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AWARENESS, PERCEPTION AND ATTITUDE OF GBOKO RESIDENTS ON URBAN FORESTRY, BENUE STATE, NIGERIA

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ABSTRACT

The study was carried out to assess the level of awareness and perception of urban forestry among residents of Gboko town, Benue State, Nigeria. Stratified Random Sampling Technique was adopted for the study. Descriptive and inferential statistical methods were used for data analysis. The results showed that majority of the respondents' (56.6%) were male, 65.1% were married and 52.6% had tertiary education. The results also showed that a good number of the respondents–(36.2%) were within the age bracket of 31- 40 years. Edible fruits/leaves/seeds/oils was ranked as number one perceived benefit of urban forestry, fallen leaves and flowers was ranked as number one perceived risk posed by trees. Majority (52%) of the respondents identified lack of proper care for urban trees as the major problem faced by urban trees in the area. Most of the respondents (65.1%) were willing to volunteer time for urban tree planting enlightenment/campaigns. The results also showed that 68.1% of the respondents have never participated in urban forestry activities, (44.7%) agreed they visit parks/gardens once or twice a month and (61.3%) said they visited Parks for relaxation purposes. There was no significant difference (p>0.05) on the relationship between respondents' sex and their awareness of urban trees and between respondents' sex and their perceived problems posed by urban trees. However, there was significant difference (p<0.05) between male and female respondents' perceived aesthetic value of urban trees. It was established that urban trees in the area not well cared for. It was recommended that local and state governments should reawaked interest in urban forestry.

Key words: perceived benefit, ecosystem services, perceived problems, perceived risk, volunteer

INTRODUCTION

The past 50 years has witnessed rapid increase in the rate urbanization across the globe. Scholars have stated that this increase in likely to continue (Ritchie and Roser, 2018). FAO (2016) reported that this increase is happening due to rural-urban migration. Studies have shown that more than half of the world population live in urban areas, this figure is projected to rise to 68% by the year 2050 (Ritchie and Roser, 2018).

Cities normally reshape the natural environment during their expansion, bringing about environmental challenges (FAO 2016). According to Ajewole (2015), rapid urban growth often has negative consequences on the environment. Scholars believed that urban environment are often harsh with many threat and pressure, due to environmental degradation (Lin *et al.*, 2017).

Onkunlola (2013) observed that population growth out tripped the capacity to maintain acceptable environmental safety in urban areas. In Nigeria, like many other developing countries, rapid urban development has caused lack of green space in many urban areas (Poopola *et al.*, 2016). Fuwape and Onyekwelu, (2010). observed that the growing urban population in Nigeria has outstretched current urban forestry facilities. Studies have over the years suggested sustainable urban forestry development within cities as the way forward (Ajewole, 2013; FAO 2016; Sundara *et al.*, 2017). This is because

the roles, values and perception of urban forestry have changed (Zhao *et al.*, 2017). However, Oyebade *et al.* (2013) opined that planting of trees has been an integral and important part of human settlement. In Nigeria, the concept of urban forestry is poorly understood and often neglected. Gboko is one of the fastest in Benue State growing cities with its environmental problems. However, little is known about the residents' awareness and perception of urban forestry. The study was therefore conducted to assess the residents' awareness and perception about urban forests.

MATERIAL AND METHODS

Study Area

The research was carried out in the Gboko town, Benue State Nigeria. It lies on the geographical coordinates of 7^{o} 23′47′′N, 3^{o} 55′0′′E, and is bounded by Tarka Local Government Area (LGA) to the North, Buruku LGA to the east, Gwer East and Konshisha LGAs to the west and Ushongu LGA to the south. The topography of the area is mostly characterized by several plains and a few hilly areas. The town enjoys a tropical climate with two distinct seasons namely the raining season (May-October) and the dry season (November-April). Temperature ranges between 22 ^{o}C and 38 ^{o}C (Akpen *et al.*, 2018). The climate of the area favours cultivation and extraction of agricultural and forest products such as yam, cassava, potatoes, palm, rice, plantain, banana, maize and general timber produce. Its vegetation type is typically guinea savannah. Gboko had a population of 361,325 as at the 2006 population census (Akpen *et al.*, 2018). Gboko is considered to be one the most important commercial towns in Benue State due to the present of Benue Cement Company (now Dangote Cement).

Sampling Technique and Data Collection

Stratified Random Sampling Technique (SRST) was adopted for data collection in the study. The study area was stratified into four Strata namely: Gboko North, Gboko South, Gboko East and Gboko West. Each of the four regions was further divided into three sub-strata namely: Commercial areas, Residential areas and Educational Institutions areas. Random Sampling Technique was used in the selection of sample from each of three strata (samples here include Streets, schools and shops). In each of the four strata, 3 streets, 10 shops and 1 school were randomly selected. In each of the selected streets, 10 households were systematically selected at the pre-determined interval of 5 households. In each of the selected households, one member of the houses who was willing to talk to the researcher was interviewed. Also in each of the selected the selected schools, 5 members of staff were selected based on their wiliness to interact with the researcher. For the shops, owner of the shop or shop attendants were interviewed. This gave a total number of 180 copies semi-structured questionnaire administered in the entire study area. With 45 administered within each of the four strata, 120 copies of questionnaire were used in residential areas, 40 questionnaire in commercial areas and 20 questionnaire in educational areas. Oral interviews were conducted on a random sample to the general public to develop final valid and reliable questionnaire. The information on—demographic parameters and the perception of the respondents concerning the potential benefits and management options of urban trees was also captured using the questionnaire.

Data Analysis

The statistical package for social science (SPSS version 20.0) was used for the quantitative and qualitative data analysis; both descriptive and inferential statistical methods were used to analyze the quantitative data. Descriptive statistics such as frequency and percentage were used to analyze the socio economic characteristics of the respondents, benefits of urban trees, problems and other attributes of urban forest. The Mann-whitney test was used to determine the significant differences between the factors influencing respondents' perception and attitudes towards urban trees in the study area. While the results were presented using tables and charts.

RESULTS

The Demographic Characteristics of the Respondents

The demographic characteristics of the respondents as presented in Table 1 showed that 56.6% were male, while 43.45 were females. Also most of the respondents (36.2%) were within 31-40 years of age. Christians were 90.8%, 3.3% were Muslims, while 5.9% belonged to traditional religion. The results also revealed that 52.6% had tertiary

education, 32.9% had secondary education while 14.9% had primary education. A good number of the respondents (32.9%) were civil servants, 28.3% were farmers, and 28.3% were traders while 16.4% were students. Also 65.1% were married, 29.6% were single, while 5.3% were widows. Majority of the respondents (80.9%) were Tiv, 10.5% were Idoma while 8.6% were Igbo.

Table 1. Demographic Characteristics of the Respondents

Variable	Category	Frequency	Percentage (%)
Sex	Male	86	56.6
	Female	66	43.4
Age	0 - 20 years	6	3.9
	21 - 30 years	36	23.7
	31 - 40 years	55	36.2
	41 – 50 years	36	23.7
	Above 50 years	19	12.5
Religion	Christianity	138	90.8
	Traditional	9	5.9
	Islam	5	3.3
Total			
Educational Level	Tertiary	80	52.6
	Secondary	50	32.9
	Primary	22	14.5
Total			
Primary Occupation	Civil Servants	50	32.9
	Farmers	43	28.3
	Business Men	34	22.4
	Students	25	16.4
Marital Status	Married	99	65.1
	Single	45	29.6
	Widow	8	5.3
Total			
Ethnicity	Tiv	123	80.9
	Idoma	16	10.5
	Igbo	13	8.6

Perceived-Benefits of Trees

Respondents outlined 12 benefits they derived from trees (Table 2). First among these benefits–trees as sources of edible fruits/seeds/nuts/leaves was the highest benefit (95.4%), followed by fresh air (94.1%) then provision of shade (94.1%) as the third benefit. Erosion control (80.3%) ranked fourth on respondents perceived benefit while medicine (78.3%) ranked fifth benefit. Other benefits derived from trees as perceived by the respondents included: wind break (75.7%), relaxation such as sitting under the tree (74.3%), fuelwood (74.3%), enhances aesthetic beauty of the city (71.7%), and source of timber (70.4%). A few respondents also believe trees reduce noise pollution (56.6%), and provides habitat for wildlife (44.1%).

The results (Table 3) of the difference between male and female perception of the individual tree benefits did not differ significantly except on their view of "Trees providing aesthetic value" which differed significantly at 5% level of significance (X^2=4.217, $p<0.04$).

Table 2: Perceived Tree Benefits in the Study Area

Perceived Benefits	Agree		Disagree		Rank
	Frequency	Percentage (%)	Frequency	Percentage (%)	
Edible fruits/seeds/nuts/leaves	145	95.4	7	4.6	1
Fresh air	143	94.1	9	5.9	2
Shade	143	94.1	9	5.9	2
Erosion control	122	80.3	30	19.7	4
Medicine	119	78.3	33	21.7	5
Wind break	115	75.7	37	24.3	6
Relaxation like sitting under trees	113	74.3	39	25.7	7
Fuel wood	113	74.3	39	25.7	7
Enhance aesthetic beauty of the city	109	71.7	43	28.3	9
Timber	107	70.4	45	29.6	10
Reduce noise pollution	86	56.6	66	43.4	11
Providing wildlife habitat	67	44.1	85	55.9	12

Table 3: Mann-Whitney results on the relationship between respondents' sex and Perceived Tree Benefits of urban trees

Variable	H	Df	P value
Trees provide fresh air versus sex	0.394	1	0.530
Trees provide fuel wood versus sex	0.595	1	0.440
Trees provide edible fruits/seeds/nuts/leaves versus sex	2.519	1	0.112
Trees provide habitat for wildlife versus sex	2.798	1	0.094
Trees serve as wind break versus sex	0.126	1	0.723
Trees provide shade versus sex	0.394	1	0.530
Trees provide timber versus sex	0.272	1	0.602
Trees provide medicine versus sex	0.849	1	0.357
Trees provide aesthetic beauty versus sex	4.217	1	0.040**
Trees help to control erosion versus sex	0.000	1	0.991
Trees serve relaxation value versus sex	3.396	1	0.065
Trees reduce noise pollution versus sex	2.349	1	0.125
Trees serve as idol worship site versus sex	0.684	1	0.408

Kruskal wallis test grouping variable: sex

Perceived Problems Pose by Trees in the Study Area

Respondents identified a total of eleven problems posed by trees in Gboko town (Table 4). Highest among these challenges is fallen leaves and flowers which litter the environment (94.1%), damage of plant roots to roads (67.1%), blocking of roads by tree branches (65.8%), damage to utility lines (62.5%), reduction of personal safety by limiting visibility (57.2%) excess shading of the interior buildings (53.3%), creation of hideout for criminals as source of insecurity (49.3%), and danger to lives and property (42.5%).

The results (Table 8) also revealed male and female respondents differed in their views on the problems posed by trees in the area. At 5% level of significance, the difference in their views of the problems caused by trees was not statistically significant. (p>=0.005).

Attitude towards Urban Forestry Activities in Gboko town

Results of the attitude of respondents as recorded in Table 5 showed that 68.4% of the respondents said they take care of trees around them. A good number

of the respondents (60.5%) said they would like to plant trees around them. Majority of the respondents (65.1%)were willing to volunteer time for urban tree enlightenment/campaigns. However, only (48.7%) of them have had environmental awareness/education.

Table 4: Perceived Risk Posed by Trees in Gboko town

Perceived Risk	Yes		No		Rank
	Frequency	Percentage (%)	Frequency	Percentage (%)	
Fallen leaves and flowers litter the environment	143	94.1	9	5.9	1
Roots damage houses	129	84.9	23	15.1	2
Attracts annoying insects and birds	129	84.9	23	15.1	2
Roots damage roads	102	67.1	50	32.9	4
Trees block roads	100	65.8	52	34.2	5
Trees damage utility lines	95	62.5	57	37.5	6
Blocks view from property	93	61.2	59	38.8	7
Reduces personal safety by limiting visibility	87	57.2	65	42.8	8
They shade the interior of buildings	81	53.3	71	46.7	9
Creates insecurity	75	49.3	77	50.7	10
Danger to lives and property	65	42.5	87	57.2	11

Table 5: Attitude of respondents Towards Urban Forestry Activities in Gboko town

Attitude	Yes		No	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Do you maintain trees around you?	104	68.4	48	31.6
Would you like to plant trees around/within your compound/house?	92	60.5	39	25.7
Are you willing to volunteer time for tree planting/enlightenment campaign?	99	65.1	53	34.9
Have you ever had environmental awareness?	74	48.7	78	51.3

Attitude of the Respondents Towards Parks and Gardens in Gboko town

Results revealed in Table 6 pertaining the attitude of respondents towards Parks and Gardens. the result indicates that (61.84%) visit parks and gardens occasionally, (50.00%) of the respondents visit Parks and Gardens once or twice a month whereas (25.0%) admitted they do not visit such places. Nineteen point eight percent said they visited weekly while (10.5%) of the respondents say they visited such areas daily. When asked why they visited Parks and Gardens, (62.30%) of the respondents indicated they went there for relaxation, (26.9%) said they visited such areas with friends and family members for get together while (11.7%) said they took children there to play (Table 5).

Table 6: Attitude of the Respondents Towards Parks and Gardens in Gboko town

Frequency of Participation	Frequency	Percentage (%)
Not at all	30	19.74
Occasionally	94	61.84
Often	28	18.42
Frequency of Visit		
Once or twice a month	76	50.00
Do not visit	30	19.74
Once a week	17	11.18
Everyday	16	10.52
Weekly	13	8.56
Reason for Visitation		
Relaxation	76	62.30
Get together with friends/family	32	26.23
Bring children to play	14	11.47

Problems associated with trees in Gboko town

The respondents admitted that trees within Gboko town were exposed to a number of problems including lack of proper care/maintenance (52.60%), illegal removal of branches (41.45%) or face other forms of vandalism such as bark slashing (4.61%) as well as injury from cars, trucks and animals (1.31%) (Table 7).

Table 7. Problems associated with trees in Gboko town

Problems associated with trees	Frequency	percentage %
lack of proper care/maintenance	80	52.63
Illegal removal of branches	63	41.45
Vandalism such as bark slashing	7	4.61
Injury from cars, trucks and animals	2	1.31

DISCUSSION

Demographic Characteristics of the Respondents and their effects on the perception

The higher number of male respondents recorded in the study area was not strange as many studies (Wolf 2004, Etim *et al.*, 2012, Ezeabasil *et al.*, 2015, Shirazi and Kazmi, 2016) have also recorded high percentage of male compared to female. However, Schroeder *et al.* (2006) recorded more females; they however, stated that the value was not significant. The high proportion of respondents below the ages of 41 years shows that the respondents were dominated by youths. Flannigan (2005) also found a significant correlation between increasing age and negative perception of trees.

The result of the study is consistent with the studies of Sommer *et al.* (1989) who reported that perception of trees within their study did not relate to any demographic variable except for age, in which older householders had a lower perception of tree value than younger residents.

The findings of this study are similar to the work of Stiegler (1990) who found in his study that awareness was improved with education. All the respondents had some level of formal education. The results agree with the findings of Escobedo *et al*. (2009), in Broward, where younger, more highly educated HOA leaders were more likely to support increases in urban forests.

The result shows almost negligible diversity of 80% of the respondents shared common ethnicity. Schroeder *et al*. (2006) in their study suggested that research to investigate the possible role of culture in tree attitudes might be worth pursuing stating categorically that the species composition of urban trees varied along cultural and climatic lines. Dwyer *et al*. (1992) also suggested ties between people and

trees are associated with traditions. This could be the possible underlying factor for the ranking of tree benefits.

Perceived Benefits of Urban Trees in Gboko town

The high number of perceived benefits of urban trees listed by respondents in this study is an indication that the people are aware of the value of urban trees. Many studies like that of Wolf (2004), Ajewole (2005), Joseph *et al.* (2010), Etim *et al.* (2012) and Popoola *et al* (2016) have shown that urban forestry has a lot of material, health and environmental benefits. The benefits mentioned in this study are similar to the benefits recorded by other studies (Schroeder, *et al.,* 2006; Fuwape and Onyekwelu, 2010; Etim *et al.,* 2012; Popoola *et al*., 2016; Shirazi and Kazmi, 2016, Le Tran *et al.*, 2017). Respondents' perception of trees being sources of edible fruits, fresh air and shade as highest benefits is consistent with the submissions of Fuwape and Onyekwelu, (2010) who documented that the planting and management of trees around settlements in West Africa are largely based on their nutritional, social, cultural and spiritual values other than aesthetic benefits. Study by Westphal (1993) indicates that volunteers involved in tree programs were motivated by "deep" values, such as spiritual benefits and bringing nature closer, more than by practical benefits, such as reducing noise and increasing property value. Austin (2002) however showed a shift in awareness to tangible products like fruits and timber whereas more recent studies like that of Lohr (2004) showed higher recognition of ecosystem values. According to Babalola (2010), whereas the major focus of urban forestry in developing countries was to manage urban forests for aesthetic purpose, current urban forestry is now majorly managed for ecosystem service. Ecosystem values like provision of shade and fresh air ranked high in the results. This study however showed that benefits such as "noise reduction" and "wildlife habitat" were scarcely known by the residents. Benefits generally outweighed perceived problems. The no variation in awareness about the benefits of urban forestry in the study was consistent with the study of Sommer *et al.* (1989) who reported that perception of trees within their study did not relate to any demographic variable except for age, in which older householders had a lower perception of tree value than younger residents.

Problems Posed by Trees in Gboko town

Respondents' perception of problems posed by trees was generally low compared to benefits, indicating that residents generally did not consider them to be reasons enough not to have trees in their neighborhoods. This is similar to findings of Lohr *et al.* (2004) in USA. Other studies like Sommer *et al.* (1994) and Schroeder *et al.* (2006) have also admitted there are problems associated with trees, but they all consistently considered these problems to be inconsequential- the problems are insufficient to justify not having trees in urban areas. The number of problems listed in this study area is similar with other works by Lohr *et al.,* (2004); Faleyimu *et al., (*2014); Ezeabasil *et al.,* (2015). The ranking of "roots to damage houses" as one of the most perceived problems is similar to the work of Lohr *et al.* (2004). This could be attributed to the fact that people attach much value to their homes and anything that threatened their houses will form a major problem to them. Roose (1986) as cited Ezeabasil *et al.,* (2015) however argued that the magnitude of damage attributed to urban forestry will depend on the proximity of trees to properties/foundation, land clearing and post clearing soil management methods employed. Schroeder *et al.* (2006) also suggested proximity of trees to houses may contribute to variation in attitudes towards trees. This could be the possible reason for the respondents' ranking of 'fallen leaves littering the environment' as a more highly perceived problem than "roots damages houses" the second possible reason being that while the later occurs slowly probably in years, the former is a frequent challenge that requires daily labour.

Attitude of Respondents towards Urban Forestry in Gboko town

Despite perceived problems, Gboko residents showed positive attitude towards trees around them. Contrary to the "*I love trees but…"* phenomenon described by the UK arborists Dobson and Patch (1997) as Cited by Schroeder *et al.* (2006) who characterized the public's attitude with one of the most heard UK cries 'I like trees, but not in front of my house'. Gboko residents did not only advocate for more trees within their town, but desired more

trees in their neighborhoods, calling for better maintenance of existing ones. They expressed willingness to volunteer time to participate in public enlightenment campaigns and similar urban forestry activities. This is similar to the work of Le Tran *et al.* (2017) in Atlanta USA where respondents were willing to pay various sum of money to promote urban forestry. Adekunle and Agbaje (2012) in their study in Ogun State Nigeria report that people were willing to contribute their income to development of forest. Zhang and Zheng, (2011) in their study revealed that people were willing to pay for the development of urban forestry, this was however depends on their level of awareness of the benefits of urban trees. This is however, contrary to the finding of Ajewole (2015) in Lagos, Nigeria where most of the respondents were not willing to get involved in urban forestry development.

The study however showed residents' attitude towards other forms of urban forestry such as Parks and Gardens was not encouraging as good number of the respondents admitted they have never visited a Parks and Gardens. This could be because there is only one Park in the town which at present lies dilapidated, also this could be due to the fact that the National Urban Park Development Programme, only pay attention to capital cities at detriment of other fast growing cities like Gboko.

Problems Faced by Trees in Gboko town

The listed problems faced by trees in the study area as recorded in this study were similar to those state by in the work of Ajewole, (2008) in Nigeria. Vandalism through bark slashing mentioned as one of the problems is an indication of limited availability of certain species with special uses such as those for medicinal purposes. Whereas the damage from cars/animals as well as lack of proper care/maintenance can be attributed to lack of environmental law enforcement.

CONCLUSION

The study has shown that Gboko residents are aware of the benefits and challenges associated with urban forest. However, their knowledge is limited as greater percentage of them seems not to be aware of the more recently considered benefits such as noise pollution reduction and habitats for wildlife. It was established that urban trees in the area like other cities in Africa are not well cared for. Local Government Areas, State and Federal Governments in Nigeria should rise to their duties in urban forestry development in the study area.

REFERENCE

Adekunle, M. F and Agbaje, B. M. (2012). Public willingness to pay for ecosystem service functions of a peri-urban forest near Abeokuta, Ogun State, Nigeria. *Journal of Development and Agricultural Economics* 4(2): 45-50, 26

Ajewole, O.I.(2008) Prospects and challenges for incorporating trees into urban infrastructural developments in Nigeria, *International Journal of Sustainable Development & World Ecology*, 15:5, 419-429, DOI: 10.3843/SusDev.15.5:3

Ajewole, O.I. (2015). Public Willingness to Commit Time to Urban Forestry Development in Lagos Metropolis, Nigeria . *Journal of Agriculture and Social Research (JASR)* 15(1) 46-68

Akpen, G. D. Kpoghol, I. S. and Oparaku, L. A. (2018). Quality Assessment of Sachet and Bottled Water Sold in Gboko, Benue State, Nigeria. *Nigerian Journal of Technology*, 37(1): 241 – 248

Austin, M.E. (2002). Partnership opportunities in neighborhood tree planting initiatives: Building from local knowledge. *Journal of Arboriculture* 28:178–186.

Babalola F.D (2010): Issues and option for appropriate management strategies of campus tree at university of Ibadan, Nigeria. Nigerian *Journal of Ecology*. 11:33-42.

Dwyer, J. F., McPherson, E. G., Schroeder, H. W.and Rowntree, R. A. (1992). Assessing the benefits and costs of the urban forest. *Journal of Arboriculture*, *18*(5), 227-234.

Escobedo, F.J., Luley, C.J., Bond, J., Staudhammer, C. and Bartel, C. (2009). Hurricane debris and damage assessment for Florida

urban forests. *Journal of Arboriculture*, 35(2): 100–106

Etim, J. D., Umazim U. A. and Ufot, I.N. (2012). Awareness and Perception of Urban Forestry among Urban Dwellers in Sahel Savannah Region of Nigeria. *Journal of Biodiversity and Ecological Sciences*, 2(4):236-243

Ezeabasili, A. C. C., Iloghalu, . I. E., Okoro, B. U. and Manafa, I. F. (2015). Sustainable Urban Forestry in Nigerian Built Environments, *Journal of Scientific Research and Reports*, 5(7): 524-531.

Faleyimu, O. I. (2014). Public perceptions of Urban Forests in Okitipupa Nigeria: Implication for Environmental Conservation. *Journal Applied Science and Environmental Management* 18(3):469-478

FAO, (2016). State of the World's Forests 2016. Forests and agriculture: land-use challenges and opportunities. Rome

Flannigan, J. (2005).. An evaluation of residents' attitudes to street trees in southwest England. *Arboricultural Journal* 28:219–241.

Fuwape, J.A. and Onyekwelu J. C. (2010) Urban Forest Development in West Africa: Benefits and Challenges. *Journal of Biodiversity and Ecological Science*, 1(1): 76-94

Le Trana, Y., Sirya, J. P., Bowker, J.M. and Poudyal, N. C.(2017). Atlanta households' willingness to increase urban forests to mitigate climate change. *Urban Forestry and Urban Greening*, 22: 84–92

Lin, S. Sun, J. Marinova, D. and Zhao, D. (2017). Effects of Population and Land Urbanization on China's Environmental Impact: Empirical Analysis Based on the Extended STIRPAT Model. *Sustainability* , 9, 825; doi:10.3390/su9050825

Lohr, I. V., Pearson-Mims, C. H., Tarnai, J., & Dillman, D. A. (2004). How urban residents rate and rank the benefits and problems associated with trees in cities. *Journal of Arboriculture*, 30(1), 28-34.

Okunlola, A. I. (2013). Sustainable Environmental Management through Urban Public Park in Southwestern Nigeria. *Journal of Agricultural Science*, 2(3): 074-079

Poopola, A.A., Medayese, S.O. , Olaniyan, O.M , Onyemenam, P.I and Adeleye, B.M (2016). Users' Perception of Urban Parks and Green Networks in Ibadan. *Singaporean Journal of Business Economics, and Management Studies,*4(10)16-30

Oyebade, B.A., Popo-ola, F.S. and Itam E.S. (2016). Perception of Urban Dwellers about the Benefits and Management of Urban Trees in Uyo Metropolis, Akwa Ibom State, Nigeria. *ARPN Journal of Science and Technology*, 3(7): 767-772

Ritchie, H. and Roser, M. (2018). Urbanization. Accessed on 8/09/2019 from *ourworldindata.org.*

Schroeder, H., Flannigan, J. and Coles, R. (2006). Residents' attitudes toward street trees in the UK and U.S. communities. *Arboric. Urban For.* 32, 236–246

Shirazi, S.A. and Kazmi, J.H. (2016) Analysis of socio-environmental impacts of the loss of urban trees and vegetation in Lahore, Pakistan: a review of public perception. *Ecological Processes* 5:5 DOI 10.1186/s13717-016-0050-8

Sommer, R., Barker, P.A., Guenther, H. and Kurani. K. (1989) . Householder evaluation of two street tree species. *Journal of Arboriculture 15:99–103.*

Sundara, D. M., Hartono , D. M., Suganda , E, and Herman Haeruman J.S (2017). Urban Forests for Sustainable Urban Development . Proceedings of the 3rd International Conference on Construction and Building Engineering (ICONBUILD) 2017 AIP Conf. Proc. 1903, 040002-1–040002-5; https://doi.org/10.1063/1.5011521 Published by AIP Publishing. 978-0-7354-1591-1/$30.00

Westphal, L.M. (1993). Why trees? Urban forestry volunteers values and motivations. pp. 19–23. In: P.H. Gobster (Ed.). Managing Urban and High-use Recreation Settings. USDA Forest Service General Technical Report NC-163. North Central Experiment Station, St. Paul

Wolf, K.L.(2004). Public value of nature: economics or urban trees, parks and open space. In: Miller, D., Wise, J.A. (Eds.), Design with Spirit: Proceedings of the 35th Annual Conference of the Environmental Design Research Association. Environmental Design Research Association, Edmond, OK, . 88–92.

Zhang, Y. and Zheng, B. (2011). Assessments of Citizen Willingness to Support Urban Forestry. *Arboriculture and Urban Forestry*, 37(3): 118–125

Zhao, J.; Xu, W.; Li, R. (2017). Visual preference of trees: The effects of tree attributes and seasons. *Urban For.Urban Green* 25, 19–25.