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Assessment of Residents' Perception of the Environmental and Infrastructural Impacts of Urban Sprawl in Abeokuta South, Nigeria

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Abstract

Urban sprawl has become one of the defining spatial features of rapidly growing cities across sub-Saharan Africa, and Abeokuta, the capital of Ogun State, Nigeria, is no exception. While a considerable body of remote-sensing and land-use/land-cover research has documented the physical extent of Abeokuta's outward expansion, comparatively little empirical attention has been paid to how the residents who live with the consequences of this expansion actually perceive its environmental and infrastructural implications. This study addresses that gap by examining residents' awareness of urban sprawl, their perception of its environmental and infrastructural effects, the factors that shape this perception, the challenges they experience as a result of sprawl, and the solutions they propose, using Abeokuta South as a case study. A descriptive survey design was adopted, and a structured questionnaire was administered to 100 respondents drawn through multi-stage stratified and purposive sampling from ten communities experiencing rapid sprawl: Asero, Obantoko, Olomore, Ake, Ibara, Ijemo, Ijaiye, Kuto, Itoku, and Oke- Mosan. Data were analysed using descriptive statistics (frequencies and percentages) and the Chi-square test of independence. Findings show a high level of awareness of urban sprawl among residents (97%), with strong agreement that sprawl has caused environmental degradation (95%), pollution (92%), and loss of green and open spaces (94%), and has placed considerable pressure on infrastructure, particularly electricity supply (96%), roads (91%), waste disposal (89%), and drainage (89%). Government policy, land availability, and population growth were identified as the leading determinants of residents' perception, while education and income were not. The Chi-square test revealed a statistically significant relationship between the length of residents' stay in the area and their awareness of urban sprawl ($\chi^2 = 14.274$, df = 6, p = 0.027), leading to rejection of the null hypothesis. The study concludes that residents of Abeokuta South are highly conscious of the environmental and infrastructural costs of unplanned urban expansion and recommends stronger planning and development control, infrastructure

upgrading, environmental law enforcement, improved waste management, and sustained public awareness campaigns.

Keywords: urban sprawl, residents' perception, environmental degradation, urban infrastructure, sustainable urban development, Abeokuta South

1. Introduction

Urbanization is among the most consequential demographic and spatial processes of the modern world, marked by growing concentrations of people in cities and the continuous outward expansion of built-up areas (United Nations, 2025). More than half of the world's population now lives in urban areas, a share projected to rise sharply by 2050 (World Bank, 2025). Although urbanization brings clear economic benefits, unmanaged growth generates environmental and infrastructural problems that undermine the sustainability cities are meant to deliver. It's most visible expression is urban sprawl: the low-density, fragmented, and poorly coordinated expansion of development into peri-urban and rural areas, typically associated with automobile dependency, inefficient land use, and the loss of agricultural land (Abubakar & Aina, 2019). Sprawl provides room for housing and commerce, but at the cost of environmental degradation, green-space loss, biodiversity decline, and mounting pressure on transport, water, sewage, power, health, and education services (World Bank, 2025). Where infrastructure fails to keep pace with population growth, congestion, deteriorating services, and flooding follow.

In sub-Saharan Africa, urban growth frequently exceeds the planning and infrastructural capacity of the institutions responsible for managing it. Many African cities consequently exhibit uncontrolled expansion, proliferating slums, and chronic infrastructure deficits. Nigeria is among the continent's fastest urbanizing countries, and demand for housing, transport, utilities, and social amenities has in several cities outstripped infrastructural development (World Bank, 2025). Abeokuta, the capital of Ogun State in southwestern Nigeria, exemplifies these dynamics. As a major administrative, commercial, and educational centre, it has attracted substantial in-migration, driving the conversion of farmland and natural vegetation into settlements (Adebayo et al., 2024). Earlier work documents encroachment into riverbank protection areas and green belts (Adeoti et al., 2023) and rising urban heat island effects linked to vegetation loss. Sprawl has also strained roads, drainage, and electricity, water supply, and health and education facilities, with adverse effects on residents' quality of life (UN-Habitat, 2023). Abeokuta South LGA in particular has sprawled rapidly over the past two decades, driven by population growth, rural-urban migration, and economic expansion, with continuing loss of farmland, forests, and wetlands (Adebayo et al., 2024), alongside flood vulnerability, poor waste management, and elevated surface temperatures. Yet most research on sprawl in Abeokuta and other Nigerian cities relies on remote sensing and land-use/land-cover analysis (Adebayo et al., 2019), leaving residents' own perceptions of its environmental and infrastructural consequences largely unexamined. This is a meaningful gap. Residents experience these changes daily, and their attitudes shape environmental behaviour, willingness to participate in planning, and acceptance of sustainability policies. Without empirical evidence on their awareness and lived experience,

planning interventions risk being mismatched to conditions on the ground (UN-Habitat, 2022; World Bank, 2025).

This study therefore examines residents' perception of the environmental and infrastructural implications of urban sprawl in Abeokuta South LGA, Ogun State. Specifically, it assesses residents' awareness of sprawl, their perception of its environmental and infrastructural effects, the determinants of that perception, the challenges arising from sprawl, and residents' preferred solutions.

1.2 Conceptual Framework

1.2.1 Urban Sprawl

Urban sprawl is a multidimensional phenomenon, understood as a spatial pattern, a process, a cause of other problems, and a consequence of earlier decisions, which explains why no single definition has emerged (Faiyetole &Adewumi, 2024). Spatially, it is the low-density, dispersed, and poorly coordinated outward expansion of a city, in which built-up area grows disproportionately to population. A metropolitan footprint may double while population rises by only 20–30% (Adebayo, et al., 2024). The challenge is acute in sub-Saharan Africa, projected to reach 900 million people by 2050 (UN DESA, 2019; Yiran et al., 2020). Nigeria, projected at roughly 400 million, sits at the centre of it (Abubakar & Aina, 2019). In Abeokuta, GIS analysis of satellite imagery shows built-up area rising from 0.66% in 1972 to 10.93%, driven by the city's status as a state capital and its proximity to Lagos (Adebayo et al., 2024).

1.2.2 Environmental Effects of Urban Sprawl

Sprawl converts green space into built-up land, producing environmental disturbances that are often irreversible (Patra et al., 2018; Raikwar & Kumar, 2025). Replacing vegetation with impervious surfaces removes cooling and water-absorbing functions and intensifies the urban heat island effect (Meng & Gao, 2024), a pattern documented in Ghana (Cobbinah & Aboagye, 2017). Sprawl also fragments habitats and drives biodiversity loss (Vineela et al., 2025), which has prompted calls for stronger land-use regulation near protected areas (Appiah-Opoku et al., 2023). Increased imperviousness aggravates flooding, soil erosion, and river and groundwater pollution (Amponsah et al., 2022), a particular concern in Abeokuta, where the Ogun River and groundwater are heavily used. Where drainage, sewage, and waste infrastructure are inadequate, poor environmental quality and lower quality of life reinforce each other, especially in informal peripheral settlements (Shao et al., 2021). The loss of agricultural land in peri-urban areas threatens food security and carbon sequestration (Li et al., 2025). Across West Africa, rapid urbanization is a strong driver of environmental degradation, compounded by weak institutional capacity (Joshua et al., 2024).

1.2.3 Urban Infrastructure

Urban infrastructure (transport, water, electricity, drainage, schools, health facilities, markets, and waste management) underpins daily life (Faiyetole & Adewumi, 2024). Dispersed growth sharply raises the cost of extending services, a burden many sub-Saharan African local governments cannot bear (Shao et al., 2021). Development therefore outpaces provision, leaving

residents with contaminated water, illegal electricity connections, and roads impassable in the rainy season. In Abuja, growth of 7.1% per annum (2000–2016) has limited access to water and sanitation (Arku et al., 2025). In Ogun State, proximity to Lagos has intensified pressure on roads, water systems, and drainage designed for smaller populations. Water infrastructure failures in Nigeria stem from technical, financial, environmental, social, political, and institutional factors, with corruption and mismanagement cited in 13% of reviewed cases (Adeoti et al., 2023). In Akure, a city comparable to Abeokuta, road density was lower near the core than at the periphery, reflecting new roads built to open fringe areas without maintenance or complementary services (Faiyetole & Adewumi, 2024). Sprawl also produces insufficient public transport, high service costs, and inadequate health and education services (Alabi, 2025), while weak institutional coordination and dual land governance foster infrastructure-poor informal settlements (Aule et al., 2022). Social infrastructure such as schools, clinics, and markets is as important to well-being as physical infrastructure (UN-Habitat, 2022).

1.2.4 Residents' Perception of Urban Sprawl

Perception is the process by which individuals interpret their environment through direct experience, cultural frameworks, and available information. Residents' assessments of environmental quality and infrastructure often diverge from those of technical experts, with implications for planning (Anguelovski, 2023). Community engagement and transparent governance are crucial to managing expansion in line with local interests (Ahmad et al., 2021). In sub-Saharan Africa, residents recognize green-space loss, deteriorating housing, and diminishing services (Yiran et al., 2020). Those in new peri-urban areas commonly report dissatisfaction with roads, waste management, water supply, and community facilities. Perceptions are shaped by comparison with past conditions or better-served areas, which makes them an equity-laden dimension of urban experience (Abubakar & Aina, 2019). Yet inclusive planning remains the exception, particularly in lower-income, fast-growing areas where it is most needed (Ahmad et al., 2021).

1.2.5 Sustainable Urban Development

Sustainable urban development reconciles present needs with the environmental, social, and economic foundations future generations depend on (UN-Habitat, 2023), as institutionalized in Sustainable Development Goal 11. Implementation, financing, and monitoring capacities remain weak in many Nigerian local governments (UNSD, 2025). Sprawl is widely regarded as incompatible with sustainability: it consumes disproportionate land and energy, generates more greenhouse gas emissions, undermines ecological services, and makes infrastructure provision economically unsustainable. Robust institutions, improved planning, and investment in environmental infrastructure are essential in West Africa which resonates with Abeokuta, where weak planning capacity has fostered unsustainable growth. Socio-economic exclusion, weak coordination, and dual land governance drive informality in peri-urban sub-Saharan Africa, underscoring the value of community engagement in planning (Ahmad et al., 2021).

1.3. Literature Review

Hamidi et al (2018) examined the relationship between urban sprawl and life expectancy across hundreds of United States counties using the Ewing–Hamidi Compactness Index, controlling for vehicle miles travelled, body mass index, violence, and air pollution. They found that residents of more compact areas live measurably longer than residents of sprawling areas, with the effect operating through increased vehicle travel, higher obesity rates linked to car-dependent lifestyles, and reduced access to healthcare findings with direct relevance to the low-density, car-dependent fringe development emerging in Abeokuta South. Cappelli et al (2021) examined the relationship between urban sprawl and air quality across European Union cities, using the frequency of days exceeding PM10 safety thresholds, and found that more sprawling urban morphologies were associated with significantly worse air quality even after controlling for socio-economic, climatic, and geographic factors confirming that urban form itself, not merely population size, shapes environmental outcomes.

Mun, et al (2024), using Landsat imagery and structural equation modelling in South Korea, found that greater sprawl was associated with higher income inequality, reduced access to services, and worse air quality; yet, counterintuitively, residents of high-sprawl areas reported higher overall life satisfaction than those in compact areas, largely due to appreciation of their natural surroundings a finding underscoring that residents' perceptions of their environment are multidimensional and cannot be reduced to objective indicators alone, a point of direct relevance to interpreting perception data from Abeokuta South. Zhang (2021), using panel data from 35 large and medium-sized Chinese cities (1998–2019), found an inverted-U relationship between urban sprawl and pollution: pollution initially falls as sprawl begins (due to dilution effects) before rising sharply as vehicle dependency and energy consumption increase, with fixed-asset and foreign direct investment identified as key contributors to pollution, a pattern with implications for rapidly industrialising centres such as Abeokuta. Shao et al. (2021), combining remote sensing and social media data in Morogoro, Tanzania (2011–2017), pioneered a method for triangulating physical sprawl patterns with residents' own social media expressions about urban change, demonstrating that combining spatial and perception-based data yields richer insight than either approach alone, a methodological orientation this study adopts by centering residents' perceptions as its primary evidence base. Several Nigerian studies provide direct context for the present research.

Olatunji et al. (2025), studying Abuja, combined geospatial analysis with stakeholder surveys and found that the convergence between empirical spatial evidence and resident perceptions strengthens the case for participatory planning frameworks. Taiwo (2022) tracked Ibadan's spatiotemporal sprawl patterns from 1984 to 2013 using Landsat imagery and multiple sprawl indices, finding that sprawl varied significantly between local government areas within the same metropolis and calling for LGA-level monitoring, a call this study answers by focusing specifically on Abeokuta South LGA. Owoeye and Adekunle (2024), combining satellite imagery (2006–2021) with a 265-respondent survey and structural equation modelling in Akure, identified five drivers of sprawl (cheap fringe land, transport infrastructure development, rising incomes, security concerns, and low commuting costs) and eight resident-reported

consequences, including reduced social interaction, loss of agricultural land, unsafe environmental conditions, inadequate health and education services, high service costs, insufficient public transport, reduced physical activity, and pollution, demonstrating, through residents' own accounts, how abstract sprawl patterns translate into lived consequences. Adebayo et al. (2024), using fifty years of remote sensing data (1972–2022) for Abeokuta itself, documented the city's built-up area expansion and called for the integration of environmental sustainability into planning policy alongside community participation in decision-making. Abubakar and Aina (2019), reviewing Nigeria's progress toward SDG 11, found that rapid urbanization had intensified pressure on land, water, housing, and public services nationwide, with limited progress on sanitation coverage and slum upgrading, a dimensions of urban sustainability acutely relevant to Abeokuta's expanding periphery. Taken together, these studies confirm the scale, drivers, and consequences of urban sprawl from developed countries through to Nigeria, but also reveal a persistent gap: the relative absence of empirical research grounded in residents' own perceptions, particularly at the local government level. This study addresses that gap directly by examining how residents of Abeokuta South LGA perceived the environmental and infrastructural consequences of the urban sprawl unfolding around them.

1.4 Theoretical Framework

1.4.1 Central Place Theory

Central Place Theory (CPT), developed by Christaller (1933), explains the number, size, and spatial distribution of settlements in a region (Rodrigue, 2024). Settlements function as "central places" supplying goods and services to a surrounding hinterland. Two concepts govern this: threshold, the minimum population or purchasing power needed to sustain a service, and range, the maximum distance people will travel for it. Low-order services such as clinics and primary schools are therefore ubiquitous, while high-order services such as specialist hospitals and universities are confined to larger centres (Planningtank, 2021). Under idealized conditions, the marketing (k=3), transport (k=4), and administrative (k=7) principles generate a hexagonal hierarchy of settlements (Rodrigue, 2024). Although conceived for an early twentieth-century agrarian landscape, CPT remains relevant. Kim et al. (2024) validated Christaller's hierarchies using geo-location data from Seoul, finding that highly complex goods and services cluster in locations with larger market areas. In Nigeria, studies of Ibadan (Taiwo, 2022), Lagos, and Abuja (Olatunji et al., 2025) show that new commercial nodes along major roads attract lower-order services first, then residents, and eventually higher-order services. This fringe-development process is observable in Abeokuta South, where new commercial and residential clusters continue to emerge along arterial roads (Adebayo et al., 2024). For this study, CPT explains how growing demand for housing, roads, health facilities, schools, and water in Abeokuta South places sustained pressure on existing infrastructure and drives further sprawl.

1.4.2 Concentric Zone Theory

Burgess (1925) offered the first systematic account of urban spatial structure, describing five concentric zones radiating from a Central Business District (CBD): the CBD, the zone in transition, working-class homes, better residences, and the commuter zone, each with distinct socio-economic characteristics (Rodrigue, 2024). The driving mechanism, "invasion and succession," describes how expanding commercial and higher-income uses progressively displace lower-income residents outward. Whereas Burgess's commuter zone housed the wealthy in Western industrial cities, the peripheries of many African cities, including Abeokuta, are occupied by the poorest residents, pushed out by high central land costs and living without the infrastructure Burgess's commuters enjoyed. The model has been criticized for assuming a single dominant centre, a uniform landscape, and outward movement driven by economic success. These assumptions fail in many African cities, which have multiple commercial centres, are shaped by rivers and topography, and expand outward through poverty rather than affluence (Olatunji et al., 2025; Rodrigue, 2024; Taiwo, 2022). Abramovic (2019) adds that its notion of "natural" ecological competition can obscure racism and inequality in urban space. Nevertheless, its core insight, that cities grow outward through displacement and those with the least power end up furthest from the centre, remains empirically robust. Bayode and Siegmund (2024) found that growth in Akure follows a concentric ring pattern along transport routes, supporting its applicability to comparable southwestern Nigerian cities. For this study, the theory supplies the spatial logic linking Abeokuta South's outward growth to the unequal distribution of environmental quality and infrastructure across zones, framing peripheral residents as occupants of the outer rings of a growing city.

2. Material and Method

2.1. Study Area

Abeokuta South LGA, one of the two LGAs comprising metropolitan Abeokuta, lies at approximately latitude 7.15° N and longitude 3.35° E (Figure 1), with a projected 2022 population of about 425,700 within a land area of roughly 59.6 km², making it a densely populated and rapidly urbanizing locale with its headquarters at Ake. The area lies within the tropical wet-and-dry (Köppen Aw) climatic zone, with a rainy season from April to October, a dry season from November to March (with Harmattan influence), mean annual temperature of 27–28°C, and mean annual rainfall of 1,100–1,300 mm (Odunsi & Rienow, 2024). Geologically, the LGA sits within the Basement Complex formation of southwestern Nigeria, producing well-drained sandy loam to loamy ferruginous tropical soils (Alfisols) that are generally suitable for construction but vulnerable to sheet erosion, gully formation, and loss of bearing capacity where vegetation is removed during urban expansion (Osemwegie et al., 2020; Adebayo et al., 2024). The area falls within the Ogun River drainage basin, and recent hydrological studies show that the conversion of permeable surfaces to impervious ones through housing, commercial development, and road construction has reduced infiltration, increased surface runoff, and heightened flood risk in urbanized neighbourhoods such as Ake, Ijaiye, and Ibara (Olorunfemi et al., 2019; Owolabi & Abiodun, 2021). Economically, Abeokuta South has diversified from its historically agro-based livelihoods toward commerce, services, small and medium enterprises, light manufacturing, and real estate and construction, aided by improved transport links and state

investment initiatives. Peri-urban farmland is increasingly converted to built-up uses as the city expands, reducing land available for food production, while active markets (such as Itoku Market) and a dense informal sector provide much of the area's employment. Rising demand for housing and commercial space has driven up land values, producing both planned developments and unregulated growth, and placing further pressure on drainage, sanitation, and waste systems. Human activities across the LGA; residential development, commercial trading, transportation, small-scale manufacturing, quarrying, and informal economic activity collectively accelerate land conversion, particularly around commercial nodes such as Ita-Oshin, Ake, Adatan, and Lafenwa (Afolabi & Egunjobi, 2018), while transportation corridors such as the Abeokuta–Ijebu-Ode and Abeokuta–Ibadan roads have intensified traffic congestion and noise pollution (Jimoh & Oyetayo, 2025)..

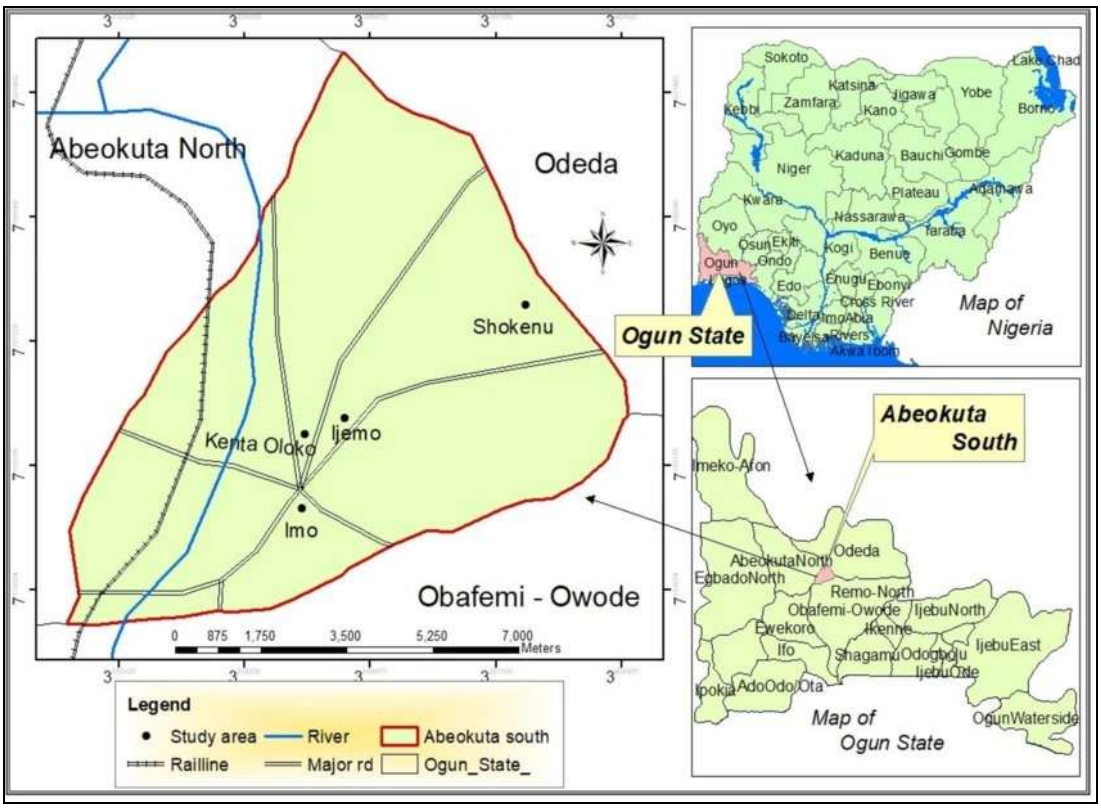

Figure 1: Map of Abeokuta South in the context of Ogun State and Nigeria
Source: Jimoh and Oyetayo (2025)

2.2 Research Design

The study adopted a descriptive survey research design, which allowed the researcher to obtain data from residents on their awareness, perception, and lived experience of urban sprawl's environmental and infrastructural effects, and to do so across a reasonably large number of respondents within a defined period.

2.3 Types and Sources of Data

Both primary and secondary data were used. Primary data were collected through structured questionnaires administered to residents of selected neighbourhoods (Bryman, 2016). Secondary data were drawn from existing literature, reports, policy documents, and official records relating to environmental planning policies, legislation, and frameworks in Abeokuta, providing additional context for the analysis of primary data.

2.4 Population of the Study

The target population comprised residents of Abeokuta South LGA. According to the 2006 national census, the LGA's population stood at 250,295, with recent projections placing the 2022 population at approximately 425,700. For contextual comparison, Odunsi (2024) estimated the wider metropolitan Abeokuta population at about 544,000 in 2021, although this figure extends beyond the Abeokuta South LGA boundary. For this study, the population of interest comprised residents of the selected communities within Abeokuta South LGA.

2.5 Sample Size and Sampling Procedure

A multi-stage stratified random sampling procedure was employed. Abeokuta South LGA was first stratified into urban and peri-urban areas experiencing rapid sprawl, after which purposive sampling was used to select ten communities showing clear evidence of sprawl; Asero, Obantoko, Olomore, Ake, Ibara, Ijemo, Ijaiye, Kuto, Itoku, and Oke- Mosan based on their land-use characteristics and sprawl trends. Ten respondents were then selected from each community, giving a total sample of 100 respondents (Table 1). Because the constant movement and informal nature of settlement in the sprawl-affected areas made an accurate sampling frame unavailable, a statistical sample-size formula such as Taro Yamane's was not applied; instead, an equal field-based distribution across communities was adopted as the most practical approach, and a sample of 100 was judged adequate for descriptive statistical analysis.

Table 1: Sampling Distribution of Respondents across Selected Communities in Abeokuta South

S/N	Selected Community (Ward)	Questionnaires Administered
1	Asero	10
2	Obantoko	10
3	Olomore	10
4	Ake	10
5	Ibara	10
6	Ijemo	10
7	Ijaiye	10
8	Kuto	10
9	Itoku	10
10	Oke Mosan	10
Total		**100**

Source: Authors' Field Survey, 2026.

2.6 Data Collection Instrument

A structured, closed-ended questionnaire developed in line with the study's objectives served as the primary data collection instrument, allowing standardized, comparable responses across respondents. Section A collected socio-economic data (gender, age, marital status, education, occupation, monthly income, and length of stay). Section B, comprising five statements measured on a five-point Likert scale (Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree), assessed respondents' awareness and understanding of urban sprawl. Section C, containing seven Likert-scale items, measured perceived environmental and infrastructural effects of sprawl, including degradation, pollution, loss of green space, infrastructural pressure, congestion, waste management, and housing development. Sections D and E examined, respectively, the factors influencing perception (five items: education, income, government policy, land availability, and population growth) and the challenges experienced as a result of sprawl (seven items: poor roads, inadequate water, irregular electricity, high transport costs, poor waste disposal, inadequate drainage, and overcrowding). The final section captured respondents' suggested solutions across six items: improved planning, infrastructure provision, environmental law enforcement, public awareness, waste management, and green-space preservation.

2.7 Data Collection Method

The researcher personally administered the questionnaires to residents to maximize response rates and address any questions of interpretation on the spot. Respondents were given ample time to complete the instrument before returning it to the researcher, allowing direct interaction between researcher and respondents throughout the exercise.

2.8 Method of Data Analysis

Descriptive statistics (frequency counts and percentages) were used to summarize respondents' socio-economic characteristics and their awareness, perceptions, challenges, and recommendations regarding urban sprawl. The Chi-square (χ^2) test of independence was applied as the inferential technique to examine whether a relationship exists between length of stay in the study area and awareness of urban sprawl, a test well suited to the categorical, frequency-based nature of the data. Observed frequencies were derived from cross-tabulation of the two variables, and expected frequencies under the null hypothesis were computed for comparison; the Chi-square value was then calculated from the differences between observed and expected frequencies at the 0.05 significance level, with the null hypothesis rejected where $p < 0.05$.

3. Results

3.1 Socio-Economic Characteristics of Respondents Sampled in Abeokuta South

Table 2 shows an even gender split among respondents (50% male, 50% female). The age distribution skewed young, with 37% aged 18–25 and 29% aged 26–35, together accounting for two-thirds of the sample, while only 4% were aged 56 or above. Married (47%) and single (45%) respondents dominated the marital-status distribution, with divorced (3%) and widowed (5%) respondents forming a small minority. Educational attainment was relatively high: 51% had tertiary education and 34% secondary education, with only 1% reporting no formal education, suggesting that most respondents were well placed to understand and respond

meaningfully to the survey items. Occupationally, traders (30%) formed the largest group, followed closely by civil servants and students (26% each), with income data indicating that most respondents fell into middle-income brackets (34% earning ₦60,000–₦100,000 monthly). Regarding length of residence, 31% had lived in the area for less than five years and 30% for five to ten years, while 39% had resided there for more than a decade, indicating that a substantial share of respondents had accumulated considerable first-hand experience of the area's transformation.

Table 2: Socio-Economic Characteristics of Respondents Sampled in Abeokuta South

Variable	Category	Frequency	Percentage (%)
Gender	Male	50	50.0
	Female	50	50.0
Age	18–25 years	37	37.0
	26–35 years	29	29.0
	36–45 years	19	19.0
	46–55 years	11	11.0
	56 years and above	4	4.0
Marital Status	Single	45	45.0
	Married	47	47.0
	Divorced	3	3.0
	Widowed	5	5.0
Educational Qualification	No formal education	1	1.0
	Primary	14	14.0
	Secondary	34	34.0
	Tertiary	51	51.0
Occupation	Civil servant	26	26.0
	Trader	30	30.0
	Artisan	4	4.0
	Student	26	26.0
	Other	14	14.0
Monthly Income	Below ₦30,000	20	20.0
	₦30,000–₦60,000	22	22.0
	₦60,000–₦100,000	34	34.0
	₦100,000 and above	24	24.0
Length of Stay	Below 5 years	31	31.0
	5–10 years	30	30.0
	11–20 years	20	20.0
	20 years and above	19	19.0
Total		**100**	**100.0**

Source: Authors' Field Survey, 2026

3.2. Residents' Perception of the Awareness of Urban Sprawl in Abeokuta South

Table 3 reveals a very high level of awareness of urban sprawl among residents. Ninety-seven per cent of respondents agreed or strongly agreed that they were aware of urban sprawl in their locality, while 96% correctly associated the term with uncontrolled urban expansion and a further 96% agreed that sprawl is common in Abeokuta South. Ninety-two per cent reported understanding the causes of sprawl, and 94% agreed that population growth is a contributing factor. These findings indicate that residents possess both a general awareness of urban sprawl as a phenomenon and a reasonably accurate conceptual grasp of what drives it locally.

Table 3: Awareness of Urban Sprawl by the Sampled Respondents in Abeokuta South

Statement	SA	A	U	D	SD
I am aware of urban sprawl in my area	28	69	0	3	0
Urban sprawl means uncontrolled expansion	39	57	1	3	0
Urban sprawl is common in Abeokuta South	33	63	2	2	0
I understand the causes of urban sprawl	23	69	1	6	1
Population growth contributes to sprawl	37	57	1	5	0

Source: Authors' Field Survey, 2026.

Note: SA= Strongly Agreed; A=Agreed; D=Disagreed; Undecided; SD=Strongly Disagreed

3.3 Residents' Perception of Environmental and Infrastructural Effects of Urban Sprawl in Abeokuta South

Table 4 shows that 95% of respondents agreed or strongly agreed that urban sprawl causes environmental degradation, and 92% agreed that pollution has increased alongside urban expansion. An overwhelming 94% agreed that green and open spaces are shrinking. Regarding infrastructure, 86% perceived that infrastructure is under pressure, 95% considered waste management poor, and 93% felt that housing development in the area is poorly planned. Traffic congestion drew a somewhat more divided response with 67% agreed it had increased, but 32% disagreed, suggesting that congestion, while significant, is experienced less uniformly across the study area than the other effects measured, possibly reflecting differences in proximity to major arterial roads across the ten communities sampled.

Table 4: Residents' Perception of Environmental and Infrastructural Effects of Urban Sprawl in Abeokuta South

Statement	SA	A	U	D	SD
Urban sprawl causes environmental degradation	30	65	1	4	0
Pollution has increased due to urban expansion	30	62	2	4	2
Green/open spaces are reducing	17	77	3	3	0
Infrastructure is under pressure	34	52	2	12	0
Traffic congestion has increased	15	52	1	31	1
Waste management is poor	41	54	1	4	0
Housing development is poorly planned	32	61	1	5	1

Source: Authors' Field Survey, 2026.

Note: SA= Strongly Agreed; A=Agreed; D=Disagreed; Undecided; SD=Strongly Disagreed

3.4. Residents' Perception of the Factors Influencing their Perception of Urban Sprawl in Abeokuta South

Table 5 shows a striking contrast between the socio-economic and structural determinants of perception. Sixty-nine per cent of respondents disagreed or strongly disagreed that education shapes their perception of urban sprawl, and 53% likewise disagreed that income influences it — indicating that respondents do not see individual socio-economic attributes as primary drivers of how they interpret sprawl. By contrast, structural and policy-level factors drew strong agreement: 91% agreed that government policy affects urban growth, 93% agreed that land availability influences expansion, and 94% agreed that population increase shapes perception. This pattern suggests that residents locate the drivers of sprawl primarily in governance and structural conditions rather than in their own individual characteristics.

Table 5: Residents' Perception of the Factors that Influencing their Perception of Urban Sprawl in Abeokuta South

Statement	SA	A	U	D	SD
Education affects my understanding	5	26	0	45	24
Income influences my perception	6	40	1	48	5
Government policies affect urban growth	22	69	0	9	0
Land availability influences expansion	27	66	1	4	2
Population increase affects perception	26	68	2	3	1

Source: Authors' Field Survey, 2026.

Note: SA= Strongly Agreed; A=Agreed; D=Disagreed; Undecided; SD=Strongly Disagreed

3.5. Residents' Perception of the Challenges Experienced as a Result of Urban Sprawl in Abeokuta South

Table 6 shows that irregular electricity supply emerged as the most widely shared challenge, with 96% of respondents affirming its impact with the highest level of agreement recorded across all challenge items. Poor road conditions (91%), poor waste disposal (89%), and inadequate drainage (89%) followed closely, while 81% cited rising transportation costs and 65% cited overcrowding. Inadequate water supply drew a more mixed response (54% agreement, 45% disagreement), suggesting that water access, unlike electricity and roads, may vary more significantly by neighbourhood within the study area.

Table 6: Residents' Perception of the Challenges Experienced as a Result of Urban Sprawl in Abeokuta South

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
Poor road conditions	24	67	4	3
Inadequate water supply	16	38	29	16
Irregular electricity supply	51	45	2	0
High transportation cost	17	64	16	2
Poor waste disposal	46	43	6	1
Lack of drainage systems	41	48	9	1
Overcrowding	13	52	23	9

Source: Authors' Field Survey, 2026.

3.6 Residents' Suggested Solutions to the Challenges of Urban Sprawl in Abeokuta South

Respondents overwhelmingly endorsed every proposed solution, with agreement levels ranging from 97% to 99% across all six items. Improved waste management drew the highest level of endorsement (99%), followed by improved infrastructure provision and enforcement of environmental laws (98% each), improved planning policy (97%), preservation of green areas (97%), and increased public awareness (96%). This near-unanimous support across all proposed interventions indicates a broad consensus among residents that addressing urban sprawl requires simultaneous action on planning, infrastructure, regulation, and public education rather than any single intervention in isolation.

Table 7: Residents' Suggested Solutions to the Challenges of Urban Sprawl in Abeokuta South

Statement	Strongly Agree	Agree	Undecided	Disagree
Improve urban planning policies	50	47	1	2
Provide better infrastructure	54	44	1	1
Enforce environmental laws	45	53	1	1
Increase public awareness	52	44	3	1
Improve waste management	57	42	0	0
Protect green areas	46	51	1	2

Source: Authors' Field Survey, 2026.

3.7 Test of Hypothesis

The cross-tabulation in Table 8 shows a pattern in which the proportion of respondents strongly agreeing that they are aware of urban sprawl declines with length of residence from 15% among those resident for under five years to just 1% among those resident for 20 years or more while agreement (a less emphatic endorsement) rises correspondingly among longer-term residents. The Pearson Chi-square value of 14.274 (df = 6, p = 0.027), reported in Table 9, is significant at the 0.05 level, leading to rejection of the null hypothesis. This indicates that length of stay in the study area is significantly associated with residents' awareness of urban sprawl, implying that longer-term residents who have directly witnessed the area's transformation over time hold a qualitatively different, more grounded form of awareness than newer residents, even if the latter are more likely to express that awareness in the most emphatic terms.

Table 8: Cross-tabulation of Length of Stay and Awareness of Residents of Urban Sprawl in Abeokuta South

Length of Stay	Strongly Agree	Agree	Disagree	Total
Below 5 years	15	15	1	31
5–10 years	9	21	0	30
11–20 years	3	16	1	20
20 years and above	1	17	1	19
Total	28	69	3	100

Source: Authors' Field Survey, 2026

Table 9: Chi-Square Test Results

Test Statistic	Value	df	P-value (Asymp. Sig., 2-tailed)
Pearson Chi-Square	14.274	6	0.027
Likelihood Ratio	16.382	6	0.012
Linear-by-Linear Association	9.352	1	0.002
Number of Valid Cases	100	—	—

Source: Authors' Field Survey, 2026

4. Discussion of Findings

The results confirm a high level of awareness of urban sprawl among residents of Abeokuta South, consistent with Salam et al (2023) findings of fast urban expansion and land-use change in Oyo Town and Onilude and Vaz's (2020) observation that urban growth in Lagos State has heightened public awareness of urban development issues. Residents' recognition that sprawl drives environmental degradation, pollution, and the loss of green and open spaces aligns closely with Ijaware and Olubaju (2023) findings on environmental deterioration linked to urban growth in Akure South, and with Guo et al (2022) documentation of rising land surface temperatures and ecological pressure associated with urbanization in Lagos. The perceived pressure on infrastructure and poorly planned housing development reported by respondents corroborates Sharifi and Murayama (2014) observation that rapid urban growth strains infrastructure and reduces urban resilience across many African cities. The prominence given by respondents to government policy, land availability, and population growth as drivers of sprawl over education and income mirrors Jatau et al (2022) findings, that ineffective policy and population pressure are primary drivers of sprawl, and Hassan et al (2023) identification of land demand, population pressure, and weak planning mechanisms as central causes. Similarly, the challenges most frequently cited by respondents are irregular power supply, poor roads, poor waste management, and inadequate drainage that echo Mangoro and Kubanza (2023) findings on the persistence of waste management failures across Sub-Saharan African cities and Ayanlade (2024) call for improved urban infrastructure and planning systems to enhance environmental sustainability. Finally, the statistically significant relationship between length of residence and awareness of urban sprawl suggests that residents who have lived in the area longer have accumulated a more grounded and experientially informed understanding of their changing environment than newer residents, a pattern with implications for how planning authorities might tailor public awareness campaigns to different segments of the resident population.

5. Conclusion and Recommendations

This study examined residents' perception of the environmental and infrastructural effects of urban sprawl in Abeokuta South LGA, Ogun State. The findings show that residents possess a high level of awareness of urban sprawl, recognizing both its existence and its underlying causes. Residents perceive urban sprawl as a significant driver of environmental degradation, pollution, and the loss of green and open spaces, and as a source of sustained pressure on infrastructure, manifesting in poor road conditions, inadequate drainage, unreliable waste disposal, and irregular power supply. Government policy, land availability, and population growth were identified as the principal determinants of residents' perception, while education and income were not seen as significant factors. A statistically significant relationship was found between residents' length of stay and their awareness of urban sprawl, indicating that experiential familiarity with the area shapes how residents understand its transformation. Residents expressed near-unanimous support for improved urban planning, infrastructure provision, environmental law enforcement, and better waste management as the key pathways toward addressing the challenges posed by urban sprawl. Overall, the study demonstrates that residents of Abeokuta South are not passive observers of urban change but informed stakeholders whose perceptions constitute valuable evidence for planning and policy formulation.

Based on the findings, the following recommendations are proposed:

i. Government authorities should enhance urban planning and development control policies to manage land use and curb the unregulated spread of urbanization within Abeokuta South.

ii. Roads, drainage, water supply, and electricity infrastructure should be systematically upgraded to keep pace with the rate of urban expansion, with particular attention to irregular electricity supply, which respondents identified as the most pressing challenge.

iii. Strict implementation of environmental regulations is needed to minimize pollution and support long-term environmental sustainability.

iv. Given that poor waste management was identified as one of the most significant environmental effects of sprawl in Abeokuta South, targeted investment in waste collection and disposal systems is essential.

v. Continued public education on urban sprawl and its management should be pursued, with awareness campaigns designed to reach newer residents in particular, given the study's finding that awareness is shaped by length of residence.

vi. Given the strong support residents expressed for planning and infrastructure interventions, planning authorities should establish mechanisms for incorporating residents' perceptions and priorities directly into urban development decision-making, consistent with global best practice in inclusive, sustainable urban development.

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