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NATURAL REMEDIES FOR URBAN MALADIES: THE GREEN SPACE OPTION

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ABSTRACT

The pace of urbanisation, especially with cities in the developing world, has been negatively accompanied by series of environmental problems which if not contained, can threaten the many fabrics of urban livelihood and environment. Urbanization replaces vegetated surfaces with impervious built surfaces, thereby exposing urban environment to runoff, poor air quality and noise pollution and urban heat island among others. It is against this backdrop that this study examines the power of urban green space in addressing urban environmental problems in Ibadan metropolis. The study uses primary data, which were obtained, through a random and systematic sampling of Three Hundred and Forty Four respondents in Ibadan metropolis, Nigeria. Variables used in the analysis include socio-economic characteristics of the respondents, the types of urban green space, and benefits of urban green space as perceived by the respondents. Data collected were analysed using descriptive and inferential statistics. Regression analysis was used to examine the relationship between green space and their environmental benefits.

Results of the regression analysis show that about 35% of variation in environmental benefit may be attributed to a magnitude increase in urban greening parts of the metropolis.

The study therefore concludes that if more attention can be accorded urban green space, it can serve to reduce most of the environmental problems in the metropolis. It thus recommends the use of land development plan, the

use of planning approval strategies to ensure adequate room for urban green space and sensitization campaign among others.

Keywords: *Urban, Natural Remedies, Green Space, Urban Maladies and Metropolis*

1. INTRODUCTION

Urban planning is not restricted only to the built environment such as housing and transportation network; rather, it includes the integration of green spaces into the physical urban landscape (Baycan-Levent, 2009). The urban green spaces literally encompass all public and private open spaces in urban areas mostly covered by vegetation which are directly or indirectly available for use (URGE, 2004).These include parks, gardens, allotments, wetlands, and urban trees among others.

Greening the urban environment has been variously recognized to offer benefits of different kind to the urban milieu and the people (Cohen et al, 2008; Jim and Chen 2006; Isenberg and Quisenbrry, 2002; Aldous, 2005; Crompton, 2001; Fam et al, 2008; Nowak et al, 2006; Baycan- Levent and Nijkamp, 2009).This explains why planning concepts such as garden city, green belt, green fingers and greenways highlight the need to preserve the natural environment of urban areas by incorporating many green spaces into the design of cities (Collins, 2014a).

According to Chiesura (2004), urban green areas are strategic to the quality of life in cities. He argues that the empirical evidence of the benefits and importance of these areas is increasing, especially for environmental, ecological and visual benefits associated with them, such as air and water purification, wind filtration, noise pollution mitigation and microclimate regulation, besides the social services such as socialization, recreation and crime prevention.

The consequences of outright absence and/or insufficiency of green spaces in urban area are enormous and challenging, one, on the environment, and two, on the people. Environmentally, it has been established that lack of vegetative cover in urban areas makes many African cities "ecologically unfriendly" with configurations that compromise their resilience to climate change (FAO, 2012).The report further states that lack of

vegetation and the use of heat-retaining building materials raise city temperatures, which lead to shrinking water tables. Also, tampering with them could result in generating soil erosion, deforestation and their effects on the natural ecology of the environment and climate protection (Jubril, 2010). Flooding is a threat to many large cities, including Lagos, Ibadan and many other urban centres in Nigeria. The consequential effect of this, in many instances, is serious outbreaks of dysentery and cholera. Many towns built on hillsides and floodplains also bear the brunt of more frequent and intense storms because urban trees that could serve as wind breakers are lacking.

There is no doubt that considering the safety and physiological comfort derivable from green areas and vegetation, the well-being of humans could be said to be prone to high risk owing to the depletion of vegetation resulting in alterations in global temperatures (Omigbodun and Omigbodun, 2008). Epidemiological studies have provided evidence of a positive relationship between longevity and access to green space (Takano et al. 2002; Tanaka et al. 1996), and between green space and self-reported health (De Vries et al.2003). Lack of green space in cities can also lead to lack of interaction and cohesion among the residents. It is also worth mentioning that lack of urban green spaces threatens biodiversity and in no distant time could result in species extinction which is also capable of undermining sustainability.

One other major problem that can emanate from absence or destruction of urban green spaces is loss of city image. Urban green space not only makes up the physical structural framework of urban development, but also improves the overall image of a city and creates a unique branding and sense of identity (Chundi, 2013). Their disappearance is not unconnected with developments resulting from urbanisation without concern for their numerous benefits.

Ibadan with all its economic, social attributes as well as its status as administrative headquarters of both the old western region and the present Oyo state has suffered similar fate due to its uncontrolled and unplanned growth (Wahab, 2011). This rapid growth and haphazard plan leads to accelerated disappearance of natural habitat and urban green spaces. Like

many cities in the developing world, Ibadan has grown in population and territorial expansion without any concern for the reduction of vegetative land cover, a development that has resulted in a number of environmental implications such as flooding, air pollution, loss of biodiversity and aesthetic pollution among others. Lack of priority for green spaces in the development agenda of the city has also hindered the growth of green spaces in the metropolis.

Many efforts in the past towards greening in Oyo state have been on adhoc basis, and such exercises were mostly targeted at fighting desertification and provision of fuel wood. This therefore explains why the exercises are unsustainable and usually go with the governments that initiated them. Examples were the tree planting prgrammes in the 1980s and 90s. The only recent action towards greening of Ibadan is an initiative of the Ministry of environment and habitat tagged Ibadan Beautification Project. This study therefore attempts to assess the use of urban green spaces to remedy urban environmental problems in the metropolis with a view to suggesting policy issues.

2. THE STUDY AREA

The study area for this research is Ibadan metropolis covering five of the eleven local government areas of the city, the other six being the "less city". Ibadan is located in south-western Nigeria and is the capital of Oyo State. It lies between latitude 7° 25' North and longitude 3° 5' East and is located approximately 145 km north of Lagos and 530 km southwest of Abuja, the Federal Capital Territory. It also lies on 120 km east of the border with the Republic of Benin in the forest zone close to the boundary between the forest and the savanna. It is situated close to the boundary between forest and grassland, which makes it a meeting point for people and products of both the forests and grassland areas. Ibadan is regarded as the largest indigenous city in tropical Africa.

Since its founding in the 1800s, Ibadan has played a prominent role for people living in the South-west of Nigeria. It was the capital of the old Western Region, when Nigeria had only three regions. The territory of the old Western Region has since been divided into seven states and a sizeable

part of the present Lagos State belonged to the old Western Region.
Ibadan hosts the premier University in Nigeria (The University of Ibadan) which was established as a College of the University of London in 1948. As a result of these historical antecedents, Ibadan has continuously witnessed influx of people which has contributed to its rapid growth both in population and physical expansion to cover a very large land mass.
In terms of demographic growth, Ibadan experienced geometrical increase in population between 1851 and 1921. By 1856 the population was estimated at 60,000 (Hinderer, 1856) which rose to over 200,000 in 1890 (Millson, 1891), 238,094 in 1921, and 386,359 in 1931(Mabogunje, 1962). The 1991 census in Nigeria put the population at 1,222,570 (Ayeni,1994) with a density of 475.11 persons per square kilometre. Its population is estimated to be about 2,550,593 according to 2006 estimates by the National Population Commission. Its projected population by 2010, using 3.2% growth rate, is about 2,893,137.
In terms of physical expansion and land coverage, this pre-colonial urban centre has expanded very fast sprawling daily into the hinterland. Fabiyi (2006) noted that developed land in Ibadan increased from only 100 ha in 1830 to 12 km^2 in 1931, 30 km^2 in 1963, 112 km^2 in 1973, 136 km^2 in 1981 and 214 km^2 in 1988. An aerial photograph in 1964 showed that the city had spread beyond the drainage basins of Ogunpa and Kudeti and to the catchment area of Ogbere stream in the East. Today the city spread has extended to Odo-Ona Kekere village in the South to Iroko/Motunde villages in the North, Asejire in the East and Bakatari in the West (Central Council of Ibadan Indigenes, 2011).

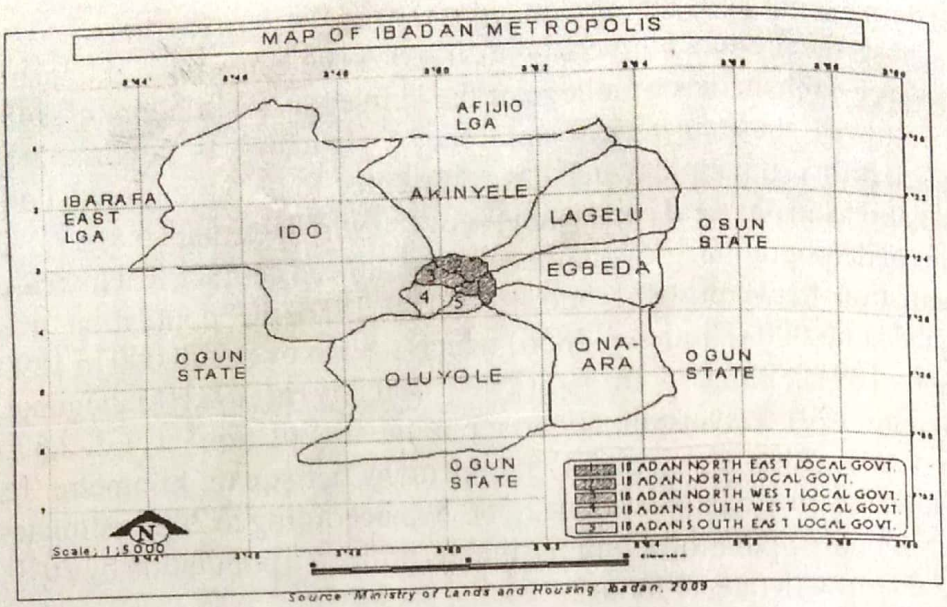

Figure 1: Ibadan Metropolis

3. MATERIALS AND METHODS

The information used in this study was extracted from both Primary and Secondary Sources. While the primary data were directly sourced from the respondents through the use of questionnaires and reconnaissance survey and formed the larger part of the research work, the secondary data were obtained from the National Population Commission. The primary data include variables on socio economic characteristics of the respondents such as the age, sex, marital status, educational qualification, occupation and income level, the types of urban green spaces such as public parks and squares, road greening, residential green space, institutional green space, river greening, production green space and protection green space among others.

Benefits of urban greening to residents' lives and city sustainability such as employment, flood control, shade cover, recreation and leisure, landscape beautification, heat reduction, generation of organic manure, and waste recycling among others. The secondary data used was the population figure of Ibadan metropolis retrieved from the National Population Commission

4. RESULTS AND DISCUSSION

4.1 Socio-Economic Characteristics of Respondents

Socio-economic Variables	Frequency	Percentage (%)
Gender		
Male	229	66.6
Female	115	33.4
Total	**344**	**100.0**
Age		
	60	17.4
	71	20.6
	96	27.9
	88	25.6
	29	8.4
Total	**344**	**100.0**
Marital Status		
Single	59	17.2
Married	267	77.8
Divorced	11	3.2
Separated	1	0.3
Widow	5	1.5
Total	**344**	**100.0**
Ethnicity		
Yoruba	267	77.6
Igbo	58	16.9
Hausa	11	3.1
Non Nigeria	4	1.2
Others	4	1.2
Total	**344**	**100.0**
Educational qualification		
No formal Education	22	6.4
Quranic education	6	1.7
Primary Education	31	9.0
Secondary Education	94	27.4
Tertiary Education	189	55.0
No response	2	0.5
Total	**344**	**100.0**
Occupation		
Not employed	45	13.1
Farming	5	1.5
Artisan	43	12.5
Self-employed	68	19.8
Trading and business	93	27.0
Civil Service	89	25.9
No response	1	0.2
Total	**344**	**100.0**
Income (Monthly)		
Below #50,000	158	52.8
#51,000 - #100,000	98	32.8
#101,000 - #150,000	27	9.0
#151,000 - #200,000	11	3.7
#201,000 - #250,000	2	0.7
#251,000 and above	3	1.0
Total	**299**	**100.0**

As indicated in table 1, the gender of the respondents indicates that the male has the majority with 66.6% while the female has 33.4%. The age structure of the respondents in the study area revealed that 17.4% are between the ages of 18 and 30 years, 20.6% are of 31 to 40 years age, 27.9% are between 41 and 50 years, 25.6% are of 51 to 60 years, and 8.4% lies between the ages of 61 and above. This reveals that majority of the respondents fall in the age structure between the ages 41 and 50 years.

On the ethnic distribution of the respondents in the study area, Yoruba dominates with 77.6%. Others are Igbo 16.9%, Hausa with 3.2%, other Nigerian ethnicity has 1.2% while non-Nigerian makes up 1.2%. This distribution is quite understandable owning to the fact that Ibadan is one of the ancient Yoruba cities, particularly; the metropolis is inhabited mainly by the Yoruba indigenes that are firmly connected to the cultures. Most of them may not likely be willing to leave their ancestral base.

The marital status into which the respondents belong clearly reveals domination of married respondents with 77.6%, this is followed by single with 17.2% while divorce, widow and separated respondents stand at 3.2%, 1.5% and 0.3% respectively. It can be deduced from this presentation that population of the study area has propensity to increase leading to urbanization and negative influence on green space, this is obvious from the high rate of married population in the area. This development is largely in line with the work of Fuwape and Onyekwelu, (2011) establishing a positive correlation between urbanization and urban green space disappearance.

As revealed in the table, most of the respondents have tertiary education (55.3%), followed by secondary and primary education with 27.5% and 9.1%, while 6.4% and 1.8% are recorded for no formal education and Quranic education respectively. It can be deduced from this therefore that the respondents are generally informed and this might have greatly gone a long way to enhance the study.

In the distribution of respondents in the occupational category, most of the respondents are into trading (27%), civil servants (25.9%) followed by self-employment (19.8%), those not in any employment (13.1%), artisan

(12.5%) and farming (1.5%). The highest percentage recorded by trading might not be far from the increasing rate of unemployment in the country pushing many to find ways to eke out a living. The metropolis of Ibadan is also predominantly housed by traders as evident by springing up of commercial centres all around. By implication, the development is likely to result in market places taking over spaces meant for urban green and therefore resulting in low coverage.

Shown in the table also are the occupation and monthly income distribution of respondents in Ibadan metropolis, In the occupational category, most of the respondents are into trading (27%), civil servants (25.9%) followed by self-employment (19.8%), those not in any employment (13.1%), artisan (12.5%), farming (1.5%) and no response (0.3%). The highest percentage recorded by trading might not be far from respondents looking for ways out of the general unemployment rate and low generation of white collar job opportunities in the country in the recent time.

The response of the respondents on their monthly income confirms the general observation that people in this part of the world consider such question very personal and something to be hidden from public knowledge. The reason for this is to a greater extent due to the fear of increased taxation and some other levies that many think may accompany such information. It reveals that most of the respondents (52.8%) declared their monthly income to be below N50,000, while another significant proportion (32.8%) claims they earn between N51,000 and N100,000. (9.0%) of the respondents are in the N101,000 - N150,000 category, while 3.7%, 1.0% and 0.7% receives N151,000 - N200,000, N201,000 - N250,000 and N251,000 and above respectively. This distribution of income of the respondents indicates that using such variables as an explanatory factor for any observation requires much caution as any conclusion based on it may be misleading.

4.2 Environmental Benefits of Urban Green Spaces

The analysis of respondents' opinion on the various benefits of urban green areas to both individual and the environment of the study area at large is

presented here. Some of the variables used to examine this include the benefits derived as individuals and the general environmental benefits offered by green spaces such as purification of air, regulation of micro climate and medicinal values among other benefits.

Table 2: Fresh air as benefit of urban green space

Local government		Fresh air benefit		Total
		Agree	Disagree	
Ibadan North	Number	58	21	79
	Row %	73.4	26.6	100
	Column %	25.9	17.5	23
Ibadan North East	Number	51	34	85
	Row %	60	40	100
	Column %	22.8	28.3	24.7
Ibadan North West	Number	28	11	39
	Row %	71.8	28.2	100
	Column %	12.5	9.2	11.3
Ibadan South east	Number	46	22	68
	Row %	67.6	32.4	100
	Column %	20.5	18.3	19.8
Ibadan south west	Number	41	32	73
	Row %	56.2	43.8	100
	Column %	18.3	26.7	21.2
Total	Number	224	120	344
	Row %	65.1	34.9	100
	Column %	100	100	100

$X^2 = 6.909$, df = 4, p = 0.141

Source: Authors' Fieldwork, 2015

As presented in the table 2, the study revealed that green space provides fresh air is 65.1% while 34.9% claimed ignorance of the benefit. However, across the spatial divisions of the study area, Ibadan North local government area has respondents with the highest percentage (25.9%), followed by Ibadan Northeast (22.8%), Southeast (20.5%) and in the least categories, there are Southwest and Northwest with 18.3% and 12.5% respectively.

The general inference that can be made from this result is that majority of the respondents see green space as supplier of fresh air. While this assertion is common in all the local government area, it is particularly the highest in Ibadan North local government; this might not be unconnected with the spread of various urban green spaces in the local government area being the host to the State Secretariat, Agodi garden and the University of Ibadan among others.

Table 3: Shade from Sun as benefit of green space

Local government		Shade from sun		Total
		Agree	Disagree	
Ibadan North	Number	29	50	79
	Row %	36.7	63.3	100
	Column %	23	22.9	23
Ibadan North East	Number	38	47	85
	Row %	44.7	55.3	100
	Column %	30.2	21.6	24.7
Ibadan North West	Number	14	25	39
	Row %	35.9	64.1	100
	Column %	11.1	11.5	11.3
Ibadan South east	Number	24	44	68
	Row %	35.3	64.7	100
	Column %	19	20.2	19.8
Ibadan south west	Number	21	52	73
	Row %	28.8	71.2	100
	Column %	16.7	23.9	21.2
Total	Number	126	218	344
	Row %	36.6	63.4	100
	Column %	100	100	100

$X^2 = 4.394$, df = 4, p = 0.355

Source: Authors' Fieldwork, 2015.

The study as indicated in table 3 revealed the respondents claim as regards shade as a benefit of urban green space. It shows that Ibadan Northeast records the highest with 30.2%, followed by Ibadan North (23%), Ibadan Southeast (19%) and Southwest and Northwest with 16.7% and 11.1% respectively. It can thus be inferred from this analysis that as some respondents agreed to have observed shade as benefit of green space, many others do not; however, this could be a function of access to vegetation such as tree that can provide shade.

Table 4: Green spaces as medicinal value

Local government		Medicinal value		Total
		Agree	Disagree	
Ibadan North	Number	38	41	79
	Row %	48.1	51.9	100
	Column %	20.9	25.3	23
Ibadan North East	Number	69	16	85
	Row %	81.2	18.8	100
	Column %	37.9	9.9	24.7
Ibadan North West	Number	13	26	39
	Row %	33.3	66.7	100
	Column %	7.1	16	11.3
Ibadan South east	Number	30	38	68
	Row %	44.1	55.9	100
	Column %	16.5	23.5	19.8
Ibadan south west	Number	32	41	73
	Row %	43.8	56.2	100
	Column %	17.6	25.3	21.2
Total	Number	182	162	344
	Row %	52.9	47.1	100
	Column %	100	100	100

$X^2 = 38.512$, df = 4, P = 0.000

Source: Authors' Fieldwork, 2015.

Concerning medicinal value as a benefit of green space, table 4 indicates that more than a half (52.9%) of the respondents agree that green space provides medicinal value as against 47.1% who say no. This is generally an indication that the use of root, bark and leaves of grasses and trees are used as theraupitic medicine for ailments especially in this part of the world

where ailments like malaria and fever are common. It can also be concluded that because Ibadan metropolis is predominantly inhabited by the indegenous people, majority of whom have not been totally disconnected from traditional practices, the use of herbs and roots is likely not a strange phenomenon. This is evident in ubiquitous sight of herbs and root markets such as Bode, Oranyan and Oje among others, where professionals in herb therapy locally reffered to as "Elewe omo" are in common sight.

Table 5: Leisure as benefit of green space

Local government		Leisure benefit		Total
		Agree	Disagree	
Ibadan North	Number	32	47	79
	Row %	40.5	59.5	100
	Column %	33	19	23
Ibadan North East	Number	17	68	85
	Row %	20	80	100
	Column %	17.5	27.5	24.7
Ibadan North West	Number	11	28	39
	Row %	28.2	71.8	100
	Column %	11.3	11.3	11.3
Ibadan South east	Number	20	48	68
	Row %	29.4	70.6	100
	Column %	20.6	19.4	19.8
Ibadan south west	Number	17	56	73
	Row %	23.3	76.7	100
	Column %	17.5	22.7	21.2
Total	Number	97	247	344
	Row %	28.2	71.8	100
	Column %	100	100	100

$X^2 = 9.652$, df = 4, p = 0.047

Source: Authors' Fieldwork, 2015.

Table 5 shows the respondents presentation of leisure as urban green space benefit. Significant proportion of the respondents 71.8% do not not see green space as providing leisure while only 28.2% claimed it can be used for leisure. This might be the reflection of the traditional setting of the study area as most of the respondents are not used to using green space as

relaxation centre. Majority of the people, especially in the core of Ibadan, are used to inner city life so much that they find nothing exciting in having pleasure with green grasses and lawn. This is in consonance with the principle of environmental determinism.

Table 6: Beautification of urban scape as benefit of green space

Local government		Beautification		Total
		Agree	Disagree	
Ibadan North	Number	49	30	79
	Row %	62	38	100
	Column %	19	34.1	23
Ibadan North East	Number	80	5	85
	Row %	94.1	5.9	100
	Column %	31.3	5.7	24.7
Ibadan North West	Number	26	13	39
	Row %	66.7	33.3	100
	Column %	10.2	14.8	11.3
Ibadan South east	Number	45	23	68
	Row %	66.2	33.8	100
	Column %	17.6	26.1	19.8
Ibadan south west	Number	56	17	73
	Row %	76.7	23.3	100
	Column %	21.9	19.3	21.2
Total	Number	256	88	344
	Row %	74.4	25.6	100
	Column %	100	100	100

$X^2 = 27.559$, df = 4, P = 0.000

Source: Authors' Fieldwork, 2015

Plate 1: Use of green space for beautification at Secretariat roundabout, Ibadan
Source: Authors' Fieldwork, 2015

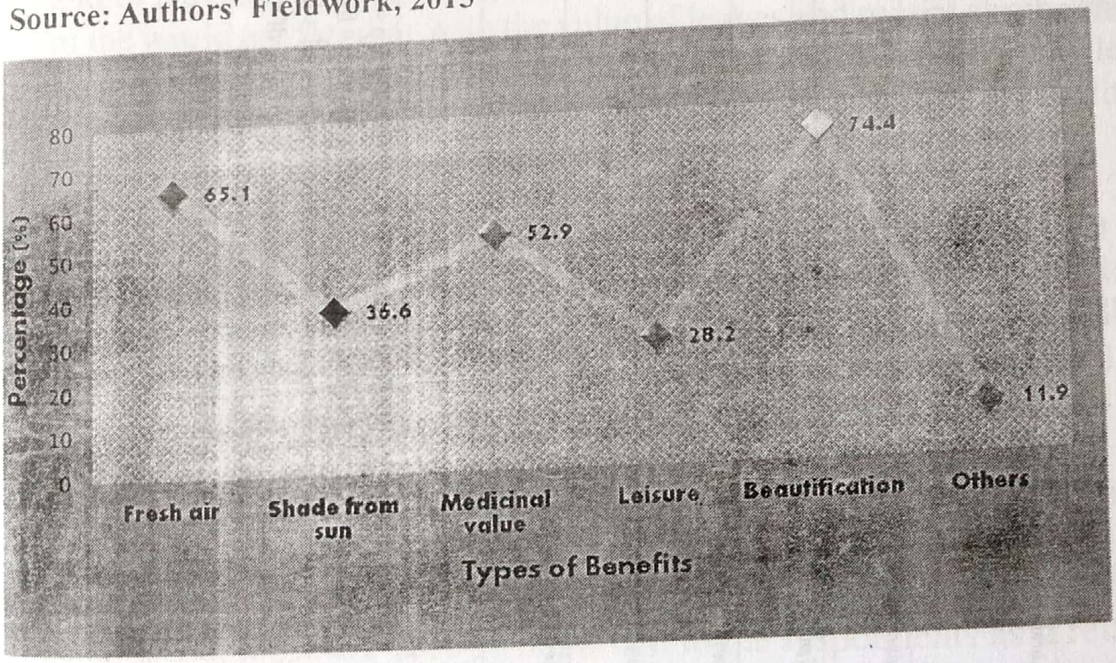

Figure 2: Benefits of urban green space
Source: Authors' Fieldwork, 2015

Table 7: Other benefits of green space

Local Government Area	Reduction of Runoff			Purification of Air			Protection of Biodiversity			Provision of Employment			City Image		
	Yes	No	Total No	Yes	No	Total No	Yes	No	Total No	Yes	No	Total No	Yes	No	Total No
Ibadan N (%)	55.7	44.3	79	41.8	58.2	79	46.8	53.2	79	16.5	83.5	79	20.3	79.7	79
Ibadan NE (%)	41.2	58.8	85	41.2	58.8	85	57.6	42.4	85	97.6	2.4	85	32.9	67.1	85
Ibadan NW (%)	41.0	59.0	39	43.6	56.4	39	41	59	39	17.9	82.1	39	15.4	84.6	39
Ibadan SE (%)	45.6	54.4	68	44.1	55.9	68	45.6	54.4	68	30.9	69.1	68	35.3	64.7	68
Ibadan SW (%)	32.9	67.1	73	32.9	67.1	73	34.2	65.8	73	46.6	53.4	73	26.0	74.0	73
Total (%)	43.6	56.4	344	40.4	59.6	344	45.9	54.1	344	45.9	54.1	344	27.0	73.0	344

Reduction of runoff: $X^2 = 8.532$, df = 4, p = 0.074
Purification of air: $X^2 = 2.354$, df = 4, p = 0.671
Protection of biodiversity: $X^2 = 9.118$, df = 4, p = 0.058
Provision of employment: $X^2 = 137.688$, df = 4, p = 0.000
City image: $X^2 = 8.418$, df = 4, p = 0.077
Source: Authors' Fieldwork, 2015

On further questioning, the study reveals that 74.4% of the benefits is beautification, fresh air has (65.1%) and medicinal value goes for 52.9%. Also, the respondents who agreed to urban green space benefits in terms of shade from the sun are 36.6% while 28.2% and 11.9% are for leisure and others respectively.

It can thus be inferred from the figure that majority of the respondents agreed urban green spaces provide aesthetic for urban environment. This might not be unconnected with the age long attachment to flowers as means of decoration and beautification. It can also be due to availability of different colour of flowers planted all around places in the metropolis of Ibadan i.e in residence, offices and institutions among others. Also, another larger percentage of respondents (65.1%) agreed that fresh air is the benefit of urban greening, this might be one of the reasons why trees and flowers are planted at locations near residence with some even having them in containers in their houses.

For the fact that Ibadan is an indigenous city, it may not be out of place that most of the respondents have awareness of using one or two tree root, bark and/or leaves for therapeutic purposes. Besides, culturally many in this part of the world are familiar with the value of leaves and root of shrubs and tree for alternative medicinal purpose. The low percentage recorded by leisure as indicated by the figure might probably be as a result of the traditional nature of the people of the metropolis.

The study reveals that 55.7% of the respondents claimed that urban green space help in reduction of runoff while the least in terms of reduction of runoff is Ibadan Southwest with 32.9%, for purification of air, Ibadan Northwest dominates with 43.6% while the least is Southwest with 32.9%. responses to protection of biodiversity as the benefit derived from urban green space shows that Ibadan Southwest is leading with 65.8%, while others are in the ranges of 59% for Ibadan Northwest, 54.4% Southeast and 53.2% Ibadan North.

In all these, it can be concluded that urban green spaces serve many benefits and these are only as important to the respondents as it relates to them and meets their need. It can as well be deduced that the respondents

are aware of one benefit or the other of green spaces, of particular reference as far as the study area is concerned is the use of green spaces as city image, it is a common practice in Ibadan, as done elsewhere, to use trees as landmarks either for identification and/or description of places E.g "Idi Arere", "Idi Oro", "Idi Osan" and "Idi Ope" among others, literally translating to- on the side of "Arere" tree, Mango tree, Citrus tree and Oil palm tree respectively. Although, these planning ideas predated modern planning, they are still in vogue in the study area up till date (Raheem, 2015).

4.3: RELATIONSHIP BETWEEN URBAN GREENING AND ENVIRONMENTAL BENEFITS.

Attempt is made here to examine the relationship between urban greening and environmental benefits. To determine the impact of urban greening on the environment, multiple regression analysis is used. The variable of environmental benefit was regressed (Multiple Regression) on the six identified components of urban greening i.e. (x_i) road greening, (x_{ii}) public parks and squares, (x_{iii}) residential green space, (x_{iv}) institutional green space, (x_v) river greening; and (x_{vi}) other greenings. The results of Multiple Regression Analysis are shown in tables 8a, 8b and 8c below:

Table 8a: Regression Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.591[a]	.350	.228	.11111

a. Predictors: (Constant), other greenings, river greening, public parks and squares, road greening, institutional green space, residential green space

Table 8b: Test of Statistical Significance

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.212	6	.035	2.869	.024[a]
	Residual	.395	32	.012		
	Total	.607	38			

a. Predictors: (Constant), other greenings, river greening, public parks and squares, road greening, institutional green space, residential green space

b. Dependent Variable: Environmental Benefits

Table 8c: Regression Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.611	.466		1.310	.199
	road greening	-.011	.068	-.024	-.157	.876
	public parks and squares	.320	.168	.309	1.899	.067
	residential green space	.097	.081	.201	1.197	.240
	institutional green space	.117	.081	.228	1.445	.158
	river greening	.105	.120	.129	.876	.387
	other greenings	-.072	.130	-.091	-.552	.585

a. Dependent Variable: Environmental Benefits

With F- value of 2.869 and P-value of 0.024 as shown in table 8b, it is observed that the relationship between urban greening and environmental benefit is significant. Moreover, with correlation coefficient (R) of 0.591 and coefficient of Multiple Determination (R^2) of 0.350, as shown in table 8a, one observes that about 35% of variation in environmental benefit may be attributed to a magnitude increase in urban greening types. In other words, close to 35% of the environmental benefits derived in the city is

explained by the greening of the metropolis. The remaining 65% of the environmental benefits may be due to other factors outside the greening. To determine the weight of each of the types of urban greening, reference is made to their regression coefficients as shown in table 8c. Using the standardized beta coefficients, the constant "a" would disappear and the regression equation is of the form:

$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6$

Becomes:

Y (i.e. environmental benefit) = $-0.024x_1 + 0.309x_2 + 0.201x_3 + 0.228x_4 + 0.129x_5 - 0.91x_6$

That is, the regression coefficients for type 1, type 2, type 3, type 4 type 5 and type 6, as obtained from table 8c are -0.024, 0.309, 0.201, 0.228, 0.129 and -0.091 respectively, which shows that type 2 (Public parks and squares) is of more effect than type 4, 3 and 5 (Institutional green, Residential green and River), while type 6 (other greens) and type 1 (road greening) are of less effect than the above in explaining environmental benefits in the study area. And with P-values of 0.876, 0.067, 0.240, 0.158, 0.387, 0.585 type 1, type 2, type 3, type 4 type 5 and type 6 respectively, which is not significant at $P<0.05$ confidence level. Therefore, one observed that the statistical significance observed from regression model was due to chance.

5. PLANNING IMPLICATION AND POLICY ISSUES

The importance of urban green space in solving a number of environmental problems in urban centres can never be over-emphasized. Aside creating a complete micro climate, it is found out that urban green space provide shade, prevent runoff and flood, increase the quality of air and reduce the incidence of Urban Heat Island (UHI) thereby ameliorating or at least reducing the series of menace that can be generated therefrom. The following recommendations are therefore offered as policy issues toward a sustainable management of urban green areas in Ibadan metropolis.

1. First and foremost, owning to the lack of master plan for the study area militating against officially designated areas for green space, there is need

to officially commission a land use plan or at least urban renewal plan aimed at allocating spaces for greenings in the metropolis. This will apart from benefiting the environment in a number of ways, guarantee food security and employment for urban residents thereby sustaining the city.

2. Since the highest proportion of the metropolis is concretised using hard landscaping, government should intensify its efforts by making sure all available spaces considered not fit for development (rail lines, power lines and steep slopes as well as river courses and hilly spaces) are greened in order to compensate for the vast hectares of built ups in the city centre.

3. There should be sensitization campaigns on the importance of maintaining green space around human habitat and people should be mandated to keep greenings in containers both inside and outside all existing structures whether residential or commercial. Special attention should also be given to the green roofs, courtyards, green walls, streets, balconies, which integrate greening methods of reducing hard surfaces. This will go a long way in at least making up for the space concretised in the urban centres.

4. Also, the use of planning approval strategies should be employed to secure substantial space for green areas.

5. Massive tree planting should be prioritized in the urban centres, rather than being selective in road greenings, government should ensure that all road setbacks, median and shoulders are planted with green vegetation and trees should be planted along roads to serve as shade for pedestrians. This, aside beautification, will also reduce urban temperature emanating from the macadamized road surfaces.

6. Greening of urban spaces should be embarked upon as corporate social responsibility by Companies, Banks and other big private investments in the city. Conspicuous Roundabouts, Streets and Roads can be allocated to them to be vegetated and maintained and by way of rewarding such gesture, sign posts and banners advertising their companies and products can be placed in such areas at no cost to the organization concerned.

6. CONCLUSION

Urbanization has no doubt exerted enormous pressure on urban centres in both developed and developing countries of the world particularly by removing the green spaces. However, given the numerous benefits emanating from green spaces, cities are becoming largely vulnerable to environmental problems without them. There is therefore the need for government to focus policy and programme on safeguarding urban green spaces and plan for a sustainable green space development in Ibadan metropolis.

REFERENCES

Aldous, D.E., (2005). Education and training opportunities for turf management in Australia. *Acta Horticulturae*, 672, 71-7.

Ayeni, M.O.A. (1994). The metropolitan area of Ibadan; its growth and structure. In Filani,M.O. et al. (eds.) Ibadan Region Chapter 7, pp. 72-84. Nigeria: Rex Charles Publishers.

Baycan-Levent T, Vreeker R, Nijkamp P. (2009). A multi-criteria evaluation of green spaces in European cities. *European Urban and Regional Studies*, 16(2): 193-213

Central Council of Ibadan Indigenes, (CCII) (2011). Blue print on the physical development for Ibadan Metropolitan area. Paper submitted to the Oyo State Government, July.

Chiesura A. (2004). The role of urban parks for the sustainable city. *Landscape and Urban Planning*, 68(1):129-138

Chundi C. (2013). Planning urban nature Urban green space planning in post-1949 China: Beijing as a representative case study. A thesis submitted in fulfillment of the requirements for the Degree of Doctor of Philosophy in Landscape Architecture At Lincoln University.

Cohen, D. A., Inagami, S., and Finch, B., (2008). The built environment and collective efficacy. *Health & Place*, 14, 198–208.

Collins, A. M. (2014a). Destruction of Urban Green Spaces: A Problem Beyond Urbanization in Kumasi City (Ghana) *American*

Journal of Environmental Protection 3(1): 1-9

Crompton, J. L., (2001). The impacts of parks on property values: A review of the empirical evidence. *Journal of Leisure Research*, 33(1), 1-31.

De Vries, S., Verheij, R.A., Groenewegen, P.P., Spreeuwenberg, P.,(2003). Natural environments – healthy environments? Environment and Planning, 35; 1717-1731.

Fabiyi , O. O. (2006). Urban Land Use Change Analysis of a Traditional City from Remote Sensing Data: The Case of Ibadan Metropolitan Area, Nigeria. *Humanity & Social Sciences Journal*, 1 (1): 42-64.

Fam, D., Mosley, E., Lopes, A., Mathieson, L., Morison, J., and Connellan, G., (2008). *Irrigation of urban green spaces: A review of the environmental, social and economic benefits*. CRC for Irrigation Futures Technical Report No. 04/08.

FAO, (2012). *Growing greener cities in Africa.* First status report on urban and peri-urban horticulture in Africa. Rome: Food and Agriculture Organization of the United Nations.

Fuwape, J. P., and Onyekwelu, J. C., (2011). Urban Forest Development in West Africa: Benefits and Challenges. *Journal of Biodiversity and Ecological Sciences*, 1(1), 78-94.

Isenberg, J. P., and Quisenberry, N., (2002). *Play: Essential for all children*. A position paper for the Association for Childhood Education International.[Online]. Available: http://365waystounplugyourkids.com/play_Essential_for_kids1.htm.

Jibril I.U. (2010). The Return of the Greens in Abuja, Nigeria's New Capital City. FIG Congress 2010.*Sustainable Planning and Urban Renewal Facing the Challenges – Building the Capacity.* Sydney, Australia.

Jim, C.Y., and Chen, W. Y., (2006). Recreation-amenity use and contingent valuation of urban green spaces in Guangzhou, China. *Landscape and Urban Planning*, 75, 81-96.

Mabogunje, A.L. (1962). *Yoruba Towns*. Ibadan: University of Ibadan

Press.

Millson, A. W. (1891). The Yoruba Country, West Africa. Proceedings of the Royal Geographical Society, 13: 577-91.

Omigbodun, A. O and Omigbodun, O. O (2008). "Climate Change and Health in Nigeria: Vulnerability and Adaptation" in Akande, T and Kumuyi, A (eds.) Challenges of Climate Change for Nigeria: A Multidisciplinary Perspectives; NISER Publication pp 1-32; New World Press, Ibadan.

Raheem, W.M. (2015) Assessment of Urban Greening and City Sustainability in Ibadan Metropolis, Nigeria, An Unpublished M.Tech Dissertation submitted to the Department of Urban and Regional Planning, Ladoke Akintola University of Technology, Ogbomoso.

Takano, T., Nakamura, K., Watanabe, M., (2002). Urban residential environments and senior citizens' longevity in mega-city areas: the importance of walk-able green space. Journal of Epidemiology and Community Health, 56, 12; 913-6.

Tanaka, A., Takano, T., Nakamura, K., Takeuchi, S., (1996). Health levels influenced by urban residential conditions in a megacity – Tokyo. Urban Studies, 33; 879-894.

URGE (2004). *"Development of urban green spaces to improve the quality of life in cities and urban regions" Making greener cities: A practical guide.* (Section C "Good practice"). Leipzig: UFZ Centre for Environmental research Leipzig-Halle. Retrieved October 16, 2005, from URGE Web site: http://www.urge-project.ufz.de/CD/ booklet.htm.

Wahab, B. (2011). Ibadan: A rapidly growing city in need of a Master Plan. Paper read at the Architects' Congress/Annual General Meeting organized by the Nigerian Institute of Architects, Oyo State Chapter, held at Penrose Event Centre, Obafemi Awolowo Avenue, Old Bodija Estate, Ibadan, July 7.