Influence of Green Spaces on the Living Environment of People in Isu Local Government Area of Imo State, Nigeria

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Abstract

The study was on the influence of green spaces on the living environment of people in Isu LGA of Imo State, Nigeria. This study especially, described the nature of green space in the study area, the type of green space, the benefit of green space, and people's perception about green space and challenges in creating green space. A simple random sampling technique was applied to select the sample size of (30 respondents). Instruments used for data collection were questionnaires, oral interviews and personal observation. The analytical techniques used to achieve the objectives of this study were descriptive statistics. The study showed that the majority 54% of the respondents reported that green space found in the study area is natural green space. 27 respondents identified the river as the popular green space in the area, the result on the environmental benefit of green space shows that filter pollutants and dust from the air ranked first. Green space contributes positively to the people in the study area. It was also revealed that the majority (70%) of the farmers identified the availability of land as one of the major barriers to establishing green space in the Isu local government area. The study recommends the creation of awareness of the need for green spaces in the study area because ignorance is a disease.

Keywords: green spaces, living environment**,** people, Isu LGA

Introduction

Urban green space is an integrated area comprising natural, semi-natural, or artificial green land, providing manifold benefits to different groups of people within the city extent (Tzoulas *et al*., 2007). It is further defined as "an open space situated within the city limits with a good vegetation cover planted deliberately or inherited from pre-urbanization vegetation and left by design or by default" (Jim & Chen, 2006b). Some researchers also use the term "green infrastructure" to denote urban green space as a coherent planning entity (Sandstrom, 2002; Ahem, 2007).

Green spaces in cities mitigate the effects of pollution and can reduce a phenomenon known as the urban heat island effect, which refers to heat trapped in built-up areas. The urban heat island effect appears in towns and cities due to human activity. Green spaces provide vital health services as well as environmental services; they are aquagenic, reducing socioeconomic health inequalities. Urban green spaces, especially public parks and gardens provide resources for relaxation and recreation. Ideally, this helps in emotional healing and physical relaxation (Karade *et al* 2017*).*

Over the past century, the world has urbanized at an accelerating rate, with more than 50% of the global population now living in urban areas (Wu, 2014). Urbanization implies great pressure on natural resources and the environment (Rees & Wackernagel, 1996). As a result of urbanization, the amount of land exploited for roads and buildings has increased at the expense of the already limited parks and green spaces, modifying the ecology of the landscapes (Sandström, 2002).

Preserving green spaces in parks and gardens in the physical landscape of an urban built environment is an action that has been identified as a contributing factor to the sustainability of urban areas. The benefits of green space in the built environment are enormous in the aspect of aesthetics, achieving good temperatures, provision of good health and so on. However, certain activities have hindered the actualization of these significant rewards negatively. Despite all these glaring challenges, the application and provision of green spaces in the built environment have been practiced at a slow pace in Nigeria's construction industry (Emechebe, 2020).

Most cities in the world are experiencing environmental challenges such as poor air quality, water pollution, street noises, and heat island effects, which undermine the urban development process and environmental sustainability. In addition to these environmental problems, urban residents also complain about intensive work stress and less social communication among them both at individual and community levels (Chen & Jim, 2008). As a result, the physical and psychological health of urban citizens has been a major concern for maintaining urban socio-environmental quality. Prior researches indicate the presence of urban green space may largely mitigate such social problems in the urban context and provide an attractive environment to residents (Ulrich *et al.*, 1991; Kellert & Wilson, 1993).

Environmental injustice in access to urban green space is one of the problems in green space's impact on the environment. In Nigeria today, most individuals do not know about what green space is let alone how it can improve their healthy living. Every little space in Nigeria is either used for building a commercial or residential building. Open spaces are constantly being lost to other land uses such as residential, educational and circulatory and little is being done to remedy the situation. In light of the above, therefore, this study looks at; the influence of green spaces on the living environment of people in Imo state, Nigeria.

The broad objective of the study is to analyze the influence of green spaces on the living environment of people in the Isu Local Government Area of Imo State, Nigeria.

The specific objectives were to:

i. identify the nature of green space in the study area;
ii. Identify the type of green space in the study area;
iii. identify the benefit of green space;
iv. Ascertain people's perception of green space;
v. identify challenges in creating green space;

For these reasons, this paper seeks to answer the following research questions in the study area:

(i) What is the nature of green space?
(ii) What are the types of green space?
(iii) What are the environmental benefits of green space?
(iv) What are people's perceptions about green spaces?
(v) What are the challenges in creating green space?

Methodology

Study Area

The study was conducted in the Isu LGA of Imo State. Isu local government area is located in Imo State, South East Geopolitical Zone of Nigeria. Its headquarters is in the town of Umundugba. Other communities are Amandugba, Ekwe, Uburu Ekwe, Amurie Omanze, Ebenator Ekwe and Oboro Amurie. The Coordinates are 5°41′2″N and 7°4′8″E. Isu LGA covers a land area of 20 sq mi (40 km^2) with a population of 164428 (National Population Commission, 2006) Time zone UTC+1 (WAT)M, Postal Code is 474119 to 474125.

The two major seasons experienced in the State are dry and rainy seasons. The dry season starts in October and ends in March, while the rainy season spans from April to

September. There is usually a dry spell in August known as "August break". The harmattan lasts from December to January. The states are characterized by a high surface temperature which varies from day to day and season to season. The mean annual temperature ranges from 21.6^{0}C to 32.4^{0}C, mean annual relative humidity is 73% respectively and the annual rainfall ranges from 720mm to 1440mm in the rainforest region (Nigeria Meteorological Agency, 2016). The vegetation is tropical rainforest and the soil is fertile. The people are predominantly farmers, (National Agriculture Extension and Research Liaison Services and Federal Department of Agricultural Extension, 2014).

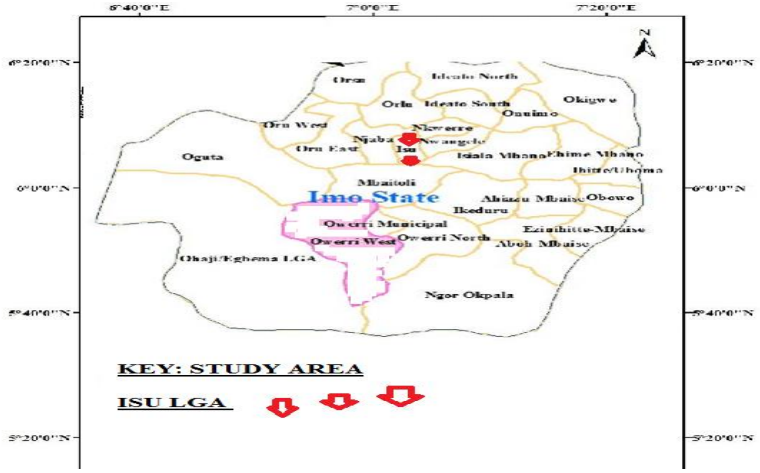


Figure 1: **Map of Imo State showing Isu Local Government Area**

Sampling Technique

Multi-stage sampling technique was adopted in selecting the sample size for the study. In the first stage Isu LGA in Imo state was purposively selected for convenience and accuracy due to the nature of the research. In the second stage, three communities out of six autonomous communities in Isu LGA were randomly selected namely, Amandugba, Ekwe, and Ebenator Ekwe). Then the last stage involved random selection of ten respondents from each community making it a sample size of thirty respondents.

Method of Data Collection

Major instruments used for data collection were questionnaires, oral interviews and personal observation. The questionnaires were developed by the researcher to gather information from the respondents. Also, to determine the degree of agreement or disagreement in each of the scaling statements in the questionnaire, values were allotted to different scaling as follows: Strongly Agreed (SA) = 4, Agreed (A) =3, Disagreed (D) =2, Strongly Disagreed (SD) = 1. The cutoff point was calculated as follows: 10/4 = 2.5. The response whose mean score is below 2.5 is not accepted as agreed and the responses from 2.5 and above are accepted as agreed.

The primary data collected for the study included the nature of green space in the study area, the benefit of green space, the type of green space, people's perception of green space and the challenges in creating green space.

Validity of the Instrument: The copies of the instrument were given to experts in the field of environmental science, community and environmental health workers, lecturers in the department, researcher supervisor and horticulturist for critical appraisal. Through this process, the face validity, content and construct validity of the instrument were enhanced. Their suggestions were incorporated into the final draft of the instrument, before the administration

of the questionnaires on the respondents and this helped to enhance the quality of the instrument.

Reliability of the Instrument: To ensure that the instrument that was reliable, a smaller sample of the same respondents was selected by using the test-retest method to obtain data not used for this study. The questionnaire was administered to the respondents and after 2 weeks, the same sample was re-administered and the outcomes of the 2 administrations were calculated by using Pearson product moment correlation coefficient.

Data Analysis

The analytical techniques used to achieve the objectives of this study were descriptive statistics such as frequency, percentages, Rank order, and mean score.

Result and Discussion:

Nature of Green Space

Green space can be understood as an integrated area comprising natural, semi-natural or artificial green land. The study showed that the majority 54% of the respondents reported that green space found in the study area is natural green space followed by 33% semi-natural and 13% artificial green space. This implies that the populace in the area is not interested in green space creation and the government is not doing much about it because the areas mapped out by the government for such structures have been diverted for residential buildings and lock-up stores. The result was in agreement with Little *et al*, (2005), Steenbekkers *et al*, (2006) and Valentine, (1997) who stated that level of urbanization in Urban and rural areas constitute different kinds of environments in which to examine feelings of social safety. Rural areas are more sparsely populated, have a different population (fewer young adults, one-person households, and ethnic minorities, for example), and are often seen as harmonious, peaceful, tranquil, closely knit communities with lots of green space than urban areas.

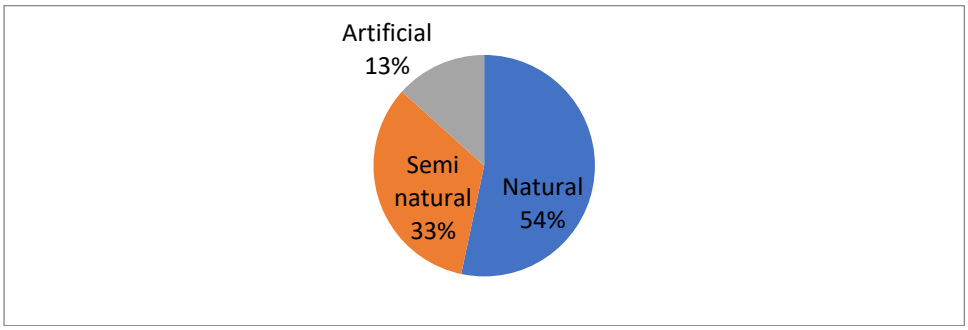


Figure 2: Chart Showing the Nature of Green Space in the Study Area

The result revealed that majority 27 of the respondents identified one of the water features which is the river as the popular green space found in the study area, 21 of the respondents indicated meadows which is under natural green space and only 20 of them indicated park under green space for pleasure as type of green space in the study area. Urban green space includes urban forests as well as other green areas (Helms,1998; Wu, 2008) For example, public parks, sports fields, edges of roads, public or private gardens, and remnant patches of natural vegetation as well as individual street trees (Davies et al., 2008).

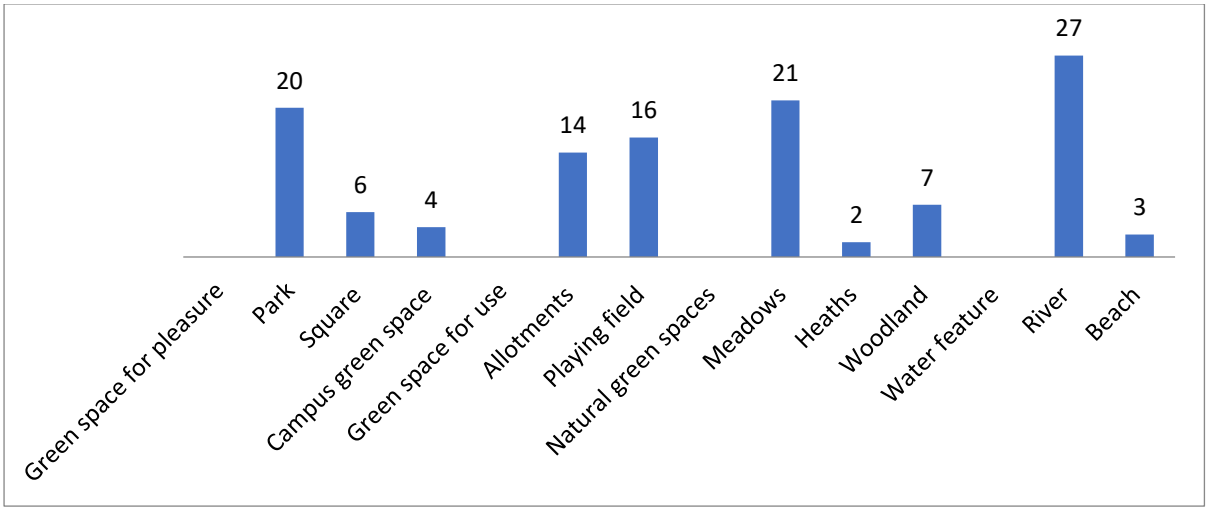


Figure 3: Distribution of Respondents according to the Type of Green Space in the Study Area

Environmental Benefit of Green Space

The result on the environmental benefit of green space by ranked order shows that they filter pollutants and dust from the air, followed by reducing surface water runoff, reducing carbon dioxide from the atmosphere reducing heat buildup and providing shade and lower temperatures in the environment. This implies that green space has a lot of benefits to the environment. The ecological benefits bestowed in green spaces which range from protecting and maintaining the biodiversity to helping in the mitigation of change cannot be overlooked in today's sustainable planning.

Table 1: Environmental Benefit of Green Space

Items	Frequency	Percentage	Rank
They Filter Pollutants and Dust from the Air	17	7	1st
Provide Shade and Lower Temperatures in the Environment	2	13	4th
Reduces Surface Water Runoff	4	20	2nd
Reduces Heat Buildup	3	27	3rd
Reduce Carbon Dioxide from the Atmosphere	4	33	2nd
Total	30	100	

Source: Researcher's Field Survey, 2024

People's Perception of Green Spaces

The result of farmers' distribution based on people's perception of green spaces is presented in the Table 2. The various attributes were strongly agreed (4); Agree (3); Disagree (2); strongly disagree (1). Using the method of mean score analysis, a discriminating mean of 2.50 was produced. The mean value of each attribute equal to or above 2.50 ($x = \geq 2.50$) was regarded as an accepted decision while an attribute with a mean value less than 2.50 ($x = \leq 2.50$) was regarded as a rejected decision.

All the items listed that people's perception about green spaces was in acceptance regarding the decision by the respondents that green space contribute positively to the people in the study area. This conformed with the results of the mean score of the farmers that was recorded in the table above, where all the items were rated high and had an acceptable overall

discrimination score (x= ≥ 2.50). Lack of park access has been linked to mortality and there is air pollution near the park had low acceptance and poor rating among all the attributes. This conforms to the work of Kaplan, (1995), Mass *et al.*, (2006) and Nelson & Hasan, (2007) respectively. There is a general perception that close contact with nature influences human health and our physical and mental well-being positively. The importance of contact with nature is crucial in urban areas where green spaces are the only contact with nature for its inhabitants.

Table 2: Report on people's perception of green spaces;

Items	S A		A		DS		D		Total	Mean	Remark
	4		**3**		2		**1**		**score**	**score**	
	F	Score	F	Score	F	Score	F	Score			
Reduce stress and increase happiness	23	92	3	9	3	6	1	1	138	4.6	Acceptance
Green space is beneficial to the habitats	20	80	5	15	2	4	3	3	132	4.4	Acceptance
Has an impact on human life	10	40	15	45	3	6	2	2	123	4.1	Acceptance
You prefer living in an area with green space	9	36	18	54	2	4	1	1	125	4.17	Acceptance
Lack of park access has been linked to mortality	2	8	1	3	20	40	7	7	88	2.9	Acceptance
Green cover has been shown to protect health	12	48	12	36	3	6	3	3	123	4.1	Acceptance
Physical activity in green spaces is important for mental health	15	60	10	30	2	4	3	3	127	4.2	Acceptance
Urban parks can increase Perceptions of safety and belonging	22	88	4	12	2	4	2	2	136	4.53	Acceptance
There is air pollution near the park	4	16	2	6	14	28	10	10	90	3	Acceptance
Green space makes a neighborhood more enjoyable to work through	14	56	12	36	2	4	2	2	128	4.27	Acceptance
provide space for popular sports	12	48	13	39	3	6	2	2	125	4.17	Acceptance

Source: Field Survey, 2024

F = Frequency, Strongly Agree = SA, Agree = A, Disagree Strongly = SD, Disagree = D.

Challenges in Creating Green Space

The result of challenges in creating green space is presented in Figure 4. It revealed that the majority (70%) of the farmers identified the availability of land as one of the major barriers to establishing green space in the study area. The implication of limited land would continue to compel them to use the available land for other purposes like farming and residential buildings etc. due to the increase in population. When it comes to land use planning, conflict arises for several reasons, including the competing demands for the use of land, uneven distribution of costs and benefits resulting from the development, and the environmental impacts arising from land use changes (Short *et al.*, 2013).

Another problem is ignorance of the benefits of green space 17% of the respondents identified ignorance as a problem and this is because of unawareness among the people in the study area of the both health and environmental benefits of green space to man.

The result also revealed that (7%) of the respondents identified finance as a problem in terms of maintenance, keeping the environment neat and funding to buy enough space. The lowest was 3% a lack of access to green space and manpower i.e. labour to take care of the environment.

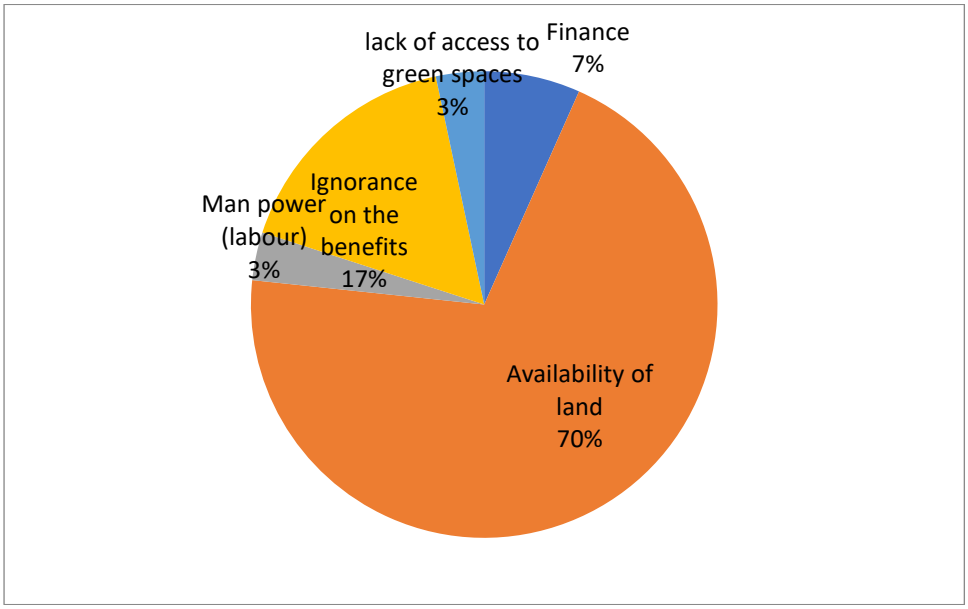


Figure 4: Challenges in Creating Green Space

Conclusion

The study concluded that the importance of green space in providing comfort to live is disposable, it is a natural anti-pollutant to the environment, at night, the plants in the green space provide abundant oxygen to the environment which reduces and counters the effect of carbon dioxide that comes out from industries and automobiles especially big diesel trucks. The researchers also concluded that green spaces provide natural good shades for recreation and relaxation to the environment during the hot season, especially those located at the river or water sides it also creates room for meadows.

The researchers recommended that the government should inculcate the establishment of green space in their amended agricultural policies to emphasize the importance of green space to every environment. Also, recommended tax-free for commercial green space operators. Credit facilities should also be made available at a minimum interest rate to encourage people to move into green space establishments. The government should build up a sensitization scheme for the masses.

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