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Perception of Urban Dwellers about the Benefits and Management of Urban Trees in Uyo Metropolis, Akwa Ibom State, Nigeria

[1] Oyebade, B.A [2] Popo-ola, F.S [3] Itam E.S
Department of Forestry and Wildlife Management, Faculty of Agriculture, University of Port Harcourt, Nigeria
[1] bukkibadef@hotmail.com

ABSTRACT

Urban trees are the unsung heroes of our environment which renders a number of services. This study evaluates the perception of urban dwellers on the benefits and management of urban tree species of Uyo metropolis, Akwa Ibom State, Nigeria. Ninety (90) semi-structured questionnaires were administered to evaluate the perception of the respondents within the study areas (commercial, educational and residential areas). The results from the demographic parameters indicated that greater percentages of the respondents were educated across the study areas, and this significantly affected their perceptions on the benefits of trees around the study areas. The majorly perceived benefits in the study included medicinal, beautification and micro-climate purposes with commercial area (12.13%), educational area (16.84%) while residential (25.40%) for medicinal purposes. For the beautification purposes, commercial had 27.27%, educational area with 27.72% and residential area had the highest with 31.75%. The results also indicated that commercial area had 42.37%, educational area with 35.80% and residential 61.36% for the micro-climate and provision of shade purposes among the respondents. The results on the respondents' perceptions towards conservation of trees among the study areas showed that educational area had the highest (93.33%) while commercial and residential areas are equal (83.33%). The study had shown that many urban dwellers in Uyo metropolis had knowledge of potential importance of trees around their environment and the need for proper conservation of these tree species. It therefore imperative for systematic involvement of all stakeholders in the management of the urban forest tree species in the study area which will without doubt leads to sustainable development of urban forestry in Nigeria.

Keywords: *Urban green, urban forestry, perception, benefits, sustainable development*

1. INTRODUCTION

Nigeria has a sizeable land mass and a generally favorable biophysical environment for the sustainable development of forest (Bada and Popoola, 2005). It was noted by FORMECU (1999) that the ecological diversities of Nigeria play an important role in the supply of forest products and services. The concept of having trees outside the forest includes not only aesthetic but also functions for both environment and socio-economic uplift (Kohli et al., 1998). Trees in urban area are very important in view of increasing population, urbanization, pollution level and diminishing forest. Psychologists, sociologist and mass people agree on the view that the quality of urban life depends largely on the amount and quality of green spaces within it or close to it. Kuchelmeister and Braatz (1993) reported that trees contribute significantly to the aesthetic appeal of the cities, thereby help to maintain the psychological health of their inhabitants.

Urban forestry is a practical discipline which includes tree planting, care and protection and overall management of trees as a collective resource. Urban forest is a collection of trees that grow within a city, town or suburb. In a wider sense, it may include any kind of woody plant vegetation growing in and around human settlements. Urban trees play an important role in ecology of human habitats in many ways. Urban trees are the unsung heroes of our environment which renders a number of services. The presence of tree reduces stress, and trees have long been seen to benefit the health of urban dwellers (McPherson and Simpson 2000). The shade of these trees and other green space make place for people to meet and socialize. Generally trees have a positive impact on energy and carbon dioxide conservation, air quality, urban hydrology, noise reduction, ecological stability, landscape spaces, medical and psychological health, real estate values, economic development, and community wellbeing (Dwyer et al., 1992).

The urban environment presents the arboricultural challenges of limited root and canopy space, poor soil quality, deficiency or excess water and light, heat, pollution, mechanical and chemical damages to trees and mitigation of tree-related hazards (McPherson and Simpson 2002). Due to rapid and unplanned urbanization, commercial development, along with population pressure, the overall urban forest environment is being worsened seriously day by day (Mohammed, 2008). It has been observed that the recognition of the importance of the urban trees in the study area is very little; particularly in relation to the livelihood of dwellers.

According to NKUCFC (2008), the overall challenge of urban forestry is to increase awareness and understanding about the value and benefits of urban forests to be considered essential infrastructure when planning and managing communities. Without this awareness and understanding of benefits of urban trees, there will be a lack of support for implementation and funding for urban forestry programs. To create, maintain, and preserve urban forests, it is important that urban foresters, arborists, planners, and land managers who deal with trees understand what residents, community leaders and decision makers think about trees in the environment. The aim of this study therefore is to evaluate the level of awareness and peoples' perception on the benefit

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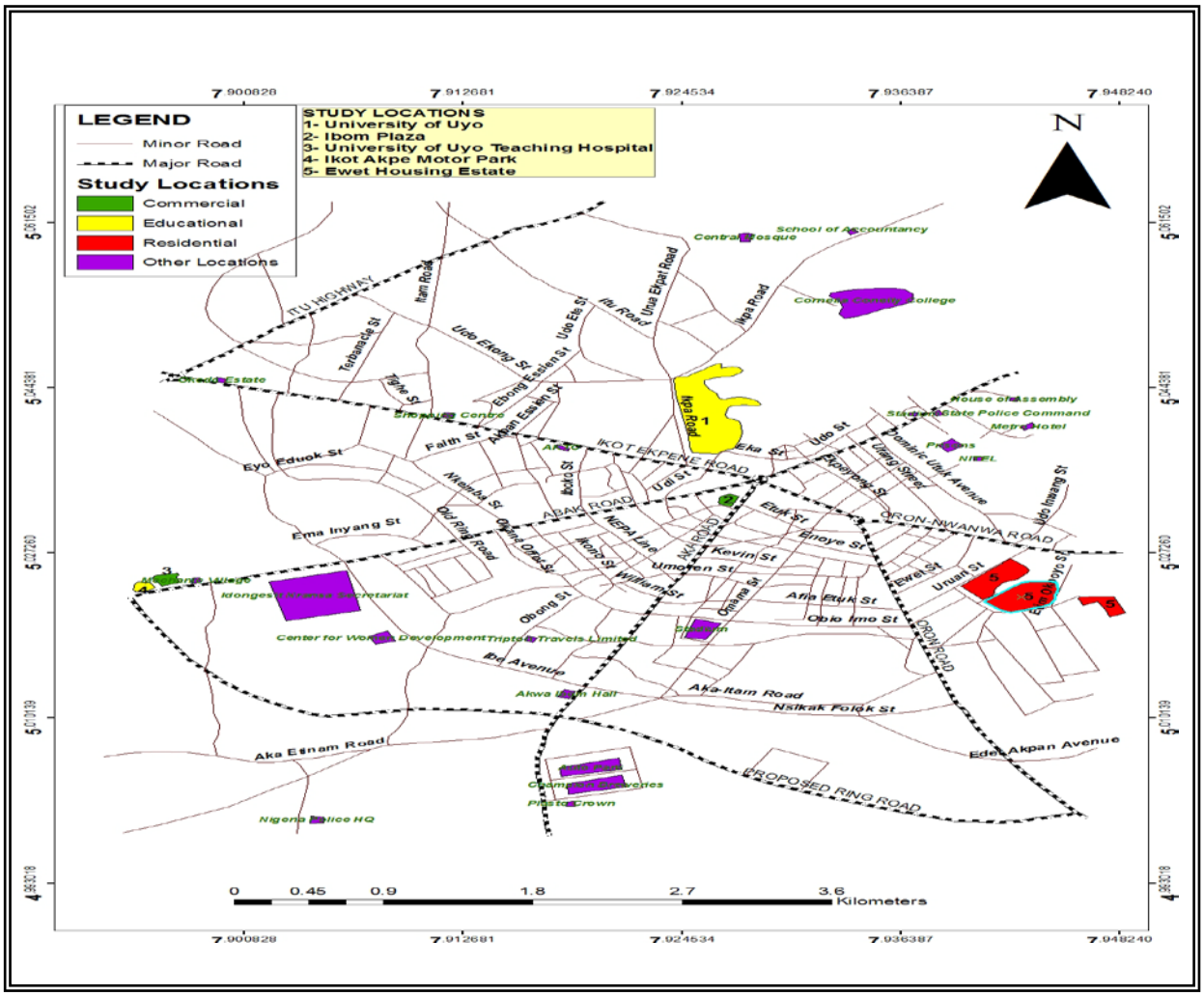
potentials and management of urban forest tree species in Uyo metropolis, Akwa Ibom State, Nigeria.

2. MATERIALS AND METHODS

2.1 Study Site

The study was carried out in Uyo; the capital city of Akwa Ibom State, Nigeria. It is located in the coastal South-Southern part of the country lying between latitudes 4°32′ and 5°33′N and longitudes 7°25′ and 8°25′E (Fig.1). The topography of the area is mostly that of coastal plain sediments with predominant flat landscape. This makes room for natural deposits of mosaic of marine, deltaic, estuarine, lagoonal and fluviolacustine material. Some parts of the city are undulating while some areas are valleys, marshes, ravines and swamps due to its proximity to Atlantic Ocean.

The climate of the area favors cultivation and extraction of agricultural and forest products such as palm, rubber, cocoa, cassava, rice, yam, plantain, banana, maize and general timber produce. Its vegetation type is typical of evergreen rain forest and mangrove.



Source: Google Earth, 2011.

Fig 1: Map of Uyo metropolis and the study locations.

2.2 Sampling Technique and Data Collection

Stratified sampling technique was adopted in this study to collect data to assess the awareness level and perception of the urban dwellers. A random sample from each stratum was taken in a number proportional to the stratum's size when compared to the population. Stratified sampling methods through categorization of the municipal area into three distinct classes were adopted. The classes and their dimensional areas were: Commercial area (3 hectares), Residential area (21 hectares) and Educational Institution (30 hectares). A total number of 90 semi-structured questionnaires were administered in the entire study area with 30 administered within each of the three stratums. The information about demographic parameters

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and the perception of the respondents on the potential benefit and management options of urban trees were captured using the questionnaires. The data collected were subjected to Chi-square and descriptive analyses while the results were presented using tables and charts.

3. RESULTS AND DISCUSSION

3.1 Demographic Parameters across the Study Areas

The results of the demographic parameters showing the characteristics of the respondents across the study areas are shown in Tables 1 -3. The results significantly showed distinctions among the gender, age classification, occupation and educational attainment of the respondents across the study areas. Table 1 shows the demographic parameters within the commercial area with 63.3% of the respondents being male while 36.7% were female. These respondents comprise of 46.7% business men/women, 20% civil servants, 13.3% professionals and 20% students. Greater percentage (86.7%) was of age range 21-30 and about 63.7% were educated.

Table 1: Demographic characters of respondents in the commercial area

		Frequency	Percent	Cumulative Percent
Sex	Male	19	63.3	63.3
	Female	11	36.7	100
Age	Age11-20	4	13.3	13.3
	Age21-30	26	86.7	100
Occupation	Businessmen	14	46.7	46.7
	Civil servant	6	20	66.7
	Professional	4	13.3	80
	Student	6	20	100
Educational level	FSLC	2	6.7	6.7
	SSCE	9	30	36.7
	ND & Above	19	63.3	100

FSLC-First School Leaving Certificate, SSCE- Senior Secondary Certificate Examination, ND- National Diploma
Source: Field Survey, 2011

Table 2 shows details of demographic features with the residential area with 46.7% of respondents being male while 53.3% were female. These respondents equally consisted of 36.7% business men/women, 23.3% civil servants, 20% professionals and 20% students. It also shows that greater percentages (70%) of respondents were educated and 76.7% were within the age range of 21-30.

Table 2: Demographic characters of respondents in the residential area

		Frequency	Percent	Cumulative Percent
Sex	Male	14	46.7	46.7
	Female	16	53.3	100
Age	Age11-20	3	10	10
	Age21-30	23	76.7	86.7
	Age31 & above	4	13.3	100
Occupation	Businessmen	11	36.7	36.7
	Civil servant	7	23.3	60
	Professional	6	20	80
	Student	6	20	100
Educational level	FSLC	1	3.3	3.3
	SSCE	8	26.7	30
	ND & above	21	70	100

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FSLC-First School Leaving Certificate, SSCE- Senior Secondary Certificate Examination, ND- National Diploma
Source: Field Survey, 2011.

The results of population characteristics within the educational area had 53.3% of respondents in the area being male and 46.7% were female. The respondents in this area comprised of civil servants, professionals and students with values 23.3%, 10.1%, 63.3% respectively (Table 3). The table also showed that greater percentage of respondents (90%) was of age category 21-30 and about 80% of the respondents were educated.

Table 3: Demographic characters of respondents in the educational area

		Frequency	Percent	Cumulative Percent
Sex	Male	16	53.3	53.3
	Female	14	46.7	100
Age	Age11-20	3	10	10
	Age21-30	27	90	100
Occupation	Civil servant	7	23.3	23.3
	Professional	3	10	33.3
	Student	19	63.3	96.7
	NR	1	3.3	100
Educational level	SSCE	6	20	20
	ND & above	24	80	100

NR-No Response, SSCE- Senior Secondary Certificate Examination, ND- National Diploma
Source: Field Survey, 2011.

3.2 Knowledge about the Benefits of Urban Forest Tree Species

The results showed that 90% of the respondents within the commercial area had adequate knowledge of the benefits, while 10% had little or knowledge of the benefits of urban forestry. Both residential and educational area recorded about 96.7% each of the respondents with adequate awareness of urban trees benefits potentials around their environments (Fig.2). These trends show that majority of the respondents within the study areas are knowledgeable and adequately aware of the benefits of urban trees in their domains.

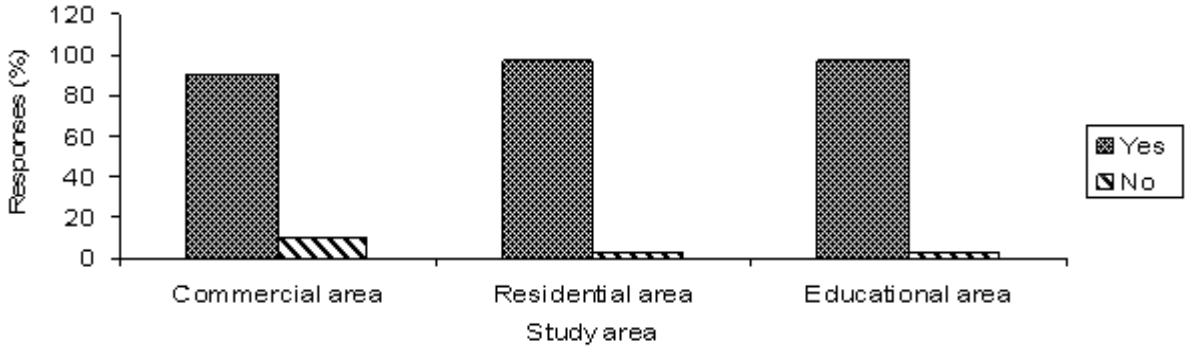

Fig 2: Perception on the knowledge of urban tree species in the study areas

The Chi-square analysis showed that there was high association between the demographic characteristics of the respondents and knowledge about the potential benefits of trees within the study areas. Educational level of respondents helped in them knowing the functions of these trees to their environment. The study showed that a great number of respondents were students and can help in the dissemination of urban forest information as to why we need trees around our environments. The findings from the three categories agree with similar study by Zipperer and Carreiro (2008), who pointed that the best way to help introduce trees in our environment is by

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instilling the knowledge of benefits of trees in our children while in school, since they are the future leaders and that the possibility that things will change for the better are on the high side. Wolf (2002) also asserted that students are the best disseminating materials of the urban forest.

3.3 Perceived Benefits and Status of Urban Forest Tree Species in the Study Areas

For the management of urban forestry to be effective there is a need to involve people in the program. People will participate in the program only if they perceive benefits from it. When people who said that they know about the benefits of urban forestry, were asked what kind of socio-cultural benefits they get from urban forestry, the majority of respondents in Commercial and Educational areas (39.39% and 28.71%) indicated beautification, followed by relaxation/shade (27.72% and 27.27%) respectively. In residential area, a greater number indicated(36.51%) relaxation/shade followed by ecological beautification (31.75). 25.40%, 16.84% and 12.13% indicated medicinal benefit in residential, educational and commercial area respectively. only 3.17% in residential area indicated shrine (Table 4). The trends of perception among dwellers in these study areas were in consonant with Fuwape and Onyekwelu (2010) who submitted that urban forests have played important roles in social, cultural, economic and environmental development of urban centers in West Africa through benefits such as landscape enhancement, provision of recreational and cultural facilities, erosion control, watershed protection and supply of fruits and fuel wood. Their study emphasized the fact that urban green spaces with trees as major component play imperative roles for healthy, livable and sustainable cities. Trees and green spaces help keep cities cool, act as natural filters and noise absorbers, improve microclimates, conserve biodiversity, protect and improve the quality of natural resources, including soil, water, vegetation and wildlife. Trees contribute appreciably to the aesthetic appeal of cities, thereby helping to maintain the psychological health of their inhabitants.

Table 4: Responses on the benefits from urban forests within the study areas

Perceived Benefit	Response (%)		
	Residential	Educational	Commercial
Medicinal	25.40	16.84	12.13
Meeting place	3.17	26.73	21.21
Shrine	3.17	-	-
Relaxation/Shade	36.51	27.72	27.27
Beautification	31.75	28.71	39.39
Micro climate amelioration	61.36	35.80	42.37
Heat absorption	11.36	29.63	23.73
Prevention of land degradation	27.20	34.57	33.90

Source: Field Survey, 2011.

In the commercial, educational and residential areas majority of the respondent (42.37%, 35.8% and 61.36%) indicated that the ecological benefit of urban trees is micro climate amelioration, followed by prevention of land degradation (33.9%, 34.57% and 27.28%) and heat absorption (23.73%, 29.63% and 11.36%) respectively (Table 4). McPherson (1997) supported this argument suggesting trees reduce the need for air conditioning. Akabari (2001) also stated that trees account for a 5 degree Celsius reduction of city temperatures, and are involved in transpirational cooling which reduces solar heating of dark surfaces. The result of this study is in agreement with Haughton and Hunter (1994) who stated that trees help to absorb rain water into the soil decreasing runoff. Konijnendijk et al., (2004) also reported that urban trees protect soils and

moderates harsh urban climates by cooling the air, reducing wind speeds, and shading.

The information about the status of the urban forest species in the study area is given in Table 5. Majority of the respondents indicated that the trees were available in desired quantity with percentage responses of 50%, 92.86% and 79.31% in residential, educational and commercial areas respectively. The responses on the perception on the status of the tree species also showed that 3.65% of the respondents responded that many of the trees were threatened within residential area while 7.14% responded that tree within educational area are threatened.

Table 5: Status of Urban trees in the surrounding

Status	Response (%)		
	Residential	Educational	Commercial
Available in desired quantity	50.00	92.86	79.31
Reducing	42.70	-	6.9
Retarded (same)	3.65	-	13.79
Threatened	3.65	7.14	-
Total	100	100	100

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3.4 Attitude towards Management of Urban Forestry

A good number of respondents (93.33%, 83.33% and 83.33%) in educational, commercial and residential area respectively advocated the conservation of urban trees. The results also showed that in the commercial area 10% of the respondent indicated that planting more trees to improve the green environment will help in urban forest management. Undermining the perceived benefit, some respondents in the commercial and residential area (6.67% and 16.67%) respectively showed nonchalant attitude towards the management of urban trees (Fig.3).

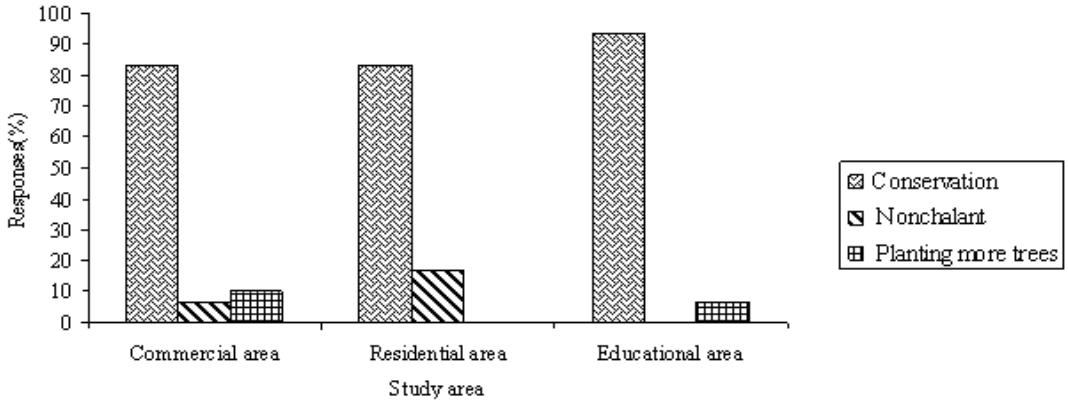

Fig 3: Attitude and perception on conservation

4. CONCLUSION

This study has shown the importance of having trees around our places of businesses, education and residences. The response and perceptions of urban dwellers of Uyo metropolis toward urban forestry and its management in environmental development are very much positive. The study revealed that greater percentage of the respondents had the knowledge of the benefits of urban trees in the metropolis. In the light of what seem to be very considerable ecological, social and psychological advantage of urban forestry, it is argued that, its systematic promotion could be one of the most direct means of promoting environmental development and meaningful participation in outdoor recreational activities by the urban dwellers. Therefore, proper and adequate management of the urban forest should be the priority against all odds. It is equally pertinent to emphasis the urgent articulation of measures for development of urban forestry in every state of Nigeria. Government should take immediate steps to establish the institution to facilitate urban forestry programs i.e., there is a need for establishing a responsible institution of urban forestry, more awareness programs should be conducted on educating and involving community members in maintenance and management increases community awareness of the benefits of trees hence instigating individuals in the urban forest ecosystem consciousness of their environment for good environmental health,

valuation of the urban forest in regards to its goods and services rendered should be encouraged and implemented while individuals, Government parastatals, cooperate bodies, INGOs/NGOs should come together to create a healthy urban forest where we all will enjoy staying in serenity.

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