly growing population. With time, the city's population grew. It had 36 Guzargahain at its peak, nine inside the Akbari wall and 27 in the east, north, and south of Lahore. Maharaja Ranjit Singh afterwards made numerous changes. "He (Maharaja Ranjit Singh) split the city into small areas called Muhallahs and Kuchahs, and every

locality had a local person as head," it is said about the developments in Lahore during Sikh control. All the artists and craftsmen who had fled Lahore because of the disturbance were summoned and relocated to various Muhallahs." A few prominent Muhallahs' names are included below, along with a description of the type of labour that was done in those days (Khalid, 2018).

- Kuchah Naqarchian (Drummers)
- Kuchah Dhobian (Washer men)
- Kuchah Kaman Garan (Bow Makers)
- Muhallah Naqqashan (Illuminators/Painters)
- Kuchah Darzian (Tailors)
- Kuchah Chabak Sawaran (Horse Breakers/Trainers)
- Kuchah Loharan (Black Smith)

6. Conclusion

In Lahore Development Plan 2021, presented by the Lahore Development Authority, there is a significant focus on creating a 'sustainable living environment'. Although there is a mention of the 'oblivious community' of Lahore, there is no theory or plan on how to tackle that aspect. It describes, in detail, the problem of overpopulation, pollution, unaffordable housing, lack of social services, drainage and waste management systems and how that is affecting the population of Lahore as a whole. There is no mention of how to connect this once close-knit community of Lahore, and how to accommodate these different people that are looking for solace in this city, there is only talk of how to best fit these huge numbers and prevent any inconveniences. Hence, it is important to discuss what mainly drew people to this city, the rich culture and hospitality, and focus on preserving that along with dealing with other issues of overpopulation.

Furthermore, Pakistan's ranking in the United Nations Global Happiness Index has shown a sharp decline, from 66 in 2020 to 105 in 2021. Although CoVID-19 is a detrimental factor this fall, other factors can also be taken into consideration. In 2020, the capital of Sindh province Karachi was ranked as the happiest city of South Asia, at 117, followed by capital of Punjab province Lahore, at 122, this means that the country that was seeing the most development was not the happiest. This could be allocated to both Lahore's problem of overpopulation, lack of job placements, as well as the loss of a once rich community. Sustainable living and well-being are key indicators for happy residents of a city. The research, therefore, seeks to re-introduce the concept of community living, and contribute knowledge on creating a sustainable, livable, socially cohesive city. As a multicultural city, Lahore's population is seeing a booming increase, and as the pressure of this influx increases, a new approach to urban planning is required. A fresh, people-centric guideline is required.

7. References

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