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Assessing the Management of Urban Green Spaces in Selected Residential Areas in Lokoja, Nigeria

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ABSTRACT

Green infrastructures have significantly enhanced the well-being and quality of the environment within urban areas, especially in mitigating climate change and global warming. The study is aimed at assessing the management of urban green spaces in some selected residential areas in Lokoja, the capital city of Kogi State in Nigeria. A total of 240 residents in six designated residential areas were selected for this study. Stratified random sampling method was used to conduct personal observation, oral interviews and distribution of questionnaires to selected residents while related journals and articles were accessed for relevant literature. The result of findings showed that only 32.5% of the selected residences found in GRA fall into the category that has fully green spaces. This ascertains that generally, there is a low level of management of urban green spaces among the selected residents in Lokoja. However, the highest level of management of green spaces was recorded in the GRA while it was extremely low in Otokiti Estate (5%). 109 (45.4%) respondents opined that lack of awareness is the highest factor responsible for the low level of management of urban green spaces by residents. The study therefore recommends among others, that there is need for a well-developed and increased level of awareness among residents on the positive effects of urban green spaces on the environment at large.

Keywords: Green, Lokoja, Management, Residents, Spaces, Urban.

INTRODUCTION

Natural and semi-natural green spaces have been defined as land, water and. geological features which have been naturally colonized by plants and animals. These spaces are usually accessible on foot to large numbers of residents. According to Mensah (2004), Urban Green Space (UGS) refers to land that is completely covered with grass, trees, shrubs or other types of vegetation. It is the network of green spaces and water systems that delivers multiple economic, social and environmental values and services to urban areas and users. This network includes parks, gardens, waterways, street trees and transport corridors, pathway and greenways, as well as squares (Mensah, 2004). In land-use planning, urban green space is open-space areas reserved for parks and other "green spaces", including plant life, water features - also referred to as blue spaces - and other kinds of natural environment. Most urban open spaces are green spaces, but occasionally include other kinds of open areas (Rall et al, 2015). The landscape of urban open spaces can range from playing fields to highly maintained environments to relatively natural landscapes. Urban green space may provide residents with opportunities for contact with the natural environment. Such contact has positive restorative effects on mental health and wellbeing and may also help to provide a buffer against stressful life events. Urban green infrastructure is critical to sustainable cities and society, especially in rapidly urbanizing developing countries. This explains why in Nigeria,

urban greening is becoming more imperatively included in contemporary master plans. However, the implementation of the components of these master plans varies in terms of compliance in different urban centers Nigeria. Part of such implementation process tells a lot in the availability and management of green spaces.

The level at which urban spaces are managed goes a long way in determining human comfort in that area. Also, recent studies show that green spaces play a vital role in urban human health as regards issues like carbon emissions. This implies that a reasonable amount of attention needs to be paid to the management of urban green spaces In view of this, the study aims to assess the management of urban green spaces in selected residential areas in Lokoja, the capital of Kogi State in Nigeria.

Literature Review

The assemblage of green open spaces and natural landforms within cities are crucial to sustainable urbanization, thus motivating attention to Green infrastructure (GI). GI here refers to green spaces and other environmental features', across different spatial scales that deliver goods and services associated with the sustenance of human beings. Many research works have been focused on urban green spaces. The World Health Organization defined urban green spaces as "all urban land covered by vegetation of any kind (Adedeji and Fadamiro, 2015). Some other researchers use the term "urban open space" to describe a broader range of open areas. One definition holds that, "As the counterpart of development, urban open space is a natural and cultural resource, synonymous with neither 'unused land' nor 'park and recreation areas'." Adekunle et al, (2008) described open space as land and/or water area with its surface open to the sky, consciously acquired or publicly regulated to serve conservation and urban shaping function in addition to providing recreational opportunities. In almost all instances, the space referred to by the term is, in fact, green space, focused on natural areas (Adejumo, 2002).

On a broader scale, Landscape architecture as defined by Encyclopedia Britannica, (2010) is the design of outdoor spaces for human use and pleasure. The outdoor space ranges in size from small yards and terraces to suburban homes and city dwellings to large country estates and public parks. Landscape architecture could also be defined by Encyclopedia Americana, (1989), as the development and decorative planting of gardens, yards, grounds, parks and other planned green outdoor spaces. Gardening and landscape design is used to enhance the settings for buildings, public areas and in recreational areas and parks. Landscape architecture was formerly called landscape gardening and was limited to the creation of gardening around private dwellings.

Aim and Objectives

The aim of this study is to assess the management of urban green spaces in some selected residential areas in Lokoja, the capital city of Kogi State in Nigeria. To achieve this, the specific objectives are to:

- Identify the types of green spaces available in the study area.
- Investigate the level of availability green spaces in the selected residential areas.
- Examine the factors that are responsible for the level of management of the available urban green spaces.
- Make recommendations that will be useful for residents and policy makers in sustaining the management of urban green spaces to mitigate human discomfort in the study area.

RESEARCH METHODS

This research is descriptive and relies on data collection from respondents through the researcher's observation, the use of questionnaires and conducting oral interviews. Stratified random sampling technique was adopted to reach the target population who are residents in the selected residential areas. A total of six designated residential areas were selected for the study namely GRA, 200 Housing Units, 500 Housing Units, Otokiti Estate, Shettima Layout and Lokongoma Phase 2. The houses in each designated housing estate are sub-divided into three main categories according to type of housing unit like bungalows/flats, duplexes/terraces and low rise buildings or block of flats on 1-3 suspended floors, after which random selection was done. Each of the housing unit selected were privately owned and not rented.

A sample size was derived by means of a demographic formula that is used for determination of sample sizes (Otte, 2006). The formula is as follows: **$N= P (100 – P) \times Z^2/D^2$**

Where: N = required sample size
P = anticipated prevalence
D = allowable error estimate (desired precision)
Z = appropriate value from the normal distribution for the desired confidence level.

The research anticipated a minimum response rate of 80% and an allowable error estimated of within 5% of the true prevalence: $80 (100 – 80) \times (1.96^2/5^2) = 240$.

Therefore, a total of 240 residents were considered as the sample size for the study. Analysis of findings was done using tables, charts and percentages were necessary.

Study Area

Lokoja is the capital city of Kogi State in Nigeria which lies at the confluence of the Rivers Niger and Benue. Lokoja lies about 7.8023° north of the equator and 6.7333° east of the Meridian. Residential districts are of varying density, and the city has various suburbs such as Felele, Adankolo, Otokiti, Ganaja, etc. The town is situated in the Tropical Wet and Dry Savanna Climate Zone of Nigeria, and temperatures remain hot year-round.

Lokoja is also a Local Government Area of Kogi State with an area of 3,180 km^2 and a population of 195,261 at the 2006 census.

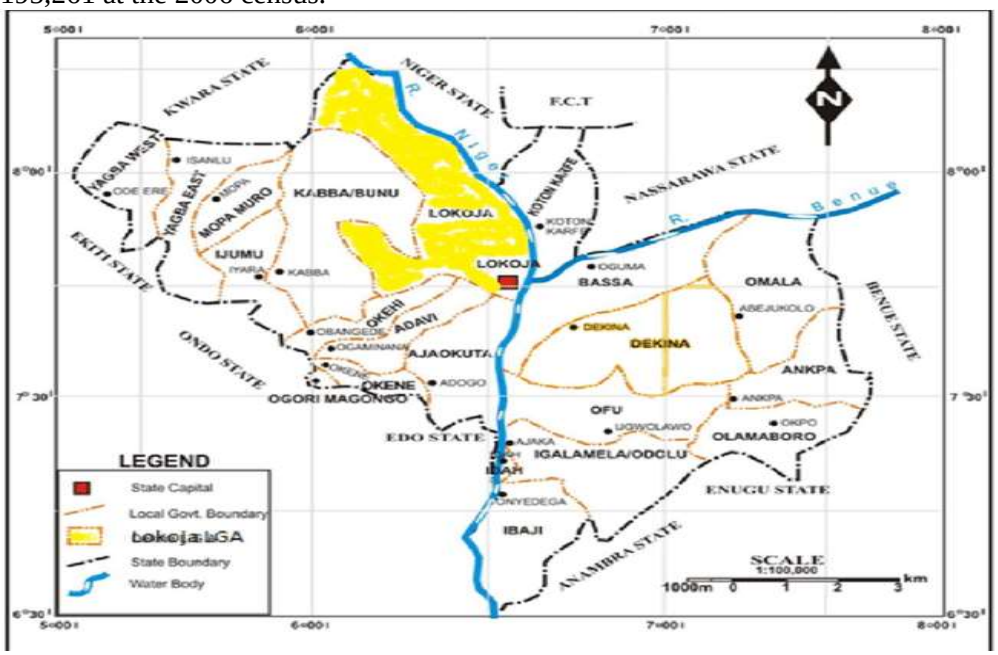

Fig. 1: Map Showing Lokoja the Study Area

Source: Geography and Planning Department, Kogi State University (2019).

RESULT OF FINDINGS

Major Types of Urban Green Vegetation

Table 1 summarizes the major types of urban green vegetation available in the designated residential areas in Lokoja town. These are both economic and ornamental plants that are organized or planted in order to provide numerous benefits, such as edible fruits, as air purification, aesthetic appeal, stress reduction, as well as reduction of carbon emission.

Table 1: Major Types of Urban Green Vegetation

S/N	Type of Green	Features	Examples
1	Trees	Single elongated stem or trunk with wooden barks with branches supporting leaves. Has defined canopy. Can be fruiting or not.	Neem, mango, cashew, masquerade, papaya, citrus, etc.
2	Flowering Plants	Bears flowers with sweet smell and sometimes fruits too.	African violets, roses, hibiscus, sunflower, lilies, etc.
3	Ornamental Plants	Beautiful, attractive colors with fine scent and definite shapes.	Ferns, marigolds, palms, cactus, ivy, etc.
4	Grasses	Lush, green colored, usually mowed for aesthetic purposes.	Lemon, pampas, fountain, carpet, etc.
5	Home Gardens	Laid out yard within the compound where vegetables, shrubs, flowers etc are cultivated and nurtured.	Surface vegetables (tomatoes, pepper, bitter leaf), root vegetables e.g. (potatoes), dwarf trees, leafy greens like spinach, etc.

Source: Field Survey, 2024.

Categorization of Residential Green Spaces in Selected Residential Areas

From the field survey, there were different categories of green spaces that were available in the selected residential areas. This was as a result of the fact that the features of each category differ, as found in different residences.

Table 2: Categorization of Green Spaces in Selected Residential Areas

Category	Features
Fully Green	Combination of more than one tree, flowers, green hedges or lawns, ornamental plants, garden
Fairly Green	One or few trees, few flowers or ornamental plants, or just a garden.
Sparsely Green	Very little flowers or ornamental plants, no tree or garden
No Green	No form of vegetation at all

Source: Field Survey, 2024.

Table 3: Level of Availability of Green Spaces in Selected Residential Areas

Residential Area	Category/Frequency/Percentage			
	Fully Green	Fairly Green	Sparsely Green	No Green
GRA	13 (32.5%)	16 (40%)	11 (27.5)	0
200 Housing Units	7 (17.5%)	10 (25%)	15 (37.5%)	8 (20%)
500 Housing Units	6 (15%)	8 (20%)	19 (47.5%)	7 (17.5%)
Otokiti Estate	2 (5%)	12 (30%)	17 (42.5%)	9 (22.5%)
Shettima Layout	3 (7.5%)	7 (17.5%)	16 (40%)	14 (35%)
Lokongoma Phase 2	4 (10%)	9 (22.5%)	17 (42.5%)	10 (25%)
Total	35 (14.5%)	62 (25.8%)	95 (39.5%)	48 (20%)

Source: Field Survey, 2024.

Table 3 shows that generally, the level of urban green spaces available in the selected residential areas is low. Only 35 (14.5%) of the total 240 houses selected in the five residential areas fall within the category of fully green spaces, which has the lowest frequency and percentage recorded in comparison with other categories. On the other hand, the highest number of houses was found in the category of those with sparse green spaces, recording a total of 95 (39%).

The study was also able to ascertain that only the houses found in GRA have a larger number of houses who fall within the fully and fairly available green spaces, in comparison with those that have the sparse and no green spaces. Particularly, the highest number of houses with no green spaces at all was 14 (35%) which are found in Shettima Layout. This forms the basis for the assertion that the general level of availability of green spaces is low. As a result of this, the study examined the factors responsible for the low management of urban green spaces recorded.

Factors Responsible for Low Management of Green Spaces

The selected respondents identified the following factors that affect the management of green spaces: lack of awareness, limited funding, deliberate neglect or non interest, change in landscape (some rocky and stony), inadequate workforce, and low priorities.

Table 4: Factors Responsible for Low Management of Green Spaces

Factor	Frequency	Percentage (%)
Lack of awareness	109	45.4
Limited funding	29	12
Deliberate neglect or non interest	20	8.3
Change in landscape (some rocky and stony)	12	5
Inadequate workforce	24	10
Low priorities	46	19.1

Source: Field Work, 2024

Table 4 shows the factors responsible for the low management of green spaces in the selected residential areas. 109 (45.4%) of the total respondents were the highest who opined that they lack awareness about the importance of managing green spaces. This was followed by 46 (19%) respondents, who stated that they attach low priorities to management of green spaces, thereby giving more priorities to spaces for parking, shops, playgrounds, etc.

A total of 29 (12%) respondents attested to limited funding as the reason for their low management of green spaces. They stated that they do not have enough funds to buy maintenance tools and equipment, regular application of manure and even pruning. Also, 24 respondents were in the category of those who cited inadequate workforce in their domestic staff as their reason. Only 20 (8.3%) respondents agreed that they deliberately do not have interest in maintaining green spaces, thereby neglecting any form of maintenance culture. The lowest category of respondents were 12 (5%) who cited instances of change in landscape (some rocky and stony) as their own reasons. As a result of all these combined factors, one can ascertain that maintaining green spaces in Lokoja is still on the lower ebb.

RECOMMENDATIONS AND CONCLUSION

As a result of the findings of this study that the management of urban green spaces in the selected residential areas is low generally, the following recommendations were made:

1. Stakeholders in the housing sector and government through the Ministry of Environment should ensure that a well-intentioned awareness and sensitization program is developed for the benefit of residents and homeowners. This will curb the ignorance of not being aware of the importance and advantages of green spaces to the environment.

2. Residents should endeavor to attach high priorities to proper and efficient green space management. Spaces should be designed and reserved for green amenity as much as for other uses like parking, playgrounds, etc.
3. Residents as well as homeowners should also comply with contemporary building designs and landscape plans. This will forestall any change in the implementation of designs and plans for green amenities.
4. There should be deliberate reduction on the cost of landscape maintenance. The tools and chemicals used should be affordable. The use of native or indigenous plants in landscaping reduces cost of maintenance when compared with contemporary plants. Residents can also develop a friendly funding strategy that will make it easy to be able to fund the maintenance of green amenities.
5. Additionally, home owners and residents should increase their interest in the management of green spaces. This will definitely curb the issue of neglect and non interest.
6. There should be an introduction of urban renewal schemes in our towns and cities to create a conducive environment through the provision of open spaces, parks, recreation centers, good transport corridors and road networking, landscaping of existing set–backs etc. This will definitely enhance street facades and the aesthetic outlook and appeal of our environment.

In conclusion, the proper management of urban green spaces should be made a top priority by urban residents and homeowners This will go a long way in fostering a more hygienic, livable, eco-friendly and sustainable environment.

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