



Assessment of Urbanization's Environmental Impact in Makurdi Metropolis, Benue State, Nigeria

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ABSTRACT

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The rapid growth of Makurdi, a city in Nigeria, is putting a lot of strain on the environment, raising serious concerns about sustainable development. To understand this issue better, a survey was conducted with 150 residents. The study looked at how factors like high birth rates and people moving from rural areas to the city are driving population growth and harming the environment. More than half of the respondents (53.3%) strongly agreed that high birth rates are a major factor, while 50.7% strongly agreed that rural-to-urban migration is also a big contributor to the rising population. This growth has led to several environmental problems, including pollution, deforestation, and loss of natural habitats. Pollution emerged as the top concern, with 84.6% of respondents identifying it as a major issue. Many linked poor air and water quality to inadequate waste management and emissions from industries. Deforestation is another serious problem, with 43.3% agreeing and 42% strongly agreeing that logging and clearing land for urban development are damaging local ecosystems. To tackle these challenges, there's strong support from the community for solutions like reforestation (53.3% strongly agree) and better waste disposal systems (52.7% strongly agree). Additionally, 53.3% of respondents believe that adopting renewable energy should be part of effective urban planning strategies. These findings highlight the urgent need to manage Makurdi's growth in a balanced and sustainable way. Protecting natural resources and ensuring the well-being of residents must be a top priority as the city continues to expand.

1. INTRODUCTION

Urbanization, a phenomenon marked by population growth and rural migration to cities, has become a primary driver of environmental change worldwide [1]. This trend is particularly evident in developing countries like Nigeria, where urban expansion exerts pressure on ecosystems and reshapes social, economic, and environmental dynamics. Urban growth not only reorganizes places and economies but also intensifies pressure on natural resources, leading to unprecedented environmental strain [2]. As cities expand, they draw on surrounding forests, agricultural lands, and water bodies, depleting resources at an unsustainable rate and creating environmental consequences that often extend beyond urban boundaries [3]. In Nigeria, the urbanization rate, fueled by migration and natural population growth, has led to high demand for urban land and resources. This trend has transformed cities into "centers of progress," where residents seek improved living conditions and economic opportunities [4, 5]. Yet, while cities are seen as beacons of modernization, their rapid expansion contributes to habitat destruction, pollution, and resource depletion [6].

Makurdi Metropolis, located in Benue State, was selected

as the study area due to its unique characteristics that make it a representative case for studying urbanization and environmental degradation in Nigeria (Figure 1). The city is experiencing rapid population growth driven by both high birth rates and rural-to-urban migration, making it an ideal location to examine the environmental impacts of urbanization. Additionally, Makurdi faces significant environmental challenges such as deforestation, pollution, and habitat loss, which are common in many rapidly urbanizing cities in developing countries. Geographically, Makurdi is situated in the Middle Belt region of Nigeria, serving as a strategic link between the northern and southern parts of the country. This makes it a microcosm of broader urbanization trends in Nigeria. Furthermore, while urbanization has been studied in other Nigerian cities, Makurdi has received less attention in the literature, making this study a valuable contribution to understanding the environmental impacts of urbanization in under-researched regions.

The demand for forest products in the area, along with extensive land clearing for agricultural and urban development, has led to forest degradation and biodiversity loss, threatening the region's socio-economic stability [7]. Environmental issues such as deforestation, pollution, and

erosion compound urbanization's impact on the natural ecosystem. Makurdi's natural resources, particularly forest reserves established during colonial times, have been depleted due to growing urban populations and economic pressures. These changes challenge sustainable development goals, highlighting the need for balanced urban planning, renewable energy adoption, and sustainable waste management practices [8]. This study seeks to explore these dynamics within Makurdi, assessing the environmental impact of urban growth and identifying strategies for mitigating the adverse effects on Benue State's natural ecosystem. By integrating survey data with existing literature, this research provides a comprehensive view of urbanization's toll on environmental health in Makurdi, highlighting its implications for policy and sustainable development.

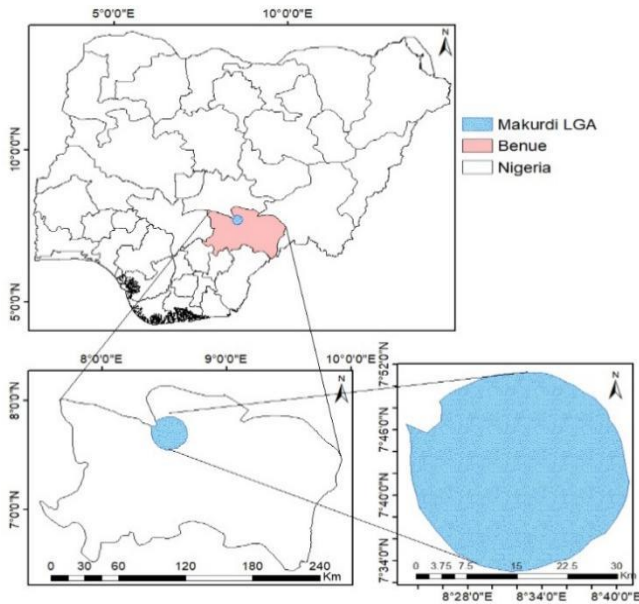


Figure 1. Map of Nigeria showing Benue State

2. RESEARCH METHOD

2.1 Study area description

Makurdi local government area is situated in northeastern Benue State, Nigeria, between latitudes 7°34'N and 7°40'N and longitudes 8°28'E and 8°34'E (refer to Figure 1). Located within the Benue trough, a geophysical zone averaging 92 meters above sea level, Makurdi is bordered by Guma to the northeast, Doma to the northwest, Gwer West to the west, and Gwer East to the south. As part of Nigeria's Middle Belt region, it lies 16 kilometers from the city center and serves as both the headquarters of Makurdi Local Government Area (L.G.A) and the Capital of Benue State, acting as a strategic link between Nigeria's northern and southern regions. Benue state is recognized as one of the largest vegetation zones in the country, the vegetation of is characterized by tall grasses up to 2 m tall [8, 9]. The town is marked by a network of drainage channels, the largest being the Benue River, which divides Makurdi into northern and southern sections. The river's tributaries include Urudu, Demepe, Kereke, and Mu, with smaller streams like Idye and Kpege also contributing to local water flow. In 2017, Makurdi's population was estimated at 517,342, with a density of 323 people per square kilometer, representing roughly 8.14% of Benue State's total population.

2.2 Study design

The research employed a quantitative methodology, using structured surveys to gather data from 150 respondents in Makurdi. To ensure the objectivity of the results, the data were analyzed separately by gender, and no significant differences in responses were found. Stratified sampling ensured proportional representation across demographic variables such as gender, age, and occupation. This approach was selected because it allows for the collection of standardized data from a large sample, enabling statistical analysis of trends and patterns related to urbanization and environmental degradation. Structured surveys are particularly effective for capturing demographic information, public opinions, and perceptions of environmental issues, which are central to this study.

Findings were tabulated to illustrate trends and population sentiments regarding urbanization's environmental impact. A descriptive design was selected to understand the extent of urbanization's impact within the area. The design facilitated both the documentation of population characteristics and exploration of relationships between urban growth factors and environmental consequences. The study investigated causes of urbanization, environmental problems linked to urbanization, and public opinion on potential solutions, as represented in frequency and percentage tables. These tables were instrumental in interpreting urbanization's role in the environmental context of Makurdi.

2.3 Ethical considerations

Ethical considerations were carefully addressed during the data collection process. All respondents were provided with detailed information about the study's purpose and procedures, and informed consent was obtained before participation. Respondents were assured that their participation was voluntary and that their responses would remain confidential. No personally identifiable information was collected, and data were anonymized to protect respondents' privacy. These protocols were implemented to ensure that the study adhered to ethical standards for research involving human subjects.

3. RESULTS AND DISCUSSION

3.1 Demographic

Table 1. Sex of respondents

Sex of Respondent	Frequency	Percentage %
Male	98	65.3
Female	52	34.7
Total	150	100

Source: Field Survey, 2024

The demographic profile in Table 1 of the respondents in this study highlights a significant male predominance (65.3%), with females constituting 34.7% of the sample (Figure 2). This gender disparity may reflect employment trends in urban areas like Makurdi, where men often dominate sectors reliant on natural resources, such as construction, logging, and agriculture. These sectors are typically more labor-intensive and may offer more immediate economic benefits, which could foster a supportive attitude toward urban growth despite its environmental implications [3].

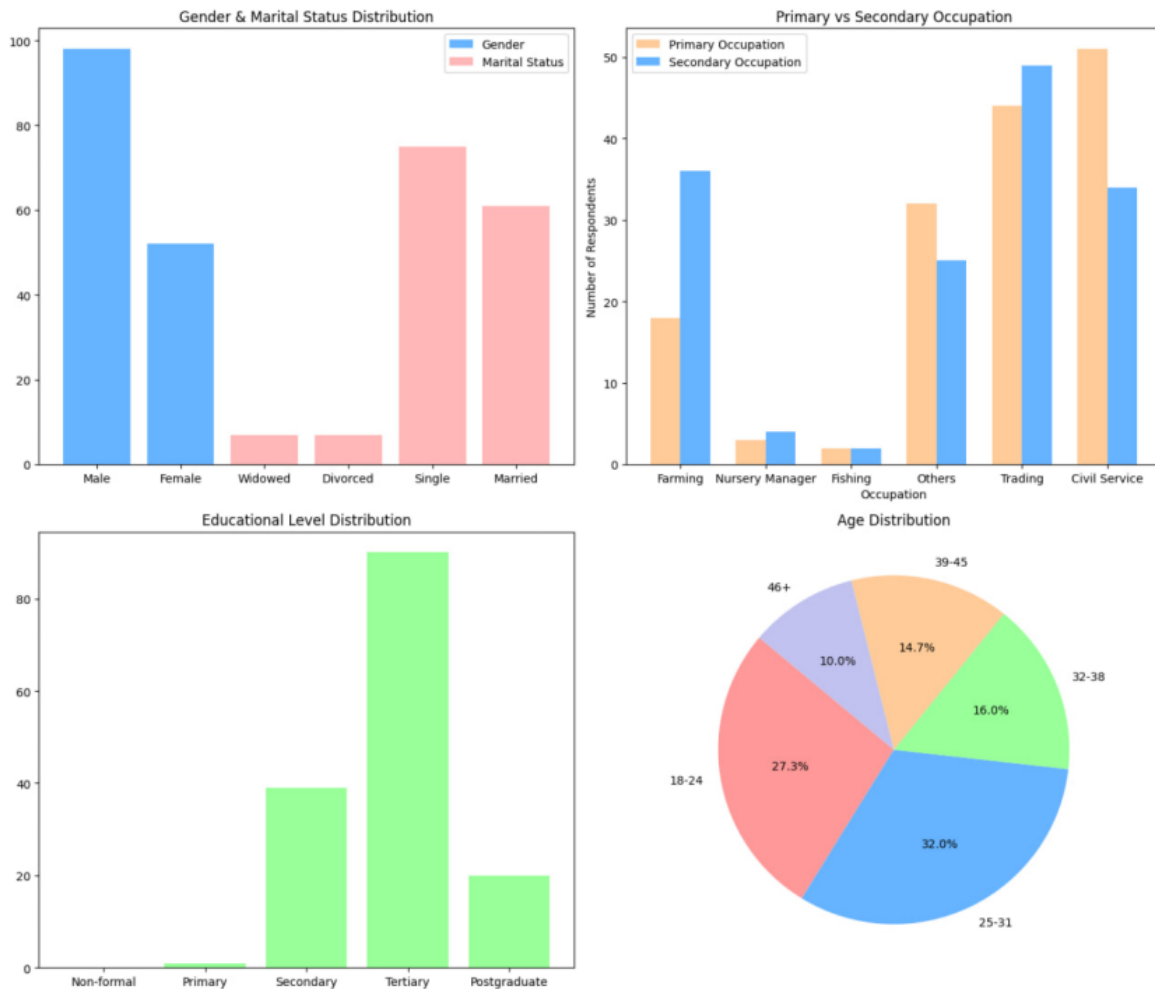


Figure 2. Chart combination representing the demographic data of respondents in Makurdi Metropolis

Table 2. Age of the respondents

Respondents Age	Frequency	Percentage %
18-24	41	27.3
25-31	48	32.0
32-38	24	16
39-45	22	14.7
46 above	15	10.0
Total	150	100

Table 3. Education level of the respondent

Respondents Education Level	Frequency	Percentage %
Non-formal education	0	0
Primary	1	0.7
Secondary	39	26
Tertiary	90	60
Postgraduate	20	13.3
Total	150	100

The age distribution in Table 2 reveals that a substantial portion of respondents (32.0%) were young adults aged 25-31, followed closely by those aged 18-24 (27.3%). This youth demographic is likely attracted to Makurdi due to job opportunities, driving demand for housing, resources, and infrastructure. As the primary contributors to urban growth, this group's increasing needs for jobs and social services further strains the natural ecosystem [10]. Furthermore, the educational background of the respondents in Table 3 is noteworthy, with 60% possessing tertiary education. A well-

educated populace is generally more aware of the environmental impacts of urbanization, potentially leading to greater advocacy for sustainable practices. This heightened awareness can enhance community engagement and support for green initiatives [11].

Table 4. Occupation of respondents

Respondents Occupation	Frequency	Percentage %
Farming	36	24
Nursery Manager	4	2.7
Fishing	2	1.3
Trading	49	32.7
Civil Servant	34	22.7
Others	25	16.6
Total	150	100

Table 5. Marital status of respondents

Respondent Status	Frequency	Percentage %
Widowed	7	4.7
Divorced	7	4.7
Single	75	50
Married	61	40.6
Total	150	100

In terms of occupation in Table 4, trading was identified as the primary employment sector (32.7%), followed by farming (24%) and civil service (22.7%). This occupational diversity illustrates how urbanization in Makurdi holds a wide range of

economic activities, but it also suggests potential conflicts between urban enlargement and agricultural land use. The encroachment of commercial areas on farmland could lead to deforestation and biodiversity loss [6]. However, half of the respondents (50%) in Table 5 are single, suggesting that the sample may include many young or unmarried individuals. Married respondents make up 40.6%, the second-largest group while widowed and divorced respondents are the smallest groups (4.7% each).

3.2 Causes of urbanization with Makurdi Metropolis

Table 6. Increase in birthrate

Birthrate	Frequency	Percentage %
Strongly Disagree	1	0.7
Disagree	11	7.3
Agree	58	38.7
Strongly Agree	80	53.3
Total	150	100

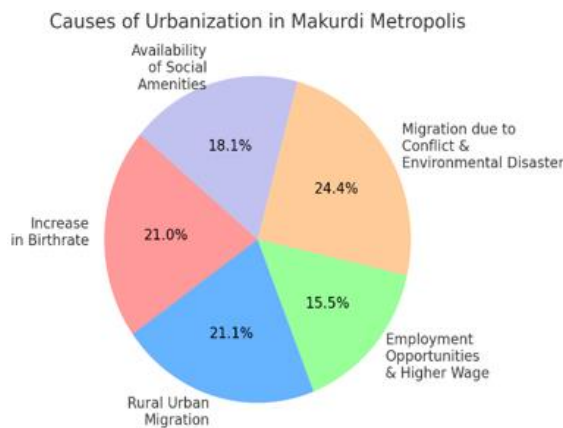


Figure 3. Pie chart representing the causes of urbanization in Makurdi Metropolis based on agree and strongly agree

Table 7. Rural-urban migration

Rural-Urban Migration	Frequency	Percentage %
Strongly Disagree	2	1.33
Disagree	9	6
Agree	63	42
Strongly Agree	76	50.7
Total	150	100

The data reveal that 53.3% of respondents strongly agree that high birth rates in Table 6 are a significant driver of urbanization in Makurdi, contributing to an ever-expanding urban population. This rapid growth is putting a lot of strain on the city's already limited infrastructure, causing overcrowding, overuse of resources, and harm to the environment [1]. The high percentage of respondents who agree or strongly agree (92%) underscores the importance of addressing population growth as a key factor in urban environmental degradation (Figure 3). More than half of the people surveyed (50.7%) pointed out that rural-urban migration is a major driver of this urbanization as shown in Table 7. Many people move to the city in search of better job opportunities and improved living conditions. However, this influx of people often leads to urban sprawl, especially in the outskirts of the city where infrastructure can't keep up with the growing demands. This unregulated expansion makes

environmental problems even worse [2].

Economic opportunities were also highlighted, with 34% of respondents indicating that the city's economic pull continues to drive migration, as indicated in Table 8. The pursuit of higher wages in urban areas results in population density, placing increased pressure on local resources, leading to pollution, habitat loss, and deforestation [12]. Furthermore, 62% of respondents identified conflicts and disasters as significant migration drivers, emphasizing Makurdi's role as a refuge for displaced individuals as seen in Table 9. This demographic shift intensifies the consumption of essential resources, including water, energy, and housing, often resulting in overcrowding and depletion of resources [4].

The attraction of social services to 33.3% of respondents underscores the role of urban amenities in drawing rural residents which is shown in Table 10; a trend that strains Makurdi's infrastructure and accelerates unsustainable urban growth, further impacting environmental resources [3].

Table 8. Employment opportunities and higher wage

Opportunities & Wage	Frequency	Percentage %
Strongly Disagree	13	8.6
Disagree	35	23.3
Agree	51	34
Strongly Agree	51	34
Total	150	100

Table 9. Migration due to conflict and environmental disaster

Migration	Frequency	Percentage %
Strongly Disagree	4	2.7
Disagree	39	26.0
Agree	45	30.0
Strongly Agree	62	41.3
Total	150	100

Table 10. Availability of social amenities

Social Amenities	Frequency	Percentage %
Strongly Disagree	6	4
Disagree	25	16.7
Agree	69	46
Strongly Agree	50	33.3
Total	150	100

3.3 Problems of urbanization within Makurdi metropolis, Benue State

Table 11. High population

High Population	Frequency	Percentage %
Strongly Disagree	5	3.3
Disagree	9	6
Agree	75	50
Strongly Agree	61	40.7
Total	150	100

Table 12. Pollution

Pollution	Frequency	Percentage %
Strongly Disagree	19	2.7
Disagree	19	12.7
Agree	86	57.3
Strongly Agree	41	27.3
Total	150	100

Urbanization in Makurdi has led to significant challenges, with half of the respondents acknowledging that high population levels pose considerable urban issues in Table 11. Rapid population growth intensifies the demand for essential services, resulting in resource shortages and environmental pollution. Such unregulated growth exacerbates issues like air pollution and land degradation [13]. Alarming, 84.6% of respondents reported pollution in Table 12 as a primary concern, citing increased waste generation, industrial emissions, and inadequate waste disposal as key factors degrading water and air quality, directly impacting public health and the local ecosystem. Pollutant levels often exceed safe limits, underscoring the urgent need for effective waste management [14, 15].

Deforestation is another significant issue, with 43.3% of respondents agreeing and 42% strongly agreeing that urbanization-related logging and land clearing are detrimental to forested areas in Table 13. This destruction impacts biodiversity, soil stability, and hydrological cycles, while the loss of forests threatens species survival and diminishes critical carbon sinks, contributing to climate change [6]. Furthermore, in Table 14, the majority of the respondents (53.3%) recognized the influence of climate change, exacerbated by urbanization through increased emissions, altered hydrological cycles, and reduced green spaces. This transformation leads to climate-related stresses like rising temperatures and increased rainfall variability, compounding environmental challenges for urban areas [16].

Table 13. Deforestation

Deforestation	Frequency	Percentage %
Strongly Disagree	1	0.7
Disagree	21	14
Agree	65	43.3
Strongly Agree	63	42
Total	150	100

Table 14. Climate change

Climate Change	Frequency	Percentage%
Strongly Disagree	0	0
Disagree	29	19.3
Agree	80	53.3
Strongly Agree	41	27.3
Total	150	100

Table 15. Soil erosion

Soil Erosion	Frequency	Percentage %
Strongly Disagree	2	1.3
Disagree	25	16.7
Agree	77	51.3
Strongly Agree	46	30.7
Total	150	100

Table 16. Habitat loss

Habitat Loss	Frequency	Percentage %
Strongly Disagree	1	0.7
Disagree	28	18.7
Agree	86	57.3
Strongly Agree	35	23.3
Total	150	100

Soil erosion in Table 15 was flagged by 51.3% of

respondents, highlighting the detrimental effects of unplanned construction and deforestation on soil integrity. This erosion exacerbates land degradation and threatens agricultural productivity, posing long-term food security challenges for Makurdi [17]. Habitat loss due to urban expansion was acknowledged by 57.3% of respondents in Table 16, indicating that as urbanization encroaches on forests and wetlands, it displaces local species, leading to biodiversity loss and threatening ecological balance [7]. Moreover, 49.3% of respondents strongly agreed on the necessity for effective law enforcement to regulate urban activities as indicated in Table 17, as weak enforcement facilitates illegal deforestation, pollution, and unregulated construction practices that significantly degrade environmental quality. Strengthening legal frameworks and enforcement is vital to address these unsustainable practices [8].

Table 17. Lack of law enforcement

Lack of Law Enforcement	Frequency	Percentage %
Strongly Disagree	2	1.3
Disagree	12	8
Agree	62	41.3
Strongly Agree	74	49.3
Total	150	100

3.4 Effects of urbanization within Makurdi metropolis in Benue State

The impacts of urbanization are evident in Table 18, with resource over-exploitation remaining a key concern for respondents. Rapid population growth, industrial expansion, and urban infrastructure development have led to the depletion of natural resources, causing ecological deficits when consumption exceeds regenerative capacity [18]. Additionally, in Table 19, 50.7% of respondents identified the lack of comprehensive planning in urban infrastructure as problematic. According to Bradbury et al. [2], uncoordinated growth results in fragmented landscapes, inadequate waste and water management, and unsanitary conditions that pollute the environment.

Table 18. Over-exploitation of resources

Exploitation	Frequency	Percentage %
Strongly Agree	3	2
Agree	18	12
Disagree	66	44
Strongly Disagree	63	42
Total	150	100

Source: Field Survey, 2024

Table 19. Infrastructural development of cities without a comprehensive urban plan

Urban Planning	Frequency	Percentage %
Strongly Disagree	5	3.3
Disagree	26	17.3
Agree	76	50.7
Strongly Agree	43	28.7
Total	150	100

Poor waste disposal, acknowledged by over 47.3% of respondents, poses a significant urban challenge as described in Table 20. Omokaro et al. [19] noted that, improper waste

management pose a significant threat to natural resources. Without effective waste management, solid and liquid wastes contaminate water bodies and green spaces, heightening health risks and harming biodiversity. Improved waste management could mitigate pollution and its adverse environmental effects [20]. Concerns regarding species extinction and habitat degradation were supported by 51.3% and 54.7% of respondents, respectively, emphasizing urbanization's detrimental impact on biodiversity which is displayed in Tables 21-24. Urban expansion disrupts habitats, reducing species populations and degrading essential ecosystem services that local communities rely upon [3]. Furthermore, the introduction of invasive species was a significant concern, with 47.3% of respondents agreeing and 38.7% strongly agreeing that urbanization facilitates the spread of non-native species, which outcompete local flora and fauna, further disrupting ecosystems and altering ecological dynamics. This shift diminishes biodiversity and affects the natural resilience of ecosystems [21].

Table 20. Indiscriminate waste disposal

Waste Disposal	Frequency	Percentage %
Strongly Disagree	1	0.7
Disagree	15	10
Agree	71	47.3
Strongly Agree	63	42
Total	150	100

Table 21. Extinction of species

Extinction of Species	Frequency	Percentage %
Strongly Disagree	1	0.7
Disagree	29	19.3
Agree	77	51.3
Strongly Agree	43	28.7
Total	100	100

Table 22. Degradation of habitat

Degradation of Habitat	Frequency	Percentage %
Strongly Disagree	2	1.3
Disagree	17	11.3
Agree	82	54.7
Strongly Agree	49	32.7
Total	150	100

Table 23. Changes in species distribution

Species Distribution	Frequency	Percentage %
Strongly Disagree	3	2
Disagree	29	19.3
Agree	81	54
Strongly Agree	37	24.7
Total	150	100

Table 24. Introduction of invasive species

Invasive Species	Frequency	Percentage %
Strongly Disagree	2	1.3
Disagree	19	12.7
Agree	71	47.3
Strongly Agree	58	38.7
Total	150	100

3.5 Solution to problem of urbanization within Makurdi metropolis in Benue State

Table 25. Tree planting

Tree Planting	Frequency	Percentage %
Strongly Disagree	0	0
Disagree	20	13.3
Agree	50	33.3
Strongly Agree	80	53.3
Total	150	100

The survey results indicate strong support for reforestation efforts in Table 25, with 53.3% of respondents endorsing tree planting as a means to restore ecological balance. Tree planting initiatives can significantly contribute to urban areas by sequestering carbon dioxide, providing shade, and reducing pollution. Such environmental restoration efforts are vital for mitigating deforestation impacts, preserving local biodiversity, and protecting Makurdi's peri-urban areas from further ecological degradation [8]. Additionally, there is notable support (52.7% strongly agreed) for effective waste disposal in Tables 26 and 27 with structured urban planning. Enhanced waste management strategies could alleviate pollution and its negative health implications, while systematic urban planning could facilitate efficient resource use. Respondents recognize that without these measures, Makurdi risks further environmental deterioration and may struggle to meet the needs of its growing urban population [19, 10].

Table 26. Development of rural area

Development of Rural Area	Frequency	Percentage %
Strongly Disagree	5	3.3
Disagree	17	11.3
Agreed	50	33.3
Strongly Agree	78	52.0
Total	150	100

Table 27. Proper disposal of waste

Proper Disposal of Waste	Frequency	Percentage %
Strongly Disagree	2	1.3
Disagree	9	6
Agree	60	40
Strongly Agree	79	52.7
Total	150	100

Table 28. Proper urban planning

Proper Urban Planning	Frequency	Percentage %
Strongly Disagree	69	46.0
Disagree	11	7.3
Agree	67	44.7
Strongly Agree	3	2.0
Total	150	100

Table 29. Green infrastructure

Green Infrastructure	Frequency	Percentage %
Strongly Disagree	3	2
Disagree	9	6
Agree	77	51.3
Strongly Agree	61	40.7
Total	150	100

However, opinions on proper urban planning in Table 28 are sharply divided, with nearly half of respondents (46.0%) strongly disagreeing about current practices, suggesting significant dissatisfaction. While 44.7% agree with existing urban planning approaches, only a small fraction (2.0%) strongly agree, indicating weak enthusiastic support. Meanwhile, 7.3% disagree, reinforcing concerns about planning effectiveness. Similarly, respondents (51.3%) in Table 29 agree with green infrastructure initiatives, suggesting strong public support for sustainable urban development. Those who strongly agree make up 40.7%, indicating a high level of enthusiasm.

Moreover, 53.3% of respondents expressed support for renewable energy initiatives as indicated in Table 30, highlighting a public interest in reducing dependence on fossil fuels. The incorporation of renewable energy sources, such as solar and wind power, could significantly decrease pollution levels, reduce carbon footprints, and promote ecological urban growth. By embracing renewable energy, Makurdi could diminish its environmental impact while ensuring reliable energy sources that do not contribute to air and environmental pollution or greenhouse gas emissions [18, 22].

Table 30. Renewable energy integration

Energy Integration	Frequency	Percentage %
Strongly Disagree	1	0.7
Disagree	13	8.7
Agree	80	53.3
Strongly Agree	56	37.3
Total	150	100

The field survey data in Table 31 further indicate strong community support in Makurdi Metropolis for both climate-resilient design and active community engagement in urban planning. More so, a substantial 90% of respondents are in favor of climate-resilient approaches, with 56.7% agreeing and 33.3% strongly agreeing on the need to integrate climate-adaptive strategies in construction and infrastructure. This high level of approval highlights a collective recognition of the importance of minimizing vulnerabilities to climate impacts in urban growth.

Table 31. Climate resilient design

Resilient Design	Frequency	Percentage %
Strongly Disagree	3	2
Disagree	12	8
Agree	85	56.7
Strongly Agree	50	33.3
Total	150	100

Table 32. Community engagement

Community Engagement	Frequency	Percentage %
Strongly Disagree	2	1.3
Disagree	12	8.0
Agree	69	46.0
Strongly Agree	67	44.7
Total	150	100

In parallel, in Table 32, support for community engagement is equally strong, with 46% agreeing and 44.7% strongly agreeing on the importance of involving the community in decision-making processes. This near-unanimous endorsement (90.7%) reflects residents' desire for an inclusive

approach, ensuring local perspectives and needs shape urban development. Only small minorities Disagree with either climate resilience (10%) or community engagement (9.3%), suggesting a widely shared commitment to sustainable, participatory urban planning in Makurdi.

4. KEY FINDINGS AND POLICY IMPLICATION

To better understand the relative impact of each factor which are high birth rates, rural-to-urban migration, employment opportunities, social amenities, and conflict/environmental disasters, a weighted analysis was conducted. The weights were derived by summing the percentages of respondents who agreed and strongly agreed with each factor as a driver of urbanization, then normalizing these values to sum to 100%. This approach quantifies the relative importance of each factor in driving population growth and environmental degradation. High birth rates (53.3% strongly agree) and rural-to-urban migration (50.7% strongly agree) were identified as the most significant drivers of population growth, followed by employment opportunities (34% strongly agree) and social amenities (33.3% strongly agree). The findings of this study have important implications for urban planning and environmental management in rapidly urbanizing cities. Policymakers should prioritize family planning programs, rural development initiatives, and sustainable urban planning to mitigate the environmental impacts of urbanization. Additionally, community engagement and the adoption of renewable energy sources should be integral components of urban development strategies.

To achieve sustainable growth, authorities must address the root causes of urbanization through targeted interventions, such as policies that balance economic development with environmental protection. Key strategies include implementing family planning programs to manage population growth, promoting rural development to reduce migration pressures, and investing in renewable energy and climate-resilient infrastructure. By integrating these strategies with comprehensive urban planning, Makurdi can work toward sustainable growth that benefits both its population and the environment. This approach not only addresses the unique needs of urban centers but also protects local ecosystems, providing a replicable model for other growing cities facing similar environmental challenges.

5. CONCLUSION

Urbanization in Makurdi has led to several pressing environmental issues, including resource overuse, pollution, and habitat degradation. The city's rapid population growth, driven by both natural increase and rural-to-urban migration, is stretching Makurdi's ecosystem to its limits. Data from this study reveal that pollution, deforestation, and soil erosion are significant concerns for residents, largely promoted by unregulated urban expansion. The weighted analysis of influencing factors highlights the critical role of high birth rates, rural-to-urban migration, and limited employment opportunities in driving population growth and environmental degradation. Despite these challenges, the community demonstrates strong support for sustainable solutions, such as reforestation, improved waste management, climate-resilient

urban design, community engagement, and renewable energy adoption. This emphasizes the importance of incorporating community perspectives into urban development strategies, offering a bottom-up approach to addressing environmental challenges. More so, the study makes several key contributions to the literature on urbanization and environmental degradation. First, it provides a detailed analysis of the drivers and impacts of urbanization in Makurdi, a region that has been understudied in existing research. Second, it emphasizes the value of community-driven solutions in shaping effective urban development strategies. Finally, it proposes concrete policy recommendations, such as family planning programs, rural development initiatives, and renewable energy adoption, which can serve as a blueprint for other rapidly urbanizing cities in Nigeria and beyond.

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