

Credits

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Lahore Growth - Past & Future

Lahore's population statistics published in the Census 2017 have stirred significant cause of concern amongst government officials and other stakeholders. This report discusses the increase in population and area of Lahore. It evaluates changes in

area of urban extents, population growth rates and population density, relating the argument to the census 2017 statistics. It also evaluates migration trends and the concurrent effect of Lahore's growth on its neighbouring cities. Lastly, this report

highlights critical issues that must be addressed to ensure future sustainability of the city and suggests urgent changes in planning and regulations for Lahore and other cities of Punjab.



Population & Area Growth Trends

Table 1.1 shows the population figures published in Census 1998 and Census 2017, disaggregated based on urban and rural areas. Although, the annual population growth rate of urban Lahore is quoted to be 4%, leading to confusion and panic on growth of Lahore, it is crucial to know the definitional categorisation of urban Lahore, which has changed from 1998 to 2017. In

1998, 18% of Lahore's population was categorised as rural and the remaining 82% was categorised as urban. However, in 2017, the entire district of Lahore is considered urban. Hence, an analysis of just the urban population increase is invalid and incorrect. In fact, the intercensal annual population growth rate must be calculated for the same geographic area. As table 1.1

shows, the correct annual population growth rate when calculated for Lahore's entire district's population is 3%. Thus, it is important to be aware that although Lahore's population growth is increasing at a greater rate than the average for all urban areas of Pakistan (2.7%), the annual increase in total urban population of the district is not 4%.



The Urban Unit has marked the temporal urban extents of 50 cities, based on an internationally tested methodology¹. As per this methodology, a python based algorithm was developed to demarcate the extent of contiguous urban development and economic patterns. The respective urban extents define the functional city boundaries and urban areas of the 50 cities including Lahore. Figure 1.1 shows built up area in the Lahore District in 1995, 2005 and 2015 (classified using landsat satellite imagery), while Figure 1.2 shows Lahore's temporal growth of contiguous urban extents over the years 1995, 2005 and 2015. Several settlements defined as peri-urban or rural in 1995 and 2005 have over time become a part of the contiguous urban extent of Lahore. Similarly, the temporal urban extents of Lahore's neighbouring cities are presented in Appendix A.

Legend

- Major Roads
- Builtup Area (1995)
- Builtup Area (1995-2005)
- Builtup Area (2005-2015)
- District Boundary

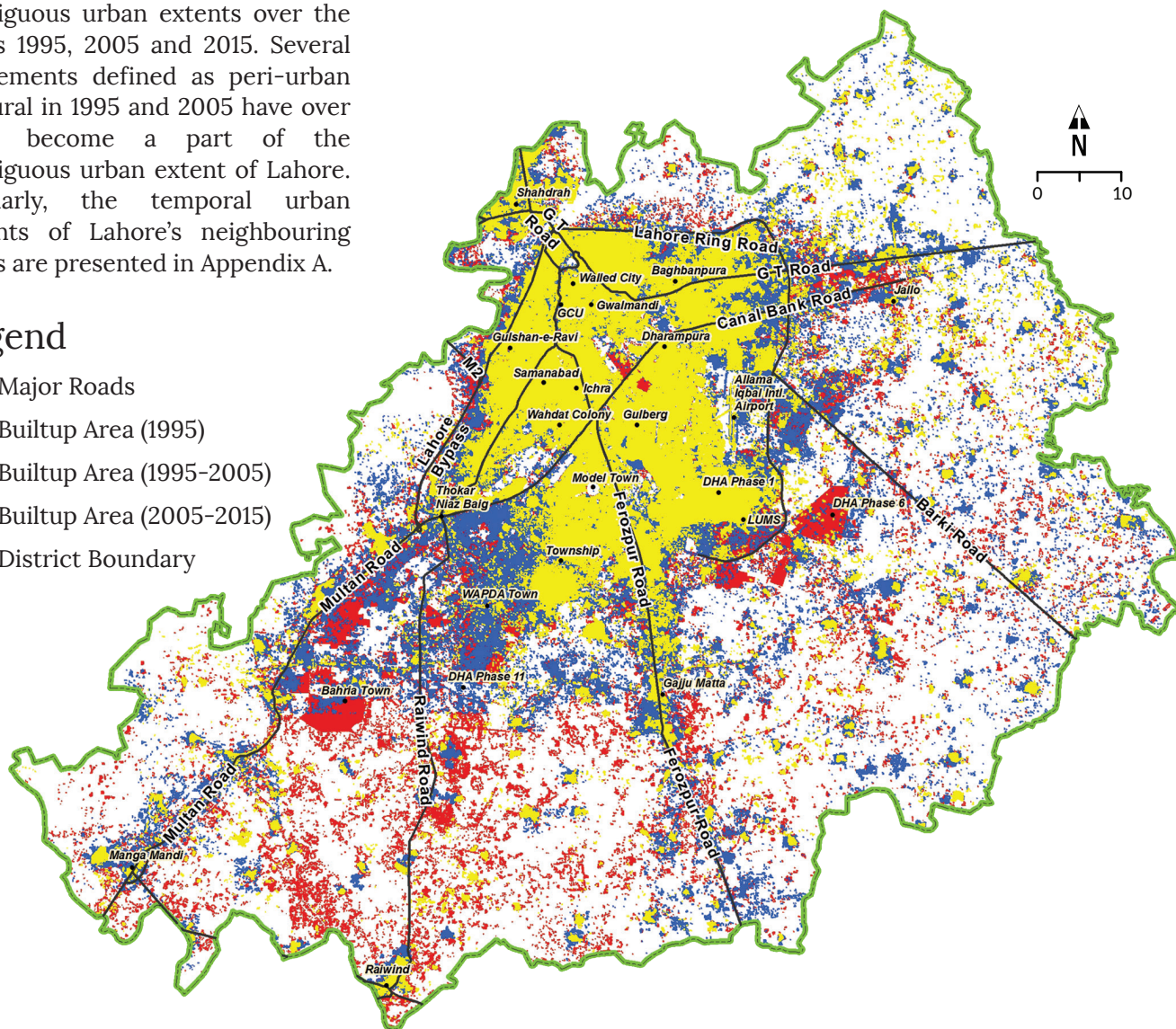





Figure 1.1: Built-up Areas in Lahore District in 1995, 2005 and 2015

Table 1.1: Intercensal Population Analysis

	 Population Census 1998	 Population Census 2017	 Population Annual Growth Rate 1998- 20017
Rural Area	1,131,026	0	-
Urban Area	5,209,088	11,126,285	4.08%
Total District	6,340,114	11,126,285	3.00%

¹Angel et al., Atlas of Urban Expansion–2016 Edition, New York: New York University, Nairobi: UN-Habitat, and Cambridge, MA: Lincoln Institute of Land Policy, 2016

Lahore’s urban area (as classified in our methodology) has increased from 220 sq. km in 1995 to 336 sq. km in 2005 to 665 sq. km in 2015. While the annual area growth rate in the first decade was 4.3%, it increased to 7.1% in the second decade. If urban Lahore continues to grow at a similar rate, it is expected to almost double by 2025, increasing to 1,320 sq. km.

The rapid increase in area is a much greater cause of concern than the increase in population.

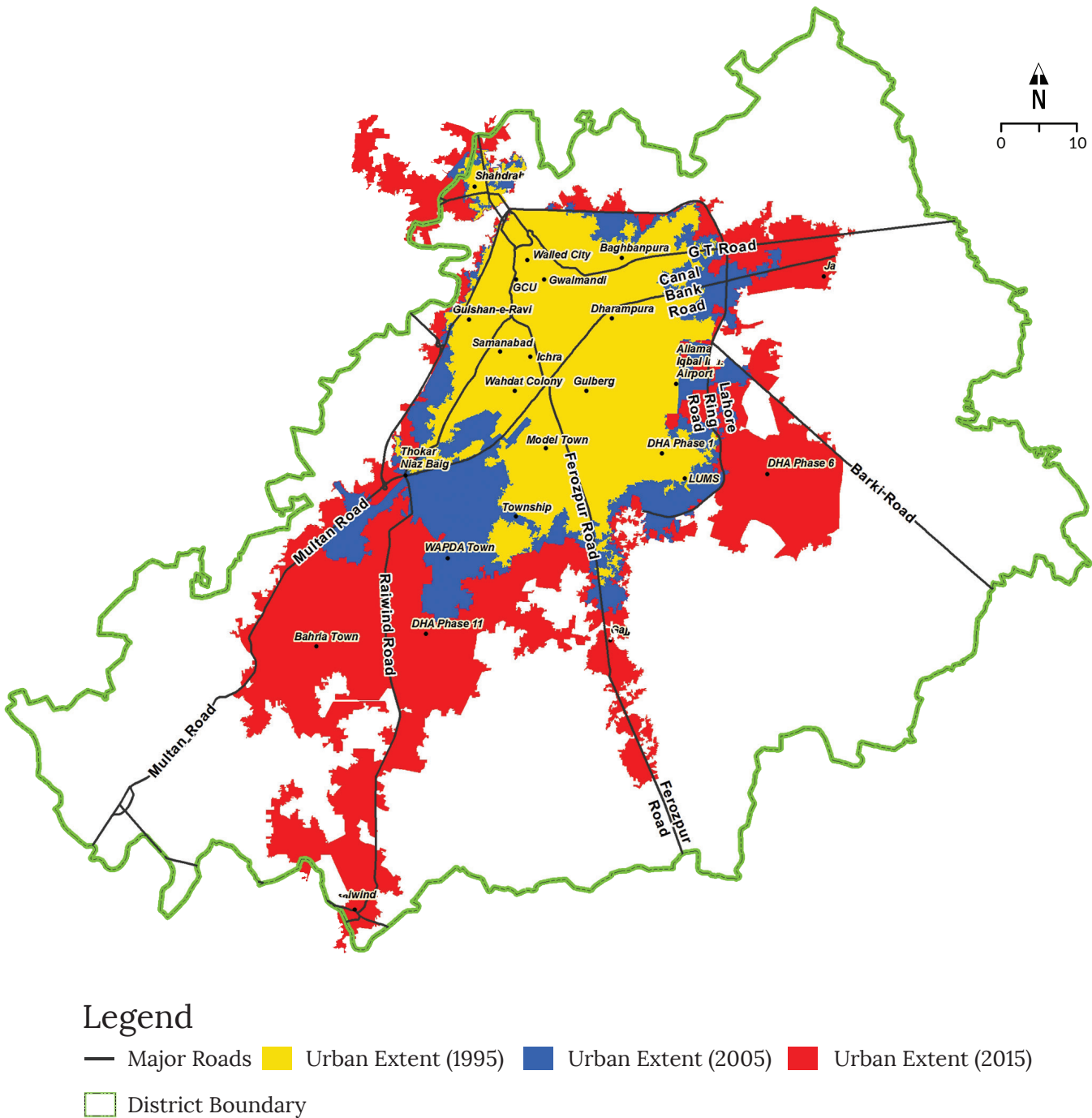


Figure 1.2: Urban Extents of Lahore in 1995, 2005 and 2015

In fact, our land consumption analysis shows that for every 1% increase in population, Lahore consumes 2.82% of land area. To explain this issue further, Figure 1.2 shows the change in population density from 2005 to 2015.

It shows that the population density per sq. km has decreased

from 2005 to 2015. Areas that had high density in 2005 had much lower density in 2015, and the increase in urban areas from 2005 to 2015 has low population density of less than 500 to 5,000 persons per sq. km. This issue has risen mainly due to unregulated city growth and the fragmented development of new housing schemes in the

peripheries of the city. Figure 1.4, showing the density-wise area composition of the city, projects that if the current pattern of decreasing densities continues, only 0.8% of the city area will have high population density while 75% of the city area will have low population density by 2040.

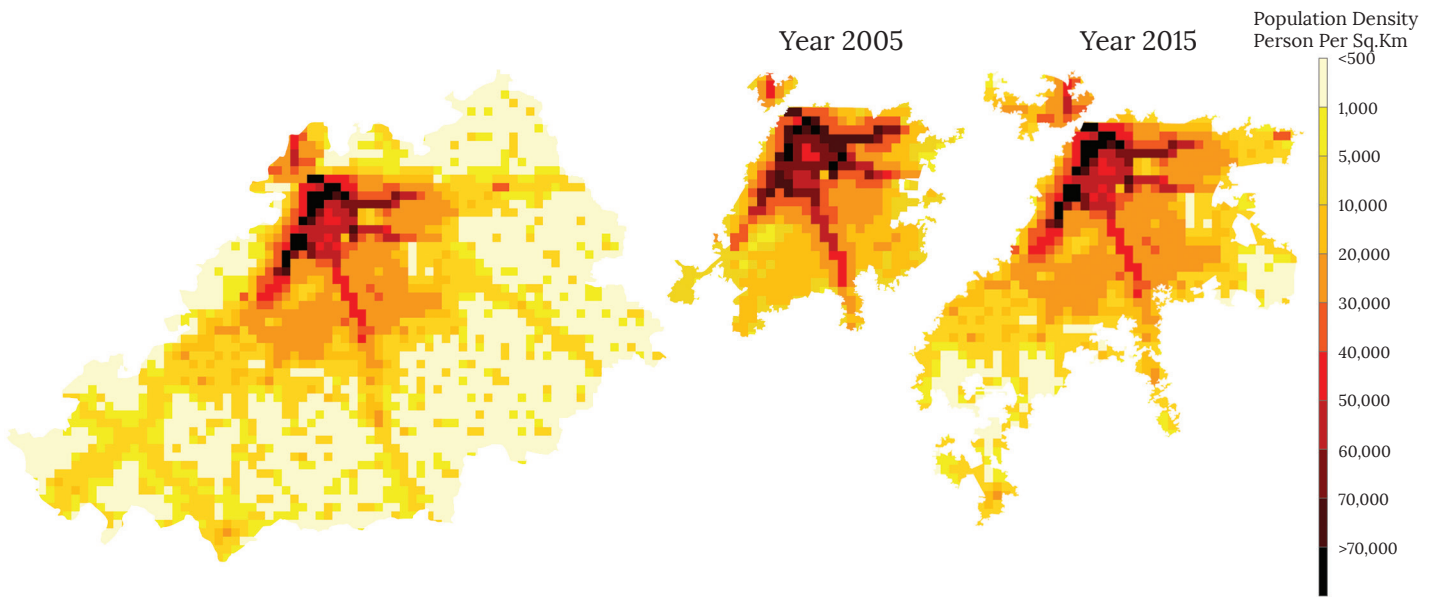


Figure 1.3: Landscan Population Density 2005 and 2015

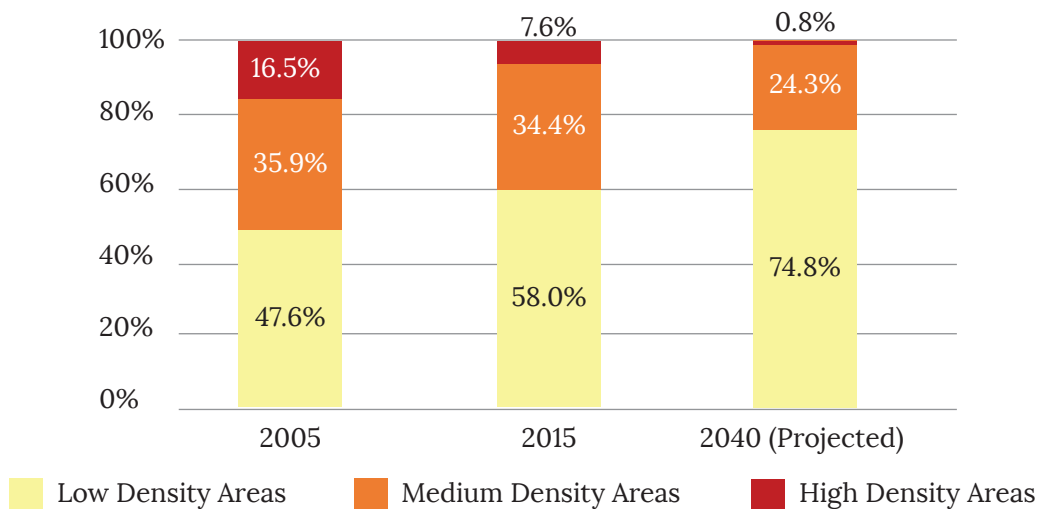


Figure 1.4: Intra-City Area Composition of Lahore

Migration & Future Trends of the Region

Migration to Lahore is one of the reasons for Lahore's higher population growth rate than other cities in Pakistan. Although the exact inter-district migration statistics are not available, the Labour Force Survey (2014) indicates that 15% of Punjab's total migrants migrate to Lahore. The highest percentage of migrants come from Kasur (13.3%), Okara (8.5%), Faisalabad (8.4%), Narrowal (6.3%), Sheikhupura (6.2%), and Gujranwala (4.3%).

As per the urban cluster analysis performed at the Urban Unit, while Lahore remains the largest city in the region, Gujranwala is physically growing at a rate of 8.13% and is expected to be the second largest city in 2040 from amongst the cities, approximately within 150-kilometre radius or 2.5 hours from Lahore. The next largest city will be Faisalabad (4.02%) in terms of physical size and urban expansion. Interestingly, the fourth and fifth settlements with

the greatest urban expansion will be Narrowal (12.17%) and Muridke (9.39%), within the 150-kilometre radius from Lahore. With the current growth patterns, Gujranwala is expected to become larger than Faisalabad, and Narrowal and Muridke are expected to grow as big as Faisalabad is today. Jaranwala is also another city growing at a rate of 8.48%, and will be the sixth largest in the region.

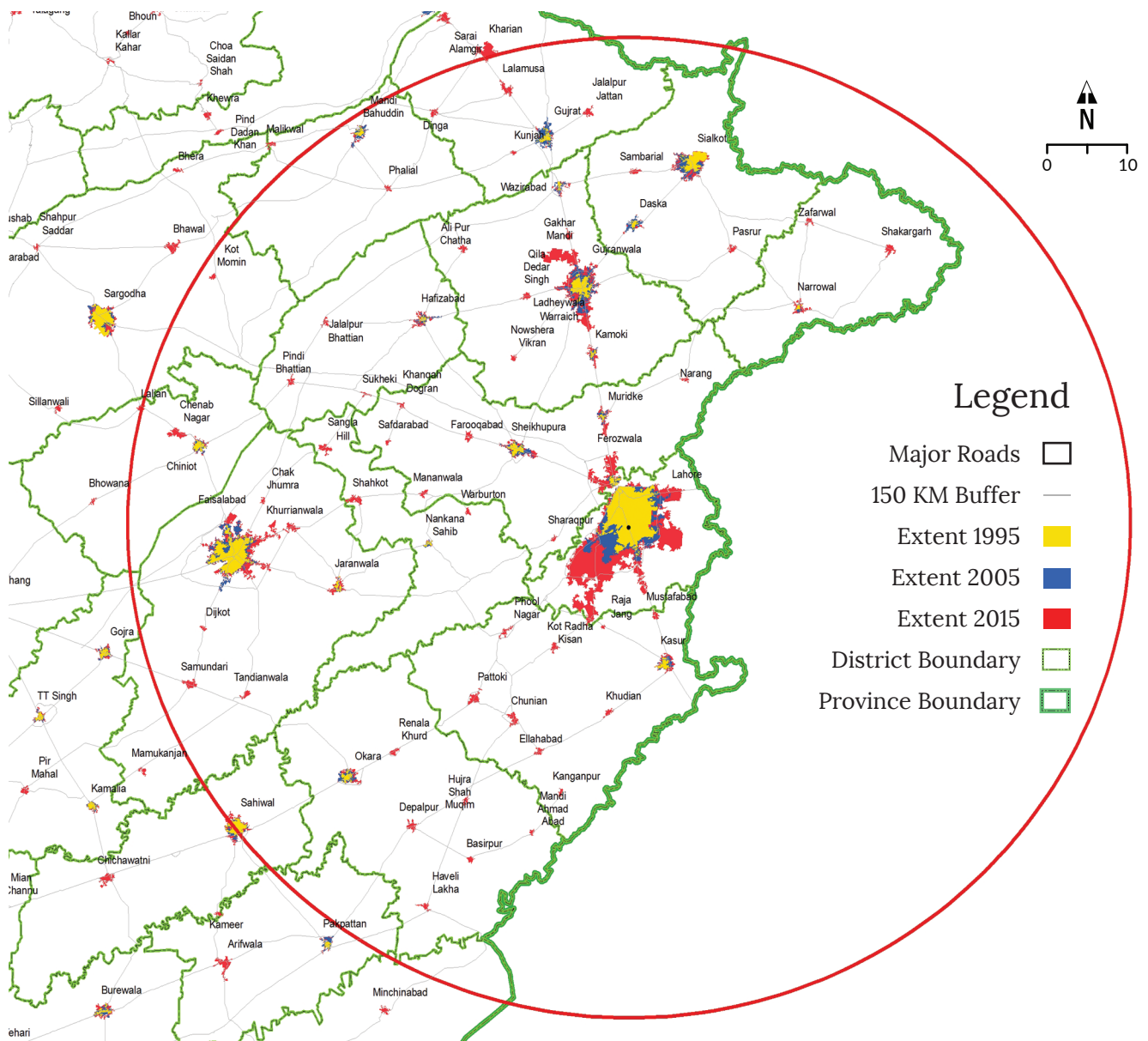


Figure 1.5: Growth of Cities Surrounding Lahore

Kasur (4.23%), Sheikhupura (3.83%) and Okara (3.51%) have encountered minimal spatial growth in the past two decades. It may very well be that due to high migration to Lahore, these three cities have not incurred nor required urban development. These cities also have lower median household incomes than Lahore. Therefore, the main cause of migration from these cities is economic mobility. Kasur has a median household income of approximately 17 thousand,

and Lahore has a median income of 25 thousand in PKR at price level 2015.

The focus must be to create Lahore into a well-planned, accessible and integrated metropolitan region as the trends are inevitably going towards this direction. Narrowal, Muridke, and Kamoki may be negligible today, however, these cities will integrate with Lahore to form urban clusters. This trend is already occurring as Kot

Abdul Malik has merged into Lahore's urban area.

Sheikhupura and Kasur will be instrumental anchor cities of Lahore in the next 20 years. They must be included in this future metropolitan region. Regional plans must incorporate these cities as integral emerging cities. The metropolitan agglomeration of Lahore is on the rise and a regional plan must seriously be drawn beyond Lahore division.

Future Recommendations

Although, the population of Lahore district is increasing over time, the intercensal annual population growth rate has in fact decreased from 3.46% in 1981-1998 to 3% in 1998-2017. Therefore, instead of focusing on issues of population growth (which has already decelerated over time), the spatial growth of Lahore should be managed more effectively by following a two-pronged approach, as it is essential to keep into account the current area growth trends of all cities of Punjab.

Firstly, there is a need to address the issue of unmanaged urban sprawl and decreasing densities. For this purpose, it is essential to focus on infill development in cities. The more recent growth of Lahore has been mostly low-dense in nature with housing schemes being built in peripheries leading to an unsustainable pattern of city expansion. Furthermore, a saturation analysis was conducted to evaluate the temporal change in Lahore's built-up to total area ratio using the following formula:

$$\text{Saturation Level}_{(yr)} = \frac{\sum \text{Built up Area}_{(yr)}}{\text{City Area}_{(yr)}}$$

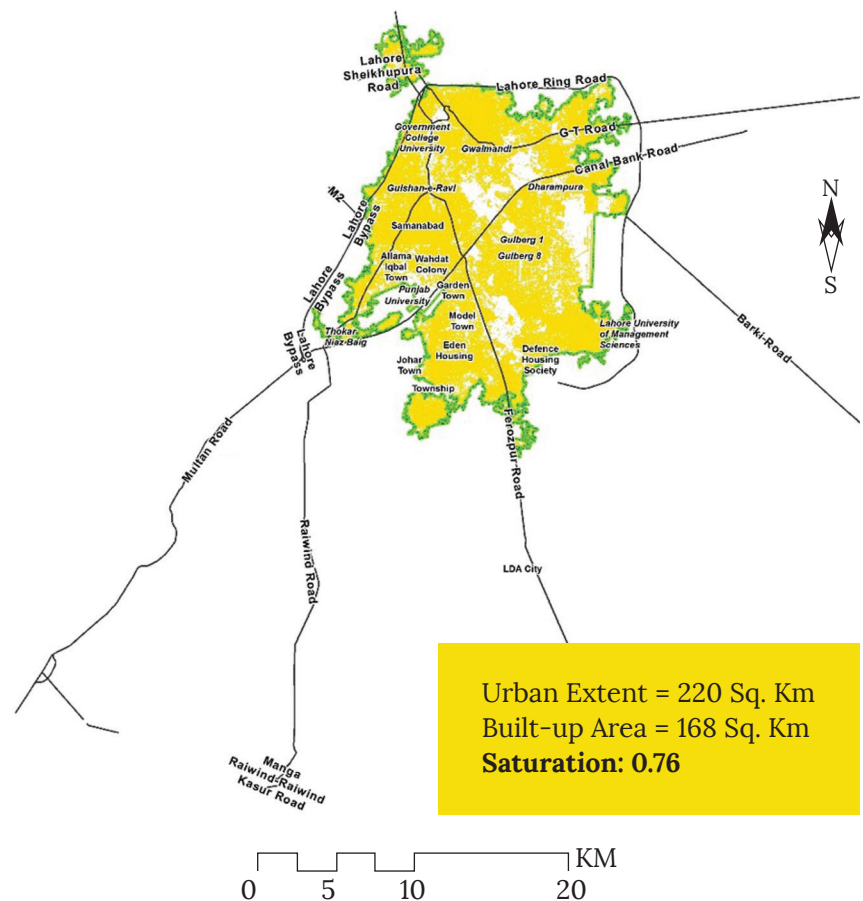


Figure 1.6: Urban Extents and Built-up 1995

The saturation level of Lahore has fallen over time from 0.76 in 1995 to 0.67 in 2005 to 0.61 in 2015, as shown in Figures 1.6, 1.7 and 1.8. This decreasing trend highlights the occurrence of unmanaged sprawl instead of infill development in the existing

vacant spaces available within the city domains. The saturation level of the city must be increased, by developing vacant areas within the current urban extent of the city before sprawling further outwards.

To counter this issue, updated masterplans are critically important to guide, manage and restrict disorderly sprawl. These master plans should have time-bound restrictions on the spread of residential areas, limiting growth to a certain area in a certain time-period.

While, infill development will also increase the cities' population per square kilometre, it is important to focus on ways to increase the population density through vertical as opposed to horizontal development. Therefore, rules and regulations relating to the Floor Area Ratio (FAR) must incentivise, allow and ensure an increase in the ratio of the building's total floor area to the total plot size. Amendments must be made to land-use rules, land subdivisions and private housing scheme rules to curb this growing trend of low density housing schemes.

Secondly, to ensure and incentivise people to live within a certain domain of the city, the government authorities should ensure improved and efficient provision of public transport and housing utilities such as water, electricity, gas and piped sewerage, especially in areas where infill development within the urban extent of the city is possible.

Creating compact cities will reduce pressures that the government currently faces to provide social and physical infrastructure in new development areas far from other parts of the city. According to McKinsey Global Institute, the costs fall by 30 to 50% when delivering basic services to concentrated population areas.

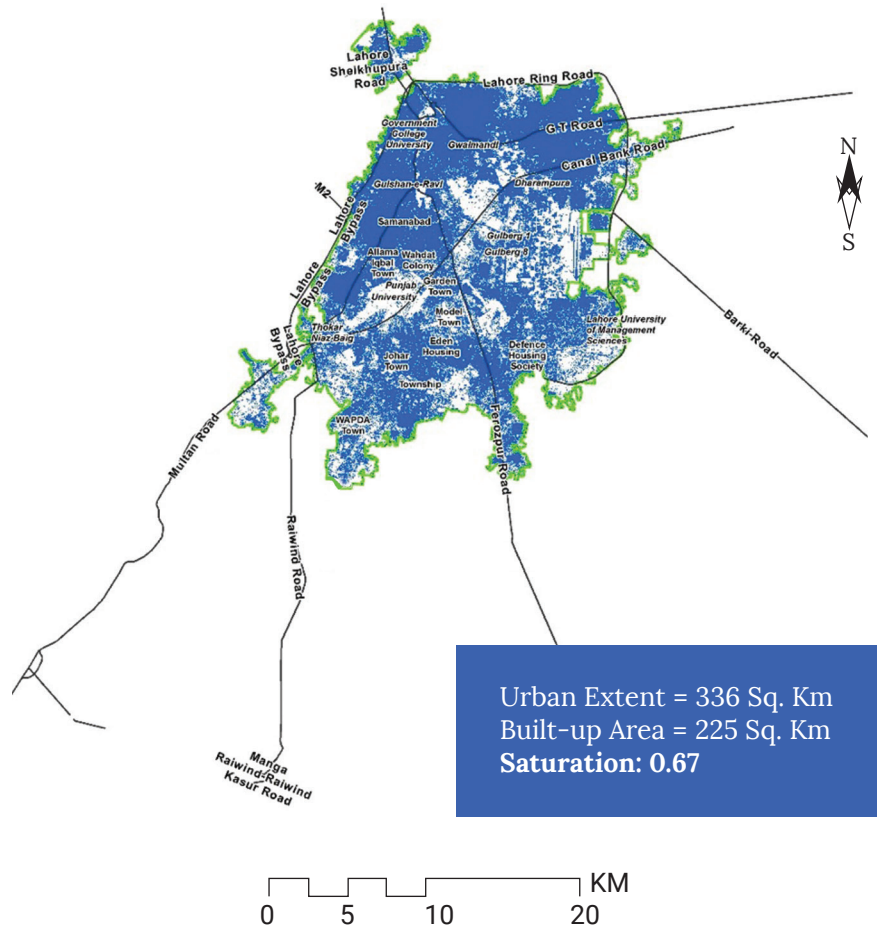


Figure 1.7: Urban Extents and Built-up 2005

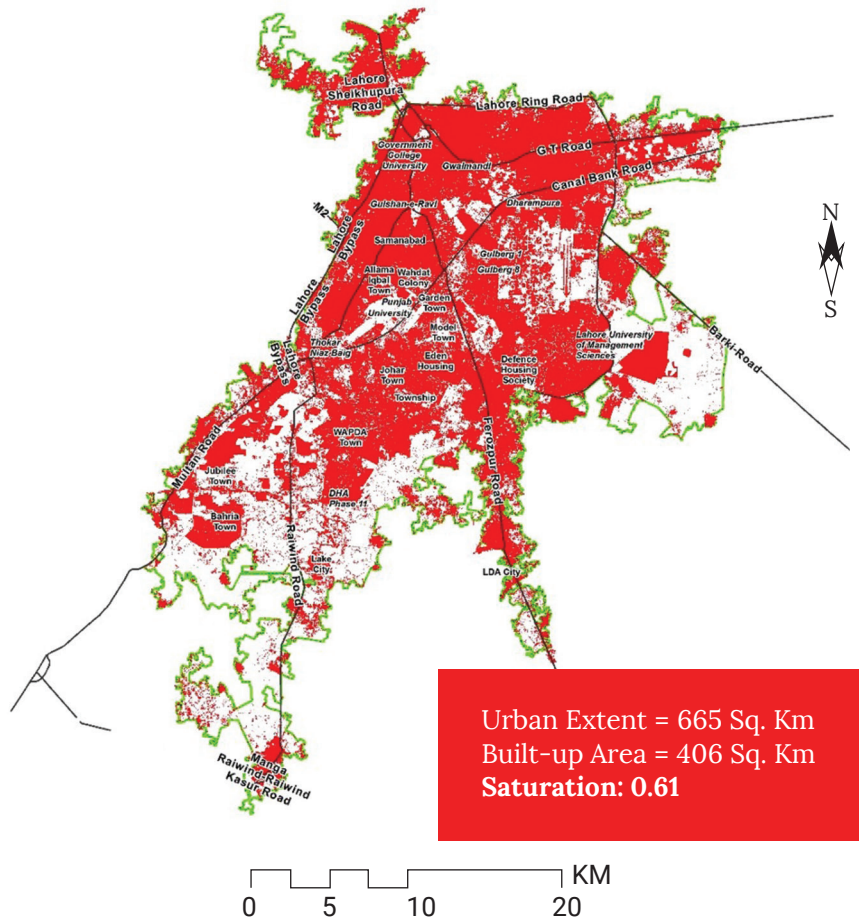
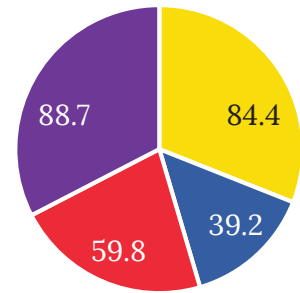
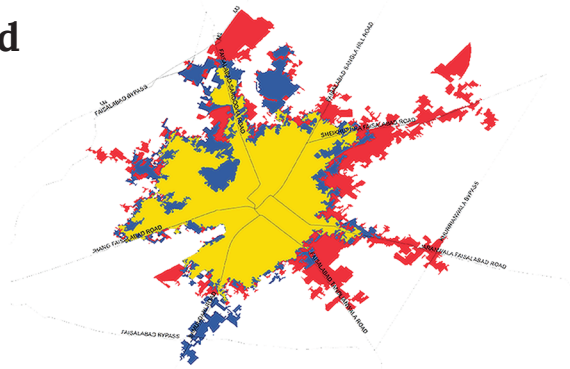


Figure 1.8: Urban Extents and Built-up 2015

Appendix A

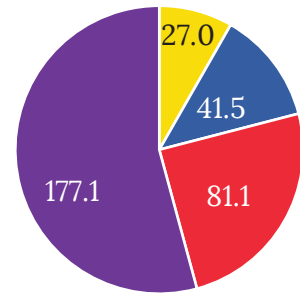
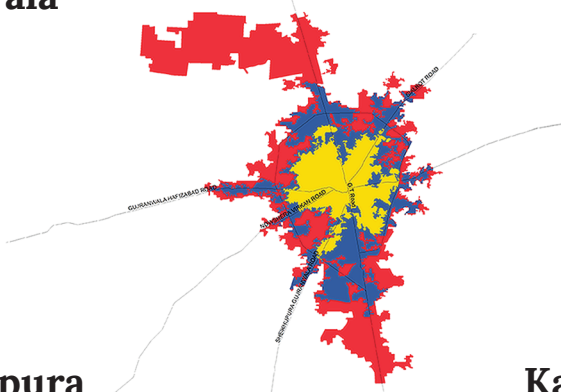
Urban Extents of Lahore's Neighbouring Cities (1995, 2005, 2015)

Faisalabad



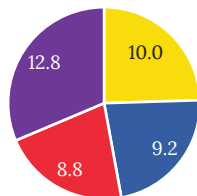
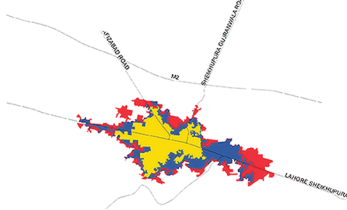
Annual Area Growth Rate (2005-2015): 4.0%

Gujranwala



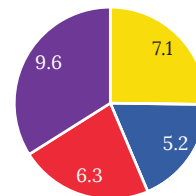
Annual Area Growth Rate (2005-2015): 8.1%

Sheikhupura



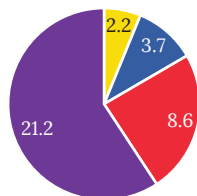
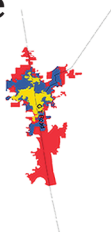
Annual Area Growth Rate (2005-2015): 3.8%

Kasur



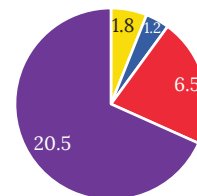
Annual Area Growth Rate (2005-2015): 4.2%

Muridke



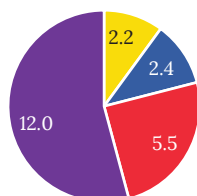
Annual Area Growth Rate (2005-2015): 9.4%

Narrowal



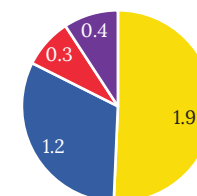
Annual Area Growth Rate (2005-2015): 12.2%

Kamoki



Annual Area Growth Rate (2005-2015): 8.1%

Nankana Sahib



Annual Area Growth Rate (2005-2015): 1%

Legend

- Major Roads
- Urban Extent (1995)
- Urban Expansion (1995 - 2005)
- Urban Expansion (2005 - 2015)
- Urban Expansion (2015 - 2025)



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