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## **The Perception of Residents of Akure Metropolis on Green Environment**

### **Abstract**

Green space has an important positive effect on people's lives, one of the major effects is air purification which helps to reduce a lot of airborne disease contributing to resident health positively. The study, therefore, assessed perceived influences of green spaces on environmental, health and aesthetic beauty of Akure metropolis. Specifically, the study examined the perception, familiarity and attitude of residents towards green space. Certain metropolitan locations were randomly selected in Akure in order to design 150 questionnaires. Respondents were randomly selected from these locations with well-structured interview schedule and questionnaire administration. Data collected was analyzed using descriptive and inferential statistics. The study revealed information on the demographic characteristics of the respondents and asserted that keeping green space has contributed to health improvement, ecological, social and economic wellbeing of the inhabitants. There is significant relationship between level of education and the propensity to keeping green space. Hence, there is need to intensify awareness on the benefits accrued for keeping green space in Akure Metropolis

**Keyword:** *Aesthetic beauty, green space, health improvement, metropolitan locations, populations*

**JEL Codes:** D1, R11, Z32

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## 1. Introduction

World Health Organization (WHO, 2016) reported that green space is a piece of land occupied with trees, grasses, shrubs in yards, parks, medians and anywhere intermixed throughout the built environment. Green space can, therefore, be regarded as an area of land developed as parks, golf courses, sports fields and other recreational purposes within the built-up area. The need for urban residents to know green environment/space through attitudinal change towards the environment and the provision of green products has been emphasised (Tan & Lau, 2010). This assertion was based on the recorded benefits of green space to man and the environment, some of which include; water quality protection reduced heat build-up, reduced soil erosion, improved air quality, natural resource conservation, support green tourism and many more. Determining what people know about the environment, how they feel about it, and what actions they take may help or harm the environment is critical in establishing the sustainability of a community. Considerate in this direction will create a strong national environmental movement that will conserve the environment through solving environmental problems (Sudarmadi et al., 2001).

Depletion of green space because of land-use change has been reported in 25 European countries, this has resulted in losses of green space between 7.3 and 41 percent (European Environment Agency (EEA, 2002). A study conducted on land-use change in 274 metropolitan areas in the USA revealed a loss of about 1.4 million hectares of green spaces to different land developments (McDonald et al., 2010). However, the situation is worse in Africa countries where gradual degradation of natural resources, extensive pollution, and ineffectiveness of technical solutions used to resolve diverse environmental challenges have been reported in developing countries like Ghana (Amoako & Korboe, 2011; Hopkins et al., 2001; Ministry of State for Environmental Affairs, 2005). For instance, studies in different African cities (Fuwape & Onyekwelu, 2011, MaConnachie et al., 2008; Makworo & Mireri, 2011; Mpofu, 2013; Oduwaye, 2013) found massive depletion of urban green spaces with attendance low coverage of green spaces in the landmass of many African cities (often they cover less than 10 percent of the total land area). At the moment, the rapid depletion of green spaces in Africa has resulted in green spaces occupying small percent of the total land space of many urban areas. For example, it has been discovered that several towns in the Republic of South Africa have less than 10 percent of their total lands occupied by green spaces (MaConnachie et al., 2008). Oduwaye (2013) observed that the situation in Lagos city (Nigeria) is more alarming, green spaces now occupy less than 3 percent of the city's landmass. Other studies focusing on developing countries produced comparable results with urban green spaces found to be depleting at an alarming rate (Gomes & Moretto, 2011; Yusof, 2012). Kumasi City in Ghana once regarded as Garden city of West Africa, have been depleted remaining only a small fraction which with other open spaces constitute about 10.7 percent of the total land area of Kumasi (Amoako & Korboe, 2011).

Despite the excessive destruction and poor management of green spaces in many regions of the world and Africa studies on urban green spaces with particular emphasis on uncovering the challenges confronting green spaces are less focused in Africa. Several reasons can be adjudged for the negligence and lack of attention on the protection and conservation of green space in Africa. Bolnick et al. (2006) and Marcotullio (2001) highlighted that pressures are engulfing many Africa nations in addressing poverty, health, and sanitation problems and providing basic human needs. The authors stressed that all these have constituted the priorities of many developing countries with little or no attention towards the protection of green space. The associated problems with decreasing green space call for much attention to be made to protect urban green spaces in developing countries so the benefits attached to these spaces can easily be tapped. There is therefore urgent need to bridge knowledge gaps in the literature on urban green spaces in Africa through the development of mitigation approaches to ensure preservation and protection of the environment.

Lizuka (2000) opined that the recent changes in sources of environmental problems have called for change in the attitude of the people. The author went further to assert that the sources of environmental problems such as pollution have shifted from production to consumption processes hence, attitudinal change is appropriate approach. This supports the findings of the Human Development Report of 1998 United Nation Development Programme (UNDP) that countries that reported growth in consumption and unbalanced consumption patterns are pressuring the environment through their consumption pattern. Current research should focus on studies of human perception, attitude and pro-environmental behaviour in the public, with the view to gather much-needed support to adopt a sustainable lifestyle in protecting the environment. Suffice to say that anthropogenic activities because of urbanization and increasing population are leading to drastic and alarming exploitation of nature and resultant unhealthy ecology in urban areas. Metropolitans in many developing countries are experiencing environmental glitches such as deterioration of air quality, higher air temperature, increasing noise levels, greater psychological stress and deteriorating social status of community (Gomes & Moretto, 2011; Yusof, 2012). All these explain the significance of urban green spaces in improving the microclimate and addressing diverse social and ecological challenges confronting urban areas. Miyan and Rakibul (2003) concluded that the effects of lack of green space couple with the exponential population increase in the twentieth century to include aggravating physical, social, psychological and environmental hazards, especially in the third world countries.

Against this backdrop, this study looks closely at the numerous contributions that urban green spaces offer to the overall growth of cities, to justify the need to preserve these spaces in the urban physical landscape. The research, therefore, focuses on assessing the green space in Akure Metropolis with emphasis on attitudinal change vis-à-vis the consciousness and the perception of people towards green environment rather than production. The aim of the study is, therefore, to provide information about urban residents' perception towards their environment adding to the knowledge base on the literature on urban residents and perception toward the green environment.

## 2. Literature Review

### 2.1 Benefits of Green Space

Human desire for greenery is often expressed as appreciation of the social, economic and other advantages and an urge to connect with nature (Miller, 1997). Green space has a lot of benefit social, economic, cultural, environmental and health benefits. Preserving natural environment such as green spaces in the physical landscape of urban areas has been identified to enhance the health and well-being of urban dwellers (Cohen et al., 2008; Wolch et al., 2014). Promoting green tourism is also one of the numerous benefits of maintaining green space, it guarantees sustainability in the sense that it ensures the needs of the present generations are met without jeopardizing the ability of the future generation in meeting these needs. This forms part of the view of Fandeli (2000), that green tourism is a form of ecotourism that was promoted by the organization of the ecotourism society in 1990 involving travel to natural areas to conserve the environment and preserve the life and well-being of local residents.

### 2.2 Environmental Value of Green Spaces

The numerous environmental values of green space have been discussed by authors in the literature (Baycan-Levent & Nijkamp, 2005a; Ernstson, 2012; Jennings et al., 2012). For instance, Jennings et al. (2012) opined that trees and other green space support the growth of urban areas through improving urban air quality and ameliorating the microclimate. Addressing mental and psychological disorders, preserving biodiversity, promoting ecotourism, providing employment opportunities, beautifying architectural designs of cities

and supporting social interaction and cohesion (Fam et al., 2008). A study focusing on Ottawa and Singapore, where most of the buildings have green vegetation on their roofs, showed considerable reduction of sulphur dioxide and nitrous oxide in those areas (Getter & Rowe, 2006). The availability of many urban trees has been observed to enhance urban air quality by helping to remove some pollutants such as carbon monoxide, nitrogen oxide and sulphur dioxide from the atmosphere (Nowak et al., 2006). This shows that the presence of many urban trees (green spaces) helps to intercept the movement of some pollutants and consequently minimize the rate of urban air pollution. There are indications that presence of open green space can reduce noise pollution in our urban areas caused mostly by visual intrusion from traffic, although more specific evidence on how this should be done in order to inform better design guidance could be useful. Manlun (2003) on the other hand perceived environmental value of urban green space from architectural perspective. The author affirmed that urban green spaces help to beautify urban design and the overall urban landscape. The author (2003) went further to express that green spaces improves aesthetic value of urban architecture thereby creates uniformity and diversity in urban areas. This assertion is line with the views of Baycan-Levent and Nijkamp (2005a) that in designing towns and cities, green spaces are very important because they help to enhance their identity which can improve the cities' attractiveness as places to live, work, invest in and as tourist destinations. Taking the various environmental contributions of green spaces into account, it can be deduced that these contributions help to address various urban environmental problems affecting both developed and developing countries.

### ***2.3 Health and Wellbeing Value of Green Space***

The contribution of green space in improving the health and wellbeing of urban dwellers cannot be over emphasised (Barton & Pretty, 2010; Ernstson, 2012; Maas et al., 2009). Laforteza et al. (2009) highlighted the importance of green space in alleviating stress while Louv (2005) and Faber et al. (2001) stressed the value of green space in correcting mental disorders in children such as Attention Deficit Hyperactivity Disorder. The use of urban green spaces for physical activities such as walking, jogging, playing football and other sporting activities has been found to help address the problem of obesity and prevent diseases such as cardiovascular disease, musculoskeletal diseases, stroke and cancer (World Health Organisation, 2007). Studies on the elderly in northern England, Tokyo and some megacities in the world have revealed that the usage of parks by the elderly for physical activities helps to keep them fit, relieves them of some chronic diseases associated with old age and enhances their lifespan in general (Milligan et al., 2004; Takano et al., 2002). There is evidence that environmental exposures relate to incidence of lung cancer (Pope et al., 2002). The intricate link between exposure to green space and improving the wellbeing of the local community has been documented by Kim and Kaplan (2004). The authors indicated that green spaces and other natural features play an important role in attaching and connecting people to the area in which they live and their local community at large.

### ***2.4 Social, Cultural and Economic Values of Green Spaces***

Urban green spaces contribute significantly to the preservation and conservation of National heritage and culture. The contribution of Urban Green Space for improving residents' satisfaction, enhancing urban life and increasing the number of areas available for hosting event such as national and local ceremonies like cultural festivals, wedding engagements has been reported by the National Audit Office (NAO, 2006). In addition to this, urban green spaces serve as collection hub of tangible heritage resources that are ancient, historic and cultural artefacts (Dümcke & Gnedovsky, 2013). NAO (2006) further discoursed that there is need for local government to approach the development and planning of urban squares, parks, corridors and green space in such a manner that it will lead to improvement in the quality of

life, ameliorate the microclimate, provide natural air conditioning and exotic pavilions which help to preserve culture and national heritage of a community. In view of the aforementioned, it could be declared that green spaces offer a range of social and economic contributions as rendezvous for leisure and recreation, children playground, football pitch and other social engagement in urban areas in both developed and developing countries. People engage in the sales of foods, drinks and other goods in green spaces that serve as recreation and other social opportunities. This serve as source of employment and means of generating income for the people. Generation of income for local residents in form of sales of agricultural product from garden in the yards and small-scale farming from green space such as sales of horticulture, fruits, vegetables, herbs, cash crops, by some residents has been reported in literatures (Bedimo-Rung et al., 2005, Galhena et al., 2013).

### **2.5 Biodiversity Conservation Value of Green Space**

The conservation and protection of biodiversity in urban areas are stated in the literature on biodiversity conservation (Alvey, 2006; Cornelis and Hermy, 2004; Godefroid and Koedam, 2003; Jim and Liu, 2000). Cornelis and Hermy (2004) in a survey of 15 parks in urban areas of Flanders (Belgium), observed that those parks contain about 30 percent, 50 percent and 60 percent of wild plants, birds and amphibians respectively. Similarly, Tanner and Gange (2005) revealed that golf courses in the UK have a high volume of tree species and wide diversity of birds.

### **2.6 Perception on Green Space**

The resultant effects of green space on perceptions and behaviours of people has been documented (Bonnes et al., 2011; Sanesi & Chiarello, 2006; Swanwick et al., 2003). The authors opined that decrease in urban green spaces restrict people from experiencing opportunities offered by visiting pristine areas. It was stressed that there is connection between green environment, resident life and residents' connection with nature, particularly with the availability of green spaces in their immediate surroundings. Emotional responses and people's perception of their environment have something to do with the composition of their external environment in term of understanding places, spaces and their uses. Schiffman and Kanuk (1987) have observed that perception means to become aware of something using external clues, or the process through which individuals see the world around them. Bonnes et al. (2011) contend that the exploration of green space, place and perception provides insights into human-nature integration. Hence, the importance of understanding place-specific experience in urban green areas through self-reported perception of use and quality of such space cannot be ignored.

## **3. Methodology**

### **3.1 Sampling and Data collection**

For the achievement of the aim in undertaking this study, both primary and secondary data sources were collected to support the findings. The secondary data on the residential districts and population census in Akure metropolis was procured from the Akure South Local Government Area (AKSLGA) office. The population census obtained for the year 2006 (484,798) was later projected to 2018 (637, 456). The residential districts in the metropolis were later categorized based on the standard of living of the residents into high, middle, and low (see Table 1). Sample locations for the primary data was chosen to use convenience sampling representing four (4) out of the twelve (12) categories of locations while the sample size was determined based on value using Krejcie & Morgan table for a known population. While 450 structured questionnaires were administered, 431 questionnaires correctly completed were recovered and descriptively analysed, representing 95.77% response rate. The data collected was analysed using the Statistical Package for Social Sciences (SPSS) SPSS

Data editor version 22.0 software and presented descriptively in form of percentage in tables. Regarding the perceptions of the respondents on green space, variables on the benefits of green space have been divided into 8 categories such as contribution to aesthetic beauty, health improvement and fitness, environmental protection, biodiversity conservation, economic livelihood of the local people etc. Likewise, approach that can be adopted in promoting green space were divided into various variable including sharing benefits to educate family and friends, advocate for green space etc. Closed-ended questionnaires using 5-point Likert scale were distributed to respondents in order to comprehend their perceptions on green space (Tewari, 2019) and 3-point Likert scale was used in order to understand the approach that can be adopted in promoting green space.

Weighted mean scores were computed and the upper limit of data about the perception on green space is 4.5-5.0 and the lower limit score is <1.5, while the upper limit of data about approach that can be adopted is 2.5-3.0 and the lower limit score <1.5. The decisions were taken based on the value obtained on weighted mean score:

$$\text{Weighted Mean (WM)} = \frac{\text{Sum of Weighted Frequencies}}{\text{Sum of Initial Frequencies}}$$

$$\text{Weighted mean (WM)} = \frac{\Sigma wx}{\Sigma w}$$

Where  $\Sigma$  = the sum of.,  $w$  = the weights,  $x$  = the value.

$$\text{Weighted Mean} = \frac{w_1 \times 1 + w_2 \times 2 + \dots + w_n \times n}{w_1 + w_2 + \dots + w_n}$$

#### **Decision rule:**

*Respondent perception on green space: Strongly agree = 4.5-5.0, Agree = 3.5-4.4, Undecided = 2.5-3.4, Disagree = 1.5-2.4, strongly disagree = <1.5.*

*Respondent about the approach that can be adopted: will do it = 2.5-3.4, undecided = 1.5-2.4, will not do = ≤1.5.*

**Table 1:** Categories of metropolitan places in Akure.

Categories	High-level	Middle-level	Low-level
Places	Ijapo	Oda road	Oke aro
	Futa south	Oba Adeshida	Fanibi
	Orita obele	Ajipowo	Itaoniyen
	Alagbaka	Awule	Gaga

## **4 Results**

### **4.1 Descriptive Statistics**

This study revealed information on the demographic characteristics of the respondents (Table 2). Female constituted the highest percentage (54.3%) while those in the age range of 15-24 years have the maximum percentage (55.5%) and the majority of them attained tertiary education (49.4%)

**Table 2:** Socio demographic information of the respondent administered questionnaire.

<b>Demographic information</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Gender</b>		
Male	197	45.7
Female	234	54.3
<b>Age (years)</b>		
0-15	0	0
15-24	239	55.5
25-54	137	31.8
55-64	51	11.8
64 and above	4	0.9
<b>Level of Education</b>		
Primary	21	4.9
Secondary	192	44.5
Tertiary	213	49.4
No formal education	5	1.2

Source: Field Survey, 2018.

As shown in table 1, from the weighted mean score of 4.43 and applying the decision rule, it could be affirmed that the respondents strongly agreed that green space contributes to the aesthetic beauty. This was followed by the weighted mean score value of 4.42 and ended with a conclusion that green space is important in environmental protection. Besides that it could be deduced that respondents agree that keeping green space improve their economic livelihood (4.17) (see Table 2).

**Table 2:** Perception of the respondent on the benefit of green space.

<b>Variable</b>	<b>SD</b>	<b>D</b>	<b>U</b>	<b>A</b>	<b>SA</b>	<b>Weighted Sum</b>	<b>Weighted Mean</b>	<b>Decision</b>
It contributes to aesthetic beauty	16	13	8	128	266	1908	4.43	SA
It contributes to health improvement and fitness	23	13	24	88	283	1888	4.38	A
It contributes to environmental protection	18	10	21	108	274	1903	4.42	SA
It contributes to biodiversity conservation	24	45	26	134	201	1733	4.02	A
It contributes to economic livelihood of local people	19	26	21	163	202	1796	4.17	A
It contributes positive impact on the ecosystem	14	22	26	107	262	1874	4.35	A
It serves as habitat for dangerous animals	147	59	59	73	93	1199	2.78	U
It contributes to land wastage	244	64	33	33	57	888	2.06	D

Source: field survey 2018.

As shown in table 3, the respondent likely attitude that can promote green space revealed the respondents are ready to sharing knowledge to educate their neighbour, family and friends on the benefit of green space with score of 2.65 as the highest weighted mean score while lowest weighted mean value represents those were undecided on attending city council meetings that deals with city planning, public transportation, and energy, air and water quality to learn more (2.47) (Table 3).

**Table 3:** Approaches that can be adopted to promote green space.

Variable	Will not do it	Undecided	Will do it	Weighted Sum	Weighted Mean	Decision
Sharing knowledge to educate family and friend on the benefit of green space	32	29	350	1140	2.65	Will do it
Advocate for more public green space	35	121	275	1102	2.56	Will do it
Attend city council meetings that deal with city planning public transportation energy, air and water quality to learn more	43	138	249	1066	2.47	Undecided
Promote sustainable environmentally beneficial landscape practice in Akure metropolis	40	121	270	1092	2.53	Will do it
Implement more regulation and changes in city planning that incorporate more green space and natural environment into design	38	130	263	1087	2.52	Will do it

Source: field survey 2018.

## 5. Conclusion, Implications and Limitations

The study has shown that most of the respondents are well learned young adults mostly female in their active age range that are knowledgeable of the benefits of green space. This agrees with the findings of Ewulo et al. (2015) that greater percentage of inhabitants of Akure metropolis possessed tertiary education. Seemingly, this is in tandem with the previous research by (Kruize et al., 2019) that the higher the level of literacy, the better the perception of populace towards acculturation of green space.

Furthermore, Miyan and Rakibul (2003) opined that the higher the level of education the higher the positive perceptions about the values of green space in environmental development of urban area. Gender differences in agriculture and land use planning have been regarded as basis for development of gender sensitive policies that dismantles every form of discrimination against women (Edinyang & Angiating, 2018). This forms part of the approaches that can be adopted for promoting green space as indicated by the respondents that there is need to implement more regulation and changes in city planning that incorporate more green space and natural environment into design. Their perception towards the positive

contributions (Health, aesthetic beauty, economic livelihood of the residents) of green space in their environment is highly positive. It is widely understood that urban green spaces improve the physical, economic and psychological well-being of its dwellers (Lachowycz & Jones, 2011; Lee & Maheswaran, 2010, WHO, 2017). Also, Oladeji and Adedapo (2014) observed that highest proportion of visitors to Ministry of Agriculture Botanical Garden, Oyemekun Rock and T.A. Afolayan Park in Akure Metropolis are for relaxation, sightseeing in appreciation of the scenery and aesthetic beauty. These contributions stem from close contact with green spaces to improving mental health and psychological well-being (Barton & Pretty, 2010; Ernstson, 2012; Maas et al., 2009).

Following the trends in this research, the perception of the respondents on the contributions of green space to biodiversity is in line with previous research on the study of urban environment which shown that different forms of urban green spaces contain significant biodiversity (Alvey, 2006; Bonnes et al., 2011; Cornelis and Hermy, 2004; Godefroid and Koedam, 2003; Jim and Liu, 2001). More so, the respondents are undecided that green space serves as reserve or habitat for harmful animals. But there is the tendency for an increased revolution for a green environment because of the high positive response towards promotion of more green spaces in their environment.

Arising from the findings of this study, there is need to sustain the increasing level of awareness on the benefit of keeping green in Akure metropolis. Appropriate planning should be put in place in the course of developing built environment within urban metropolis in such a way that the green space is preserved and not negatively impacted because of its economic, aesthetic and social values in urban areas. On the whole, the sample size for the study is considered small and the convenience sampling technique adopted is a type of non-probability sampling method where the sample is taken from a group of people easy to contact or to reach generalized for whole set of population. These are considered as limitations for this study, there is therefore a need for further researchers taken into consideration large sample size across the whole area of the metropolis.

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