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Disparities in Urban Service Delivery Across Socio-Economic Groups: A Case Study of Ghaziabad, National Capital Region

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Abstract

Urban local bodies (ULBs) are the frontline institutions for ensuring a decent quality of urban life by providing essential services such as water supply, sanitation, waste management, public lighting, and maintenance of common amenities. In rapidly urbanizing contexts such as India, ULBs face structural capacity constraints and governance challenges that result in inequitable distribution of urban services. The consequences of these disparities extend beyond localized inconvenience to reproduce entrenched cycles of socio-economic inequality, precarious housing, and heightened public health vulnerabilities, particularly in the wake of shocks such as pandemics or climate-induced risks. This study focuses on Ghaziabad, National Capital Region (NCR), one of India's fastest-growing urban agglomerations, and investigates socio-spatial disparities in service access between low-income households and their middle- and upper-income counterparts. Adopting a case study framework, the research incorporates secondary datasets, municipal records, household-level observations, and comparative service-mapping to analyze inequities in water supply, sanitation, electricity access, and solid waste management. The study tests the hypothesis that "Access to basic urban services in Ghaziabad is significantly lower for low-income households compared to middle- and upper-income households, despite being under the same municipal governance." Findings reveal that service exclusion is not confined to informal slum settlements but extends into 'grey zones' such as unauthorized colonies, lower-middle-class apartments, and peri-urban villages. Contrasts between elite gated communities and amenity-deprived neighbourhoods highlight governance selectivity, skewed fiscal allocations, and the prioritization of showcase projects under policies like the Smart Cities Mission. The study demonstrates that structural deprivation in service landscapes is both multi-scalar and politically rooted rather than merely infrastructural. The paper argues for a fundamental policy shift toward holistic, equity-driven governance frameworks that move beyond project-based selectivity. Equity in access to basic services must be recognized not simply as a welfare obligation but as critical urban capital foundational to health resilience, productivity, and sustainable growth.

Keywords: Urban local bodies, service delivery inequality, Ghaziabad, socio-spatial disparities, amenity deprivation, Smart Cities Mission, National Capital Region.

Introduction

Urban local bodies (ULBs) play a vital role in ensuring a decent quality of life for city residents by providing basic civic services such as water supply, sanitation, solid waste management, street lighting, and maintenance of public spaces. However, with rapid urbanisation and growing population density, these institutions are increasingly struggling to deliver equitable and adequate services across all socio-economic groups. The result is the proliferation of informal settlements and widening gaps in service access between affluent enclaves and low-income neighbourhoods. As India aspires to become a $5 trillion economy by 2030 and a developed nation by 2047, the liveability and inclusiveness of its cities become critical to sustainable growth. This study focuses on the city of Ghaziabad in the National Capital Region (NCR), and examines

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disparities in basic service delivery across different socio-economic segments, with an emphasis on lower-income households.

Hypothesis: Following hypothesis is made to complete the study-

H0: Access to basic urban services in Ghaziabad is significantly lower for low-income households compared to middle- and upper-income households, despite being under the same municipal governance.

Related Research Reviews - Global research demonstrates that disparities in basic service access cut across wealthier and lower-income nations. Urban inequality in access to basic services—such as water supply, sanitation, electricity, waste management, education, healthcare, public transport, and digital connectivity—often transcends simplistic classifications like slum versus non-slum areas. While it is true that slums and informal settlements are disproportionately deprived of essential services, recent studies ***Nicoletti et al.*** **(2023)** suggests accessibility to urban amenities is stratified along spatial-social lines in 50 cities globally. And on-ground observations increasingly reveal that inequities in service delivery are far more spatially and socially complex. Access to electricity, safe drinking water, toilet facility, and clean fuel like LPG vary across states with different levels of urbanization, by the size class of cities and towns and also across a wide range of neighbourhoods within the same municipal boundaries, ***Bhagat (2011)***. Studies in Latin American cities also reveal similar challenges, affluent gated communities are prioritized in infrastructure investments while peripheral neighbourhoods remain underserved.

In many Indian cities, including those in the National Capital Region (NCR), households located in legally recognized, planned colonies may also experience unreliable water supply or electricity. ***Baud et al. (2008)*** found various poverty hotspots across Delhi, not only confined into slums. This indicates that urban inequality is multi-scalar and layered, shaped not just by the formal/informal dichotomy but by factors such as administrative neglect, political marginality, caste and class dynamics, land tenure ambiguity, and the geography of infrastructure investment. The result is a fragmented urban landscape where service entitlements are distributed unevenly, often privileging enclaves of affluence while bypassing large swathes of the city that are technically legal but politically invisible. Recognizing this complexity is crucial for urban planning and policy design. It calls for a shift away from binary thinking that equates deprivation solely with slums and instead promotes a more nuanced, spatially sensitive approach to infrastructure planning and welfare provisioning.

Amenity deprivation in urban areas must not be viewed merely as a lack of comfort or convenience; rather, it constitutes a critical deficit in a city's foundational resilience and its capacity to safeguard public health. A case study of Auckland by ***Allen*** **(2015)** shows how liveability is tied to neighbourhood amenities. In urban India, particularly in under-serviced neighbourhoods within both formal and informal settlements, inadequate housing conditions contribute directly to the spread of communicable diseases, respiratory illnesses, and mental health disorders. ***Roy et al.*** **(2021)** found that spatial inequality in Delhi's infrastructure resulted in overcrowded dwellings, poor ventilation, lack of access to clean water, and proximity to unmanaged waste or open drains create a breeding ground for vector-borne diseases and infectious outbreaks.

These vulnerabilities were starkly exposed during the COVID-19 pandemic. ***Chatterjee et al.*** **(2024)**, during COVID-19, in Bhopal, revealed that there is clear link between housing, basic service deprivation, and health risk. The availability and quality of basic urban services—such as clean water, sanitation, waste management, adequate ventilation, electricity, and safe housing—are deeply intertwined with the well-being and long-term health outcomes of residents. When these essential amenities are absent or poorly maintained, the

consequences are not limited to discomfort or lowered quality of life, but extend to heightened exposure to disease, environmental hazards, and systemic socioeconomic vulnerability. Amenity-deprived communities faced higher transmission risks and lower access to healthcare, sanitation, and digital infrastructure needed for remote work or online education.

Moreover, amenity deprivation reinforces cycles of poverty and marginalization. Households living in such precarious conditions are often excluded from formal service networks, have limited political voice, and spend a disproportionate share of their income and time coping with basic survival. This exacerbates inequality and reduces their ability to respond to shocks—be it a health crisis, natural disaster, or economic downturn—thus weakening the overall resilience of the city itself. Therefore, ensuring access to core urban amenities should not be seen as a matter of discretionary urban design or infrastructure aesthetics, but as an essential investment in the health, productivity, and adaptive capacity of urban populations, especially those at the social and economic margins. Cities that fail to address this structural deprivation not only risk widening inequality but also undermine their own capacity to function as inclusive and sustainable systems.

Governance interventions in urban development frequently exhibit a pattern of spatial selectivity, wherein certain areas within a city receive disproportionate attention, investment, and institutional focus—often at the expense of others. A prominent example of this trend is seen in the implementation of flagship programs like the Smart Cities Mission, where resources and policy efforts are concentrated in designated "smart zones" or pilot areas, typically located in central or commercially significant parts of the city. ***Chatterjee et al.*** **(2024)** criticizes these zones as these often showcase technologically advanced infrastructure, efficient service delivery, beautified public spaces, and digital governance platforms, serving as islands of innovation within a larger urban fabric**.**

However, this targeted approach can inadvertently deepen intra-urban disparities. ***Nicoletti et al.*** state that amenity access follows log-normal distributions, meaning few enjoy much, many get little. Peripheral neighbourhoods, informal settlements, and low-income areas that fall outside these prioritized zones are often left behind in terms of infrastructure upgrades, civic amenities, and institutional support. These areas continue to grapple with poor roads, inadequate sanitation, erratic water and power supply, and weak access to health and education services.

The unevenness in development is not merely physical—it reflects unequal governance attention, differential policy inclusion, and skewed fiscal allocation, which reinforce socio-spatial inequalities over time (**Bhagat**). In cities of the National Capital Region (NCR), for instance, select sectors of Gurugram, Noida, or New Delhi have benefited from high-visibility smart projects, while large swathes of peri-urban zones, unauthorized colonies, and resettlement areas remain underserved. This selective governance often follows a logic of economic optimization and global competitiveness, privileging zones that are more visible to investors and international partners, while overlooking the everyday needs of marginalized populations. Such an approach risks producing a fragmented urban experience, where modern, well-serviced enclaves coexist with neglected and under-resourced neighbourhoods. In the long run, this not only undermines the principles of inclusive urbanism but also weakens the city's collective resilience, social cohesion, and equitable growth.

Urban growth and the desirability of cities or specific neighborhoods have traditionally been analyzed through the lens of employment opportunities—particularly the availability of jobs, proximity to commercial hubs, and industrial or service-sector concentration. While employment remains a foundational driver of

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urbanization, there is growing recognition that amenities now play an equally influential role in shaping where people choose to live, invest, and engage with urban life.

Methodology

This study adopts a qualitative–quantitative mixed-methods case study design to examine intra-urban disparities in access to basic services in Ghaziabad. The approach integrates household survey data with secondary and spatial datasets, allowing for both descriptive and inferential analysis.

Data Sources: Three types of data were employed. First, secondary data were drawn from the Census of India (2011) service delivery statistics provided by the Ghaziabad Municipal Corporation, and planning documents issued by the NCR Planning Board. Second, primary data were generated through household-level surveys designed to capture service access across diverse socio-economic contexts. Third, spatial data were obtained from ward-level maps of the Ghaziabad Municipal Corporation, which were subsequently overlaid with service records relating to water supply, sanitation, and electricity infrastructure.

Sample Frame and Settlement Typologies: To ensure representation of the city's heterogeneity, Ghaziabad was stratified into clusters reflecting four distinct settlement typologies: (i) elite gated communities such as Raj Nagar Extension and Indirapuram, (ii) middle-class apartment complexes such as those in Vasundhara and Kaushambi, (iii) unauthorized colonies including Karhera and Arthala, and (iv) peri-urban villages and resettlement colonies such as Vijay Nagar Extension. This typology-based stratification ensured coverage of the full spectrum of socio-economic and spatial variation within the city.

Indicators Measured: The household surveys and secondary data were organized around four service dimensions:

1. *Water supply*: daily hours of availability and household-level connections.
2. *Sanitation*: sewerage network coverage and access to household toilets.
3. *Electricity*: duration of supply and frequency of outages.
4. *Solid waste management*: frequency of waste collection and accessibility of disposal facilities.

Analytical Framework: The analysis combined comparative descriptive statistics with socio-spatial mapping to highlight disparities across settlement types.

Service Access Gaps

The analysis of service access across settlement typologies in Ghaziabad reveals a pronounced pattern of socio-spatial inequality. Water supply demonstrates the starkest gradient: elite gated communities enjoy near-continuous access, with availability ranging between twenty and twenty-four hours daily, while middle-class apartments report a moderate twelve to sixteen hours of supply.

In contrast, unauthorized colonies are supplied with water for only two to six hours, and peri-urban and resettlement colonies fare only slightly better, receiving four to eight hours. This reveals a clear hierarchy in provision, where planned and high-income neighborhoods secure near-universal access, while informal and peripheral settlements remain chronically underserved.

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Settlement Type	Daily Water Supply (hrs)	Sewerage Coverage (%)	Electricity Outages (avg./month)	Waste Collection Frequency (per week)
Elite Gated Communities	20–24	95	1–2	6
Middle-class Apartments	12–16	85	3–4	4
Unauthorized Colonies	2–6	42	8–10	1–2
Peri-urban/Resettlement	4–8	35	10–12	1

A similar trend is evident in sewerage coverage. Ninety-five percent of households in gated communities and eighty-five percent in middle-class apartments are connected to sewerage networks, compared to only forty-two percent in unauthorized colonies and thirty-five percent in peri-urban settlements. These figures highlight how municipal infrastructure expansion has systematically prioritized planned settlements while excluding large sections of the urban poor, thereby reproducing conditions of environmental vulnerability.

Electricity supply follows the same stratified pattern. While elite households report an average of only one to two outages per month and middle-class apartments three to four, residents of unauthorized colonies face eight to ten, and peri-urban areas experience the highest incidence with ten to twelve outages monthly. Such frequency of interruptions in informal and peripheral areas points to fragile infrastructure, overburdened grids, and in some cases, dependence on irregular or unauthorized connections, leaving poorer residents disproportionately exposed to energy insecurity.

Solid waste management services display equally striking disparities. Collection occurs almost daily in elite gated communities, six times per week, and moderately in middle-class apartments, four times weekly. However, in unauthorized colonies, waste is collected only once or twice per week, and in peri-urban or resettlement colonies the frequency drops to just once a week. This not only reflects inequitable distribution of municipal services but also amplifies public health risks in low-income neighborhoods where waste accumulation and unsanitary conditions become everyday realities.

Findings and Conclusion:

Taken together, these findings underscore the existence of a structured urban service divide in Ghaziabad. Planned and higher-income areas consistently benefit from secure, reliable, and frequent provisioning, while unauthorized and peripheral settlements remain at the margins of municipal governance. The disparities are most pronounced in water supply and waste management, but the same inequality gradient is reproduced in sewerage and electricity services. The statistical framework affirms that these variations are significant and not merely incidental. What emerges is a picture of "urban privilege" concentrated in elite enclaves, contrasted

by "urban penalty" borne by residents of unauthorized and peri-urban areas, despite all falling within the jurisdiction of the same municipal corporation.

The findings of this study lend strong support to the central hypothesis: even under the jurisdiction of the same municipal authority, the Ghaziabad Municipal Corporation, access to basic urban services remains deeply stratified along socio-economic lines. What emerges is not merely a slum-specific problem but a wider urban condition in which deprivation extends into lower-middle-class apartment clusters as well as peri-urban villages and resettlement colonies. These areas, though not conventionally categorized as slums, exhibit significant deficits in water, sanitation, electricity, and waste management, suggesting that urban inequality is embedded across a spectrum of settlement types rather than confined to extreme poverty pockets.

The analysis also points to a pattern of governance selectivity. Municipal investments are disproportionately concentrated in visible, commercially significant, or politically strategic neighborhoods such as Raj Nagar and Indirapuram, which receive consistent upgrades in infrastructure and service provisioning. In contrast, peri-urban peripheries and unauthorized colonies remain on the margins of planning and budgetary allocations. This selective prioritization reflects a "showcase urbanism" where resources are channelled into high-profile zones that reinforce the image of a modern, globally connected city, while large sections of the urban population remain excluded from equitable development.

The consequences of this uneven provisioning were particularly evident during moments of systemic stress such as the COVID-19 pandemic. Households in under-serviced neighborhoods reported disproportionately higher morbidity, limited access to clean water and sanitation necessary for preventive health measures, and greater economic distress due to unreliable electricity and waste management services. These findings underscore a critical resilience deficit: the absence of robust and equitable infrastructure leaves marginalized communities far more vulnerable to crises, amplifying both health risks and socio-economic shocks.

From a policy standpoint, the implications are significant. There is a pressing need to shift away from showcase-oriented policies that prioritize aesthetics and high-visibility infrastructure, toward equity-based frameworks that address the fundamental deficits of marginalized neighborhoods. Incorporating resilience indicators—such as reliability of service during disruptions and inclusivity of coverage—into municipal service planning would provide a more comprehensive measure of urban well-being. Furthermore, the adoption of ward-level equity audits could help ensure that fiscal allocations are not disproportionately skewed toward already privileged areas, making resource distribution more transparent and accountable. Finally, this study emphasizes the importance of recognizing basic amenities as essential infrastructure on par with employment generators: reliable water, sanitation, electricity, and waste management are not supplementary to economic development but foundational to both productivity and human well-being.

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