IJCRT.ORG ISSN: 2320-2882



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Mapping Slum Development in Pune City: A Ward-Level Analysis

Mr. Vaibhav Vijay Kadam.¹

Assistant Professor, Economics, MES, Garware College of Commerce, Pune

Dr. Dnyandeo Zine.²

Professor, HOD Economics, MES's Arts, Commerce and Science College, Ahilyanager.

Abstract:

Slums have become an inevitable part of urbanization, especially in developing countries, where rapid population growth and migration have led to the expansion of informal settlements. These areas are often characterized by inadequate housing, poor sanitation, lack of access to clean water, and insufficient healthcare facilities. The socio-economic conditions of slum dwellers remain precarious, with limited employment opportunities, low incomes, and poor educational attainment. Addressing these challenges requires a comprehensive understanding of slum demographics, their spatial distribution, and the factors contributing to their growth. This study aims to analyze the trends in slum populations, assess the socioeconomic conditions of residents, and examine the impact of urban expansion on the proliferation of slums. Additionally, the research explores the effectiveness of government policies and interventions aimed at slum redevelopment and rehabilitation. By identifying key gaps in existing programs, the study seeks to provide insights into sustainable solutions for improving the quality of life of slum dwellers. The research employs a mixed-method approach, utilizing both quantitative and qualitative data. Secondary data from government reports, census records, and urban development agencies are analyzed to understand population trends and housing conditions. Field observations, interviews, and surveys provide firsthand insights into the challenges faced by slum residents. Statistical tools are applied to examine patterns of slum growth and the socio-economic impact of policy interventions. Findings indicate that slum populations continue to rise due to rapid urbanization and rural-to-urban migration. According to OpenCity Urban Data Portal, Pune has a total of 390 slums, including 269 notified and 121 recognized slums. The highest slum population is recorded in the "Sihagad Road" ward, with 115905 residents, while the lowest is in Kondhwa-Yewalewadi, with 4,890 slum dwellers. Despite policy measures, access to essential services such as clean water, sanitation, healthcare, and education remains inadequate. Economic instability and job insecurity further exacerbate poverty levels in slums. However, community-driven initiatives and targeted welfare programs have demonstrated positive outcomes in certain areas. The study emphasizes the need for sustainable urban planning, inclusive policy frameworks, and participatory governance to improve living standards in slums effectively.

Keywords: Slum, Urbanization, Urban Planning, Housing Conditions, Slum Population, Urban Poverty

Introduction:

Urbanization is a global phenomenon that has significantly altered the socio-economic and spatial landscape of cities. While urban growth brings economic opportunities, technological advancements, and improved infrastructure, it also presents challenges related to housing, employment, and basic services. In India, rapid urban expansion has led to the proliferation of slums, where a substantial portion of the population resides in inadequate living conditions, facing issues such as overcrowding, poor sanitation, lack of clean water, and insufficient healthcare. As per the *Census of India 2011*, approximately 17.4% of urban households in India live in slums.

Pune, one of Maharashtra's fastest-growing metropolitan cities, exemplifies this trend. As a major hub for education, information technology, manufacturing, and automobile industries, Pune attracts thousands of migrants from rural areas and other states in search of employment and better living standards. According to the Pune Municipal Corporation (PMC), over 22% of the city's population resides in slums (PMC, 2022). However, the city's infrastructure has struggled to keep pace with this rapid population influx, leading to the expansion of informal settlements, commonly referred to as slums. These settlements often lack proper sanitation, clean drinking water, electricity, and waste management systems, exacerbating health and social inequalities among slum dwellers.

The issue of slums in Pune is not just a housing problem but a multi-dimensional challenge that affects urban sustainability, public health, and social cohesion (Gawel, 2023). Understanding the dynamics of slum growth, the socio-economic conditions of residents, and the effectiveness of government policies and interventions is crucial for formulating sustainable urban development strategies. This study aims to examine the underlying factors contributing to slum expansion in Pune, assess the living conditions of slum dwellers, and evaluate the impact of existing policies and initiatives aimed at slum rehabilitation and poverty alleviation.

Historical Perspective on Pune's Slums:

Pune's urban development dates back to the Peshwa era when it served as a strategic and administrative center. However, the industrial and economic transformation of the city gained momentum during the British colonial period, leading to an increase in labor migration (Taukeer, 2022). The establishment of textile mills and other industries in the late 19th and early 20th centuries spurred a demand for low-cost labor, drawing workers from rural Maharashtra and neighboring states. These laborers, unable to afford formal housing, settled in makeshift dwellings, marking the genesis of slums in Pune.

Post-independence, Pune's industrialization and expansion as a defense and educational hub further accelerated migration (Deshpande, 2013). The rise of the automobile and IT industries in the late 20th century intensified urban sprawl, leading to the proliferation of slum settlements in peri-urban areas and within the city's core. The Maharashtra Slum Areas (Improvement, Clearance, and Redevelopment) Act of 1971 provided a legal framework to recognize and improve slum settlements. However, the challenge of housing the urban poor continued as informal settlements expanded at a rate faster than the government's rehabilitation efforts (Fyhr, 2012).

The Growth and Distribution of Slums in Pune (Study Area)

According to Pune Municipal Corporation (PMC) data, slums in the city are categorized as Notified Slums and Recognized (non-notified) Slums. Notified slums are officially recognized under government policies and are eligible for development schemes, whereas recognized slums, though identified, do not receive full legal protection and government benefits. The city has a total of 564 slums, out of which 353 are notified and 211 are not notified (Pune Municipal Corporation, 2021), however, this study will only focus on 390 slums, including 269 notified and 121 recognized slums based on OpenCity Urban Data Portal. These slums are primarily concentrated in areas like Yerawada, Lohgaon, Dholepatil Road, Hadapsar, and Shivajinagar, where labor demand is high.

Pune's slum population has witnessed exponential growth over the last few decades. The Census of India (2011) estimated that nearly 36.9% of Pune's population resided in slums, with increasing density in certain wards. According to the City Development Plan (CDP) under JNNURM, the city had over 477 slum pockets, with varying access to basic services such as water supply, sanitation, and housing. The growth of slums can be attributed to rural-to-urban migration, high land prices, lack of affordable housing, and weak enforcement of urban planning regulations (Potdar, 2017). Many slums initially developed as encroachments on government or private land, later receiving official recognition as authorities sought to regularize them.

Need for a Ward-Level Slum Mapping Study:

Given the dynamic nature of Pune's slum expansion, a ward-level mapping study is essential to understand the spatial distribution and growth patterns of slums. Mapping slums using geospatial techniques can provide valuable insights into high-density areas, infrastructure deficits, and trends of slum proliferation (Mundhe, 2019). This study will help identify priority areas for intervention, aiding policymakers in designing effective urban development strategies.

A ward-level analysis will also reveal disparities between different regions of Pune (Chandiramani et al., 2024), highlighting which areas require urgent attention in terms of housing, sanitation, and other essential services. Understanding the relationship between notified and recognized slums at the ward level will further contribute to more targeted policy recommendations.

Research Methodology:

This study is based entirely on secondary data analysis, utilizing various official and academic sources to examine slum population trends, socio-economic conditions, and the impact of government interventions. Data has been collected from the Census of India, National Sample Survey (NSS), NITI Aayog, Ministry of Housing and Urban Affairs (MoHUA), and reports from the Open City portal. Additionally, studies from international organizations such as UN-Habitat and the World Bank have been analyzed to provide a broader perspective on urban slum development. Government policy documents, urban planning reports, and research articles from peer-reviewed journals have also been reviewed. A key data source for this study is OpenCity, Pune Slums Data, retrieved from the OpenCity Urban Data Portal, which provides valuable insights into the spatial distribution and demographic characteristics of slums in Pune.

For analysis, descriptive statistics have been used to summarize key indicators such as literacy rates, employment patterns, and access to basic amenities. Trend analysis has been applied to examine historical shifts in slum populations, migration patterns, and policy impacts over time. A comparative analysis of slum conditions across different states has been conducted to highlight regional disparities. Additionally, qualitative insights from government and institutional reports have been incorporated to understand challenges in policy implementation. While this study relies on credible secondary data sources, limitations include potential gaps in data availability, variations in reporting methods, and the evolving nature of slum settlements that may affect long-term conclusions. The findings aim to contribute to urban policy discussions by providing evidence-based recommendations for improving the quality of life in slums.

Research Objectives:

- 1. To analyze the distribution of slums across different wards of Pune.
- 2. To compare notified and recognized slums in terms of population and spread.
- 3. To identify challenges and opportunities faced by slum dwellers.

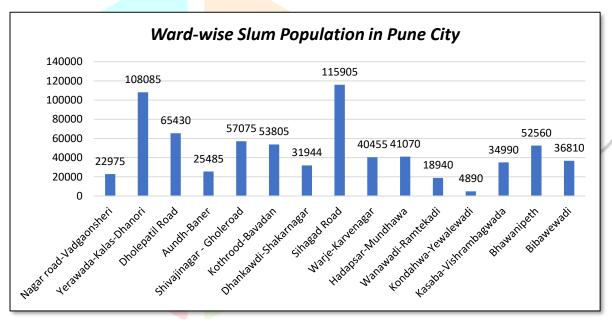
The Ward-level Analysis of Slum Populations in Pune City:

The ward-level analysis of slum populations in Pune City reveals significant disparities across different regions. The total slum population in Pune is 710,419. However, the distribution is highly uneven, as some wards accommodate a significantly larger share of the slum population while others have relatively fewer slum settlements. The highest slum population in a single ward is 115,905, whereas the lowest is 4,890, indicating sharp contrasts in spatial distribution. This variation is influenced by multiple factors, including industrialization, employment opportunities, land availability, and government recognition of slums.

The wards with the highest slum populations include Sinhagad Road (115,905), Yerawada-Kalas-Dhanori (108,085), Dholepatil Road (65,430), and Shivajinagar-Gholeroad (57,075). These areas exhibit high slum densities due to their proximity to commercial hubs, industrial zones, and informal labor markets. Yerawada-Kalas-Dhanori, for instance, has 42 notified slums and 12 recognized slums, making it one of the most prominent slum clusters in Pune. Similarly, Dholepatil Road and Shivajinagar-Gholeroad have a

substantial slum presence due to their central locations, which attract migrants seeking employment in low-wage sectors. Sinhagad Road, despite having only 5 notified slums and 8 recognized slums, has an unexpectedly high slum population, indicating the presence of large and densely populated informal settlements.

In contrast, some wards have significantly lower slum populations, reflecting different patterns of urbanization and land use. The wards with the smallest slum populations include Kondhwa-Yewalewadi (4,890), Wanawadi-Ramtekadi (18,940), Nagar Road-Vadgaonsheri (22,975), Aundh-Baner (25,485), and Dhankawdi-Shakarnagar (31,944). Kondhwa-Yewalewadi has no officially notified slums and only one recognized slum, resulting in the lowest recorded slum population in Pune. Aundh-Baner and Wanawadi-Ramtekadi are predominantly well-developed residential and commercial areas, limiting the emergence of informal settlements. Similarly, Nagar Road-Vadgaonsheri has a relatively lower slum population due to regulated urban development and high real estate prices, which make informal housing less accessible for low-income groups.



(Source: OpenCity, Pune Slums Data.)

The stark contrast in slum distribution can be attributed to multiple economic and geographic factors. One of the primary drivers of slum formation is proximity to employment centers (Cavalcanti et al., 2019). Areas with high slum populations are typically located near industrial estates, transport hubs, and commercial centers, where demand for low-cost labor attracts migrant workers. Wards like Yerawada-Kalas-Dhanori and Dholepatil Road serve as key economic zones, drawing large numbers of low-income workers who settle in informal housing clusters due to affordability constraints. Conversely, wards with lower slum populations tend to have a higher prevalence of middle- and upper-class residential housing, where stricter land regulations and higher living costs discourage the formation of unauthorized settlements.

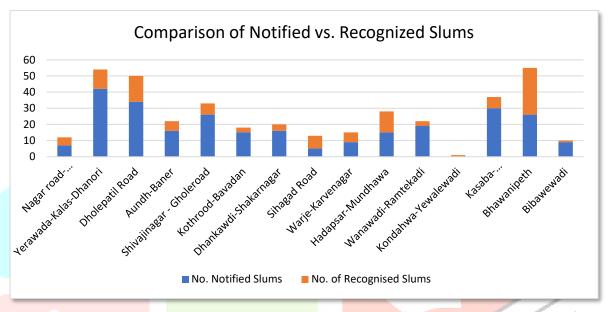
Another important factor influencing slum distribution is government recognition and notification of slums (Nolan et al., 2018). Areas with a high number of notified and recognized slums often see a greater concentration of slum dwellers, as recognition provides access to basic municipal services, sanitation, and infrastructure improvements. In contrast, wards with no or few recognized slums may have informal settlements that are either unaccounted for in official records or are located in areas where land-use regulations are strictly enforced. Kondhwa-Yewalewadi, for example, has only one recognized slum, which explains its low slum population despite being part of a rapidly urbanizing zone.

Land availability and affordability also play a crucial role in shaping slum populations across wards (Mundhe & Jaybhaye, 2023). Areas where land is cheap and underregulated tend to attract informal settlements, whereas high-cost urban zones with planned development discourage slum formation. Highslum-population wards like Sinhagad Road and Dholepatil Road have historically been areas of unregulated expansion, making them hotspots for slum growth. In contrast, low-slum-population wards like Aundh-Baner and Nagar Road-Vadgaonsheri have experienced planned urban development with stricter enforcement of zoning laws, which limits informal housing expansion.

The disparities in slum population distribution have significant implications for urban planning, infrastructure development, and policy-making. Wards with high slum densities require focused interventions to improve housing conditions, sanitation, and access to municipal services. This includes upgrading infrastructure, ensuring proper waste management, and implementing affordable housing schemes to prevent further informal settlement expansion. On the other hand, wards with lower slum populations need preventive strategies to control unauthorized settlements while promoting inclusive urban development to accommodate diverse socio-economic groups.

Comparison of Notified vs. Recognized Slums:

The comparison of notified slums and recognized slums in Pune reveals substantial differences in their distribution, population impact, and implications for urban planning. Notified slums are officially recognized by the government and are entitled to basic infrastructure and civic amenities, while recognized slums may not have full legal recognition but are acknowledged as existing settlements. The data indicates that Pune has a total of 269 notified slums and 121 recognized slums, highlighting a significant gap in formal recognition. This discrepancy affects the living conditions of slum dwellers, access to municipal services, and the overall integration of these settlements into the city's development plans. The distribution of notified and recognized slums varies across wards, leading to differing population densities and settlement patterns. Wards with a higher number of notified slums, such as Yerawada-Kalas-Dhanori (42 notified slums, 12 recognized slums) and Dholepatil Road (34 notified slums, 16 recognized slums), tend to have a higher overall slum population. This indicates that government recognition plays a crucial role in sustaining these settlements, as formal acknowledgment often leads to better infrastructure and basic services, attracting more residents. Conversely, areas with fewer notified slums and a higher number of recognized slums may experience greater challenges in service delivery, as their legal status remains uncertain, limiting government intervention and investment.



(Source: OpenCity, Pune Slums Data.)

One of the key findings is that wards with a higher proportion of recognized slums relative to notified slums tend to have lower total slum populations. For example, Kondhwa-Yewalewadi, which has only one recognized slum and no notified slums, has the lowest slum population (4,890). Similarly, Nagar Road-Vadgaonsheri, with 7 notified slums and 5 recognized slums, has a relatively low slum population (22,975). This suggests that the absence of formal recognition might discourage slum expansion, as settlements lacking government acknowledgment struggle to secure basic amenities, making them less habitable.

In contrast, some wards with a high number of both notified and recognized slums experience significant slum expansion due to improved living conditions. For instance, Shivajinagar-Gholeroad, which has 26 notified slums and 7 recognized slums, has a slum population of 57,075. Similarly, Sinhagad Road, despite having only 5 notified slums and 8 recognized slums, has a disproportionately high slum population (115,905). This indicates that slums in these areas have expanded beyond the officially designated boundaries, possibly due to migration and informal settlement growth around existing slum clusters.

The difference between notified and recognized slums also affects the distribution of municipal services. Notified slums receive water supply, sanitation, waste management, and electricity as per government policies, leading to higher population densities in these areas. In contrast, recognized slums may lack consistent access to these services, leading to poorer living conditions and higher vulnerability to eviction

and displacement. Wards with a higher concentration of recognized slums, such as Aundh-Baner (16 notified, 6 recognized) and Dhankawdi-Shakarnagar (16 notified, 4 recognized), may face challenges in integrating these settlements into mainstream urban planning, as their legal status remains uncertain.

Another notable observation is the impact of government policies on slum development. Areas with more notified slums indicate proactive government intervention in slum regulation and improvement, while wards with more recognized slums suggest a lack of policy clarity or pending legal formalization. The transition from recognized to notified status is crucial for improving living standards, as it allows residents to benefit from housing schemes, land tenure security, and infrastructure upgrades. However, the gap between the number of notified and recognized slums in Pune suggests that many settlements remain in legal limbo, limiting their access to public resources.

The comparison of notified and recognized slums highlights the uneven distribution of government recognition and its impact on slum populations. Wards with a higher number of notified slums tend to have larger and more stable slum populations, while wards with more recognized slums may face greater uncertainty in service provision and legal status. Understanding these differences is essential for formulating targeted urban policies, ensuring equitable distribution of municipal resources, and promoting inclusive urban development.

Challenges faced by Slum Dwellers:

1. Overcrowding and High Population Density

One of the most critical issues in Pune's slums is overcrowding, particularly in high-slum-population wards like Sinhagad Road (115,905), Yerawada-Kalas-Dhanori (108,085), and Dholepatil Road (65,430). The high density of slum dwellers in these areas results in congested living spaces, making it difficult for residents to maintain hygiene, privacy, and personal space. Overcrowding also increases the risk of disease outbreaks, particularly waterborne and respiratory infections, due to the lack of proper sanitation and ventilation.

2. Limited Access to Clean Water and Sanitation

The difference between notified and recognized slums plays a significant role in access to basic services. Notified slums are entitled to municipal water supply, sewage systems, and sanitation facilities, while recognized slums often lack these essential services (Hui, 2018). Wards with a higher proportion of recognized slums, such as Kondhwa-Yewalewadi and Nagar Road-Vadgaonsheri, may have more slum dwellers relying on informal water sources and shared toilets, leading to hygiene-related health problems. Additionally, water shortages and irregular supply of drinking water further exacerbate the problem, particularly during summer months when demand increases.

3. Inadequate Housing and Poor Infrastructure

Housing conditions in slums are often substandard, with many dwellings constructed from temporary materials like tin sheets, plastic, and mud. The lack of permanent housing structures in slum areas like Shivajinagar-Gholeroad and Dhankawdi-Shakarnagar makes residents vulnerable to extreme weather conditions, flooding, and structural collapses. Additionally, poorly constructed homes contribute to fire hazards, especially in densely packed areas with narrow lanes and poor electrical wiring.

4. Legal Uncertainty and Risk of Eviction

The distinction between notified and recognized slums directly impacts residents' land tenure security. Notified slums, such as those in Yerawada-Kalas-Dhanori (42 notified, 12 recognized), have a certain level of legal protection, allowing residents to access government housing schemes and urban development programs. However, in wards with more recognized slums, residents live under constant threat of eviction, as their settlements are not fully protected by law. This creates economic instability for slum dwellers, discouraging them from making long-term investments in housing improvements.

5. Poor Waste Management and Environmental Hazards

Slum areas in high-density wards often struggle with waste disposal and sanitation infrastructure, leading to accumulation of garbage, open drains, and waterlogging. Areas like Dholepatil Road and Sinhagad Road, with large slum populations, generate high amounts of waste, but inefficient waste collection leads to clogged drainage systems, increasing the risk of waterborne diseases such as cholera and dengue. Lack of proper sewage treatment also contaminates nearby water bodies, worsening environmental conditions.

6. Limited Healthcare and High Disease Prevalence

Due to overcrowding, poor sanitation, and lack of proper drainage, slum dwellers face a higher incidence of infectious diseases. Access to public healthcare facilities is often limited, especially in wards with large slum populations. Even in areas with notified slums, residents often have to rely on private clinics and unregulated medical practitioners, increasing their financial burden. The absence of emergency medical services and hospitals in certain wards further worsens the health crisis in slum areas.

7. Unstable Livelihoods and Informal Employment

Most slum dwellers are engaged in low-wage, informal sector jobs such as construction work, domestic labor, street vending, and waste picking. Wards with a high slum population, such as Shivajinagar-Gholeroad and Dholepatil Road, are located near commercial and industrial hubs, which provide employment opportunities but lack job security, fair wages, and social benefits. Many slum residents experience income fluctuations and financial instability, making it difficult to afford healthcare, education, and daily necessities.

8. Educational Barriers and Child Labor

Children living in slums face significant challenges in accessing education, including lack of proper schools, financial constraints, and pressure to work at an early age. In high-slum-population wards, schools are often overcrowded, underfunded, and lacking adequate teachers and infrastructure. As a result, many children drop out of school to support their families, contributing to the cycle of poverty.

9. Limited Access to Government Welfare Schemes

Even though several government schemes exist for housing, employment, education, and healthcare, many slum dwellers lack awareness or face bureaucratic hurdles in accessing these benefits. In wards with more recognized slums, residents often do not qualify for formal government support, making it difficult to improve their living conditions. The lack of proper documentation (such as Aadhaar cards and ration cards) further restricts their access to welfare programs.

10. Social Marginalization and Lack of Political Representation

Slum dwellers often face social discrimination and exclusion from mainstream urban society. Their communities are frequently stigmatized as areas of crime, poverty, and disease, leading to negative stereotypes that limit their opportunities for social mobility. Furthermore, political representation of slum dwellers remains weak, as their voices are often ignored in urban planning and policymaking processes.

Conclusion:

The ward-level analysis of slum development in Pune highlights the uneven distribution, demographic challenges, and infrastructural deficiencies faced by slum dwellers. The data underscores the significant variation between notified and recognized slums, with notified slums receiving better municipal support while recognized slums struggle with legal uncertainty and lack of services. Wards such as Sinhagad Road, Yerawada-Kalas-Dhanori, and Dholepatil Road exhibit high slum populations, indicating areas of concentrated urban poverty that require urgent policy intervention.

A key finding from the analysis is the impact of slum recognition on population density and living conditions. Notified slums, despite their challenges, benefit from basic infrastructure, water supply, sanitation, and waste management, which attract larger populations and enable settlement expansion. In contrast, wards with more recognized slums face greater insecurity, leading to unplanned growth, poor housing conditions, and limited access to welfare schemes.

The challenges faced by slum dwellers including overcrowding, poor sanitation, inadequate housing, limited healthcare, and lack of employment stability point to the need for a structured, multi-pronged policy approach. High-density slum areas are prone to disease outbreaks, environmental hazards, and economic instability, making targeted urban planning essential for sustainable development. Additionally, educational barriers and limited job opportunities further deepen the cycle of poverty, preventing social mobility for slum residents.

For effective urban governance, Pune's slum policies must focus on formalizing recognized slums, improving infrastructure, expanding access to essential services, and strengthening economic opportunities. A data-driven approach will be crucial in prioritizing interventions based on population density, legal recognition, and the severity of living conditions. Integrated efforts involving government agencies, NGOs, and local communities can transform slum areas into livable urban spaces, ensuring inclusive growth and improved quality of life for all residents.

Reference:

- 1. Cavalcanti, T., Da Mata, D., & Santos, M. (2019). On the determinants of slum formation. *The Economic Journal*, 129(621), 1971–1991.
- 2. Census of India. (2011). *Housing stock, amenities and assets in slums Tables (H-Series)*. Office of the Registrar General & Census Commissioner, India. https://censusindia.gov.in/
- 3. Census of India. (2011). Slum households and slum population in cities having population 1 lakh and above. Office of the Registrar General & Census Commissioner, India. https://censusindia.gov.in
- 4. Chandiramani, J., Tripathi, S., Benara Misra, S., Patil, G., & Shende, A. (2024). Does inequality exist in attaining sustainable development goals within a city? A case study in Pune city, India. *International Journal of Urban Sciences*, 1–38.
- 5. Deshpande, R. (2013). India: Pune 1. In Asian and Pacific cities (pp. 138–149). Routledge.
- 6. Fyhr, K. (2012). Participation in upgrading of informal settlements: A case study of the project "City In-situ Rehabilitation Scheme for Urban Poor Staying in Slums in City of Pune under BSUP, JNNURM"
- 7. Gawel, E. (2023). Urbanization-related sustainability challenges of the emerging megacity of Pune, India An interdisciplinary analysis.
- 8. Hui, R. (2018). *Visualizing and modeling peri-urban drinking water supply and planning in Pune, Maharashtra* (Doctoral dissertation, Massachusetts Institute of Technology).
- 9. Mundhe, N. (2019). Identifying and mapping of slums in Pune city using geospatial techniques. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, 42, 57–63
- 10. Mundhe, N. N., & Jaybhaye, R. G. (2023). Land suitability analysis for in situ slum redevelopment of Pune City using AHP, remote sensing and GIS techniques. *Journal of the Indian Society of Remote Sensing*, 51(8), 1777–1795.
- 11. Nolan, L. B., Bloom, D. E., & Subbaraman, R. (2018). Legal status and deprivation in urban slums over two decades. *Economic and Political Weekly*, *53*(15), 47–54.
- 12. OpenCity. (n.d.). *Pune Slums Data*. OpenCity Urban Data Portal. Retrieved March 15, 2025, from https://data.opencity.in/dataset/pune-slums-data
- 13. Potdar, K. (2017). Study–Factors affecting affordable housing, Pune, Maharashtra. *International Journal of Applied Research in Science and Engineering*, *1*(1), 90–97.

- 14. Pune Municipal Corporation. (2006). City development plan for JNNURM: Pune Municipal Corporation. Government of India. https://pmc.gov.in
- 15. Pune Municipal Corporation. (2021). Slum statistics and categorization report. PMC Department of Slum Rehabilitation. https://pmc.gov.in
- 16. Pune Municipal Corporation. (2022).City Development Plan Report. https://pmc.gov.in/mr/?main=true
- 17. Taukeer, M. (2022). Trend, pattern and analysis of internal labour migration in colonial India to post colonial India. IASSI-Quarterly, 41(1-2), 61-74.

