

CHAPTER 143

To Examine Impact of Urban Mobilization on Urban Development in Case of Pune City

Nakuldeo Ahirrao¹, Tejas Kulkarni¹, Saurabh Dahite² and Vaibhav Garje¹

ABSTRACT

The study investigates how urban mobilization influences Pune city's development, examining the complex relationship between traffic dynamics, infrastructure, and the urban environment. The findings reveal a strong public concern regarding the city's ability to address traffic congestion, road safety, and the environmental consequences of rapid urban growth. Many residents are dissatisfied with the current state of road networks, public transportation systems, and traffic management, which directly impact daily commuting experiences and quality of life. The research highlights the need for sustainable construction methods and regular policy evaluations to address these challenges effectively. A lack of public awareness and inconsistent policy implementation emerged as significant barriers to progress. Additionally, issues such as environmental degradation, rising vehicular emissions, and unchecked real estate expansion call for immediate attention and well-structured strategies to mitigate their effects. By achieving its objectives, the study emphasizes the crucial role of traffic management and urban mobilization in shaping the city's future. Recommendations include adopting sustainable practices, improving public involvement in urban planning, and ensuring stronger enforcement of policies. These steps are vital to creating a sustainable and livable Pune, balancing growth with environmental preservation. The research provides actionable insights for policymakers and urban planners working to address the challenges of urbanization while enhancing the city's long-term resilience and livability.

Keywords: Pune city; Urban development; Urban mobilization; Policy implementation; Infrastructure development; Traffic management; Sustainability.

1.0 Introduction

Over the course of three decades, Pune's population has increased by 73.36%, and the city has grown from 146 square kilometers. Due to the consolidation of 43 villages that encircle the city under the Pune Metropolitan Region Development Authority (PMRDA), to 331 sq.km as of right now.

¹*School of Construction, NICMAR University, Pune, Maharashtra, India*

²*Corresponding author; School of Construction, NICMAR University, Pune, Maharashtra, India*
(E-mail: P2370479@student.nicmar.ac.in)

Pune is located on the banks of the Mula and Mutha rivers at an elevation of 570 meters, between the Sahyadri hills. The city benefits from the neighboring mountains' excellent natural ambience and year-round mild climate. Pune, also referred to as the Oxford of Maharashtra, is a rapidly developing industrial and IT hub in India with multiple highly regarded universities in a wide range of subjects. Pune was ranked among the 111 cities in India that are the most livable.

Mobility has a direct impact on the economic efficiency of cities and the well-being of urban residents. The effectiveness of a city's transportation networks, or the efficiency with which people and products are moved across the city, is crucial to its efficiency. Pune has consistently been one of the fastest-growing cities in the Asian-Pacific region. From 1991 and 2001, the city expanded by 40%, reaching 1.6 million to 2.5 million people. Pune's decadal rate of growth has averaged nearly 40% for the past 40 years, and it is anticipated that the population would reach 5.6 million by 2031 if the above situation continues. (Gawade 2021) As a result, Pune has grown to become one of the state's major cities, attracting engineering firms and car manufacturing. It has quickly attracted a lot of interest from the communication and InfoTech industries as well. Because to the increasing urbanization, there has been a large-scale migration from all over the nation. The fast urbanization has affected the urban development of the city. Examining the relationship between urban growth and mobilization is the aim of this research.

1.1 Research problem and question

This research aims to answer following research questions -

- What are the main forms and modes of urban mobilization found in Pune City?
- Who are the main stakeholders participating in urban mobilization activities in Pune, and what do they do and why?
- What particular urban development issues or projects have been shaped by urban mobilization in Pune, and how?
- To what degree does urban mobilization help shape urban policies, plans, and governance institutions in Pune?
- What are the perceived advantages and drawbacks of urban mobilization for stakeholders in urban development in Pune?

1.2 Research objectives

This research aims to examine the impact of urban mobilization on urban growth by evaluating the effectiveness of urban development plans and their influence on infrastructure, connectivity, and physical expansion. It analyzes the role of government policies and regulations in shaping urban mobility and sustainable growth while also assessing the accessibility, efficiency, and integration of public transit in driving economic development and managing urban sprawl. Additionally, the study explores the effectiveness of traffic management strategies, including congestion control and intelligent traffic systems, in improving mobility. It investigates the role of Intermediate Public Transit (IPT) in bridging gaps between formal public

transport and last-mile connectivity. Furthermore, the research delves into the effects of urban mobility on existing settlements, focusing on land use changes, population density, and real estate development.

2.0 Literature Review

After analyzing 80 research papers related to urban mobilization of the various cities around the globe out of which 40 were screened and shortlisted for further investigation and we found a research gap that highlighted the role of urban mobilization in city growth. Economic development, policy interventions, and technological progress are the primary drivers, but these are slowed down by bottlenecks such as poor last-mile connectivity and increased vehicle dependency. While existing studies identify multimodal transport integration and sustainable measures, they do not explicitly make the connection between urban mobilization and urban development. An investigation into this link is crucial in appreciating how mobility initiatives shape urban growth, infrastructure, and socio-economic growth and, hence, offers valuable inputs towards better planning and policymaking for Pune.

Table 1: Literature Review Table

Sr. No.	Parameters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Planning																				
1.1	Road Width																		✓		
1.2	Footpath slash cycle way																				
1.3	Improper road networks	✓	✓																✓		✓
1.4	Improper junctions and intersections	✓																	✓		✓
1.5	Unappropriated Parking	✓													✓						
1.6	Land use planning	✓	✓	✓																	
	Zoning regulation																				
	Sustainable land use																			✓	
	Urban density														✓				✓	✓	
1.7	Community Engagement		✓	✓											✓						
	citizen participation																				

	Feedback mechanism																			
2	Traffic Management																			
2.1	Lack of signals								✓								✓			
2.2	Traffic flow optimization	✓	✓						✓			✓	✓				✓			
2.3	Lack of signage's and markings	✓														✓				
2.4	Traffic Monitoring	✓	✓						✓			✓	✓				✓			
2.5	Traffic regulations and enforcement	✓		✓								✓								
	Speed limit															✓				
	Parking regulations												✓			✓				
	Real time traffic information												✓							
2.6	Public awareness	✓	✓	✓					✓							✓				
	Education on safe driving	✓																		
	Promotion on public transport	✓																		
3	Public Transit																			
3.1	Modes of transit	✓											✓			✓				✓
3.2	Accessibility & Coverage		✓														✓			✓
3.3	Affordability	✓																		✓
3.4	Integration of mode	✓	✓	✓							✓						✓			
3.5	Quality of services			✓							✓									✓
3.6	Promotion of sustainable practices																✓			✓
3.7	Public awareness campaign	✓	✓	✓																
4	Private Transport																			
4.1	Modes of transit	✓	✓	✓		✓		✓			✓				✓					
4.2	Growth of private vehicle		✓					✓			✓									

	ownership																			
4.3	Insufficient public transit and rising reliance on private vehicle					✓														
5	Rapid Urbanization																			
5.1	Traffic congestion and infrastructure strain	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓		✓				✓	
5.2	Adverse impact on existing road networks	✓		✓		✓		✓				✓		✓						
5.3	Inadequate public transport infrastructure		✓		✓		✓		✓		✓									
5.4	Environmental impact on rapid urbanization								✓	✓		✓								
5.5	Improper land use and uncontrolled real estate development	✓		✓		✓		✓	✓	✓	✓	✓	✓							
6	Sustainability																			
6.1	Environmental degradation	✓		✓			✓	✓	✓			✓			✓					
6.2	vehicular emission & waste management		✓					✓					✓							
6.3	Green Construction practices	✓					✓	✓												
7	Policy Implementation and monitoring																			
7.1	Various policies related to urban development are not implemented in full swing		✓	✓							✓				✓					
7.2	Lack of monitoring policy execution		✓					✓		✓	✓				✓					

7.3	lack of public awareness about the government policies		✓			✓		✓									✓					
-----	--	--	---	--	--	---	--	---	--	--	--	--	--	--	--	--	---	--	--	--	--	--

Sr. No.	Parameters	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Total
1	Planning																					
1.1	Road Width				✓	✓				✓												4
1.2	Footpath slash cycle way				✓					✓												2
1.3	Improper road networks	✓			✓	✓				✓												8
1.4	Improper junctions and intersections	✓				✓				✓												6
1.5	Unappropriated Parking					✓				✓												4
1.6	Land use planning				✓	✓	✓	✓	✓	✓	✓		✓	✓								12
	Zoning regulation					✓		✓			✓			✓								4
	Sustainable land use					✓	✓	✓	✓	✓	✓		✓	✓								9
	Urban density				✓		✓	✓	✓		✓	✓	✓	✓								11
1.7	Community Engagement						✓					✓										3
	citizen participation											✓										1
	Feedback mechanism											✓										1
2	Traffic Management																					
2.1	Lack of signals																					2
2.2	Traffic flow optimization	✓		✓																		8
2.3	Lack of sing ages and markings																					2
2.4	Traffic Monitoring	✓		✓																		8
2.5	Traffic regulations and enforcement	✓																				4
	Speed limit																					1
	Parking regulations																					2

[illegible]

5.4	Environmental impact on rapid urbanization																			3
5.5	Improper land use and uncontrolled real estate development																			9
6	Sustainability																			
6.1	Environmental degradation																			7
6.2	vehicular emission & waste management																			3
6.3	Green Construction practices																			3
7	Policy Implementation and monitoring																			
7.1	Various policies related to urban development are not implemented in full swing																			4
7.2	Lack of monitoring policy execution	✓																		6
7.3	lack of public awareness about the government policies	✓																		5

2.1 Research method

This study will adopt a mixed-methods approach, integrating both qualitative research techniques to comprehensively examine the effects of urban mobilization on urban development in Pune.

3.0 Methodology

This flowchart outlines the research process in a clear and structured way. It begins with identifying the core problem, which sets the direction for the study. A literature review follows, helping to understand existing research and gaps in knowledge. Based on this, a research design is created to define the study's approach. The next step is data collection,

relying on secondary sources like government reports and studies. Once the data is gathered, it is analyzed to identify key patterns and insights. The findings are then discussed in detail, leading to meaningful conclusions and practical recommendations to address the research problem.

Figure 1: Research Methodology Flowchart



4.0 Urban Development and Mobilisation

A review of the literature was done to look at how urban mobilization affects urban development. To identify the gaps or deficiencies, a thorough evaluation of the literature has been conducted using content analysis of secondary data sources, including research papers, articles, reports, and databases pertaining to urban development and urban mobilization in the context of Pune city. A few reports from commissions or government agencies are also available, and these aid in understanding the field of study. This review of the literature is helpful in determining the elements that contribute to urban growth and are associated with urban mobilization. Urban mobilization in the context of Pune city has gained significant attention in the field of urban studies, as the city faces rapid growth, urbanization challenges, and evolving infrastructure needs. A comprehensive review of existing literature reveals insights into how urban mobilization has influenced Pune's urban development across various dimensions, such as infrastructure, transport, social inclusion, and sustainability. Below is a detailed literature review based on various studies, theoretical perspectives, and case studies related to urban mobilization in Pune.

- What is urban mobilization?

Urban Mobilization is all of the movement of both people and goods that occur in City via public or private Transportation.

- What is urban development?

Urban planning includes techniques such as: predicting population growth, zoning, geographic mapping and analysis, analyzing park space, surveying the water supply, identifying transportation patterns, recognizing food supply demands, allocating healthcare and social services, and analyzing the impact of land use.

4.1 Pune's urbanization trends

Pune, once a relatively small city, has rapidly transformed into one of India's key metropolitan areas due to its economic growth, booming IT industry, educational institutions, and migration trends. According to a study by the Pune Metropolitan Region Development Authority (PMRDA, 2019), the city's population is expected to grow substantially in the coming decades, which will significantly impact urban infrastructure and planning. This growth has been accompanied by increased demand for housing, transportation, and public services, making urban mobilization crucial to addressing these demands effectively.

4.2 Challenges and limitations of urban mobilization in Pune

Despite the successes, urban mobilization in Pune faces several challenges:

- **Political and Bureaucratic Hurdles:** Implementation delays, political interference, and lack of coordination between different governmental bodies have slowed the progress of urban mobilization efforts (Satterthwaite, 2005).
- **Equity and Inclusivity:** The benefits of urban mobilization often fail to reach marginalized and low-income communities. This issue has been particularly apparent in housing and public service delivery, where wealthier areas have seen more rapid development compared to underdeveloped regions (Patil & Shinde, 2018).
- **Infrastructure Bottlenecks:** Despite efforts to improve infrastructure, rapid population growth continues to outstrip the capacity of existing systems, leading to persistent problems in areas such as waste management, water supply, and sanitation.

5.0 Data Analysis

This chapter provides a comprehensive assessment of how urban mobilization impacts urban development in Pune. The research highlights patterns and trends from primary data, offering insights into the causes, challenges, and outcomes of urban mobilization. It serves as a foundation for evaluating the success and implications of these initiatives for future urban policies.

Secondary data collection

- *Urban development plans & policies:* Analysis of government reports, policy papers, master plans, and mobility plans to evaluate implementation and effectiveness.
- *Traffic & mobility data:* Analysis of transport department reports, census statistics, and GIS-based studies to measure urban transit efficiency.
- *Qualitative analysis:* Thematic analysis of interview transcript and review to policy to explain why stakeholder believe certain policy.

6.0 Conclusion

This study highlights the deep connection between urban mobilization and Pune's development. Findings reveal widespread concern over traffic congestion, road safety, and

environmental impacts due to rapid urbanization. Many respondents expressed dissatisfaction with road networks, public transport, and traffic management, which affect daily life and mobility. There is a strong call for sustainable construction, regular policy reviews, and greater public participation in urban planning. Key concerns include environmental degradation, vehicle emissions, and uncontrolled real estate expansion, emphasizing the need for comprehensive strategies. Overall, the study underscores the importance of effective traffic management, sustainable development, and proactive policies to ensure Pune's growth remains balanced and livable.

7.0 Suggestion

- There is a pressing need to expand and enhance the existing road networks, particularly in densely populated areas. Creating more lanes and improving road width can alleviate traffic congestion and improve mobility.
- City planners should prioritize the development of well-maintained footpaths and cycle ways. Promoting walking and cycling can not only ease traffic but also contribute to environmental sustainability.
- Additional traffic signals, better road signage, and improved design of junctions and intersections should be implemented to ensure better road safety for all road users, especially pedestrians and cyclists.

References

- Bari, P. (2018, March). PMC lacks proper and effective administration, says town planner Ramchandra Gohad. *Hindustan Times*. <https://www.hindustantimes.com>
- Rocky Mountain Institute. (2018, August). *An introduction to Pune City's mobility ecosystem: Urban Mobility Lab*.
- Mangire, A. J. (2021, April). *Determining mode priority on shared streets: A key solution for Pune City's sustainable mobility development*.
- Gawade, P. S. (2021, November). *A study on Pune urban transportation crisis and approach toward sustainable transportation*.