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PUBLIC PERCEPTIONS OF URBAN FORESTS IN IBADAN, NIGERIA: IMPLICATIONS FOR ENVIRONMENTAL CONSERVATION

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PUBLIC PERCEPTIONS OF URBAN FORESTS IN IBADAN, NIGERIA: IMPLICATIONS FOR ENVIRONMENTAL CONSERVATION

Labode Popoola and Opeyeme Ajewole*

Summary

This work examines the public perceptions of urban forests in Ibadan *vis-à-vis* environmental conservation. It covers the five Local Government Areas (LGAs): Ibadan North, Ibadan North West, Ibadan South, Ibadan South-West, and Ibadan South-East. Data for the study was obtained from a stratified random sampling of 370 respondents through structured questionnaire-based interviews.

The results showed that 99 per cent of the respondents are aware of, and believe that these urban forests serve some purpose in meeting the socioeconomic and physiological needs of the urban populace. Moreover 94 per cent expressed their support for continued preservation of these forests. Of this total, 38 per cent, 36 per cent and 26 per cent respectively, based their support on the fact that these forests can: protect the environment, supply physical needs and be used for recreation. The chi-square test of independence at $P = 0.05$ revealed that the public perceptions of these forests are dependent on the respondents' residence proximity to at least one of these forest reserves ($P > 0.05$). Public perceptions may be capitalized upon by governments and other change agencies for the sustainable management of the remnants of Ibadan urban forests.

Keywords: degradation • development • environmental perception
• public perception • urban forests

Introduction

The destruction of forests constitutes a major environmental problem, since they play a major role in environmental conservation and what might be called 'amelioration'. For example environmental hazards like wind and soil erosion, flooding, earth warming, siltation of water bodies, underground hydrological dis-equilibrium, scarcity of rainfall and various forms of pollution

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air, water, and noise—are some of the major fallouts resulting from forest destruction. The consequences are in most cases far-reaching and immensely devastating.

Urbanisation has figured as one of the principal causes of forest destruction. For instance, FAO (1991) projected that the world population will reach 8500 million by the year 2025, and an expected 17 million hectares of forest will need to be destroyed annually to meet the various infrastructural needs of this burgeoning population. Ironically the quality of life in an urban area is greatly influenced by the amount and quality of its green spaces including forests. This need for green spaces becomes more acute, bearing in mind the urbanisation-induced changes in regional and global atmospheric systems, and the resultant concentration of air pollution and heat energy. Without trees, cities are hotter and drier, the air pollution is worse, the wind stronger, the flood danger and erosion more serious, the dust more damaging and people less comfortable and less healthy (OGUNTALA 1993). Therefore, trees play an important role in environmental conservation.

The works of XIE et al. (1998) on the efficiency of a peri-urban forest belt in Fushun city, China, in controlling air pollution (SO_2 , NO_x and total suspended particles—TSP), that of FREER-SMITH and BROADMEADOW (1996) who derived a model estimating pollution uptake by urban woodlands in the Greenwood community of Nottingham, as well as that of GUSMAILINA'S (1996) on the roles of several urban forest plants in mitigating air pollution, provide empirical evidence of forests' invaluable roles in fostering a healthy living urban environment. However, the forests of Ibadan metropolis have been under constant pressure since 1960 (OGUNTALA 1993), which has led to their present degraded state. The trends of Ibadan urban forests' destruction and the consequences are summarised in Table 1. Incidentally the government that holds the forest 'in trust' for society, has inadvertently become the protagonist of this phenomenal urban deforestation, by giving higher priorities to other land uses over forestry. In view of this, it became imperative to investigate the public perception of these urban forests, so as to establish their (the forests') importance to people and hence, a possible argument for their preservation.

The Study Area

Ibadan, the capital of Oyo State, is in the south-western part of Nigeria. The metropolis has a population of 1,228,663 (National Population Census 1991), is 750m above sea level and has two distinct seasons: the rainy season being from March to October while the dry season runs through November to February. It comprises five local government areas, namely: Ibadan North, Ibadan North-West, Ibadan North-East, Ibadan South-West and Ibadan South-East (see Figure 1). It is located on longitude 3°54'E and latitude 7°23'N,

TABLE 1. Trends in Forest Destruction and consequences in Ibadan Metropolis.

Location of Forests Destroyed	Development Project Substituted	Environmental Impacts
Sapati* Hills Fuelwood (Ogunpa dam) Plantations (1960s)	Premier hotel	Large scale erosion and flooding of Ogunpa river.
Bodija Wetlands (1970s)	Housing estate	Destruction of the source of Ogunpa River
Sapati Hills Fuelwood (Ogunpa dam) Plantations (1980s)	Cultural Centre	Destruction of Agodi Gardens and fish ponds, massive flooding resulting in over 300 deaths.
Jericho [Alalubosa] Forest Reserve, including FRIN Forest gene Pool (1990s)	Alesinloye market and housing estates	Siltation and pollution of Alalubosa lake
University of Ibadan Teak Plantations	Proposed 5 Star hotel	Massive erosion.
Eleyele Fuelwood Plantations (1970s)	Dual carriageway (road development)	Siltation and flooding of Eleyele Lake source of water to parts of Ibadan.
Scout Camp Fuelwood Plantations (1990s)	Proposed Shopping Complex	Massive erosion and flooding in challenge Areas of Ibadan.

Source: OGUNTALA (1993).

*Corrupted pronunciation of 'Shepherd Hills'.

covering a total land area of 130 km². Ibadan has one of the lowest percentages of open spaces (1.38 per cent) among Nigerian cities (WORLD BANK 1992).

Ibadan metropolis had four forest reserves: Alalubosa forest reserve, which has been destroyed and converted to residential quarters and 'Alesinloye' market. This was constituted in 1916 for the purpose of protecting the water catchment area that formed a railway reservoir, and also to supply fuelwood to the public. It covered an area of 308.53 ha. On the other hand, Oke Aremo reserve with a total land area of 57.67 ha, was constituted in 1935, to serve as a source of fuelwood and poles. Ogunpa dam forest reserve was constituted in 1931 over an area of 81.27 ha, to protect the reservoir catchment area of Ogunpa dam. It was declared a game reserve in 1952. Eleyele forest reserve with an area of 325.2 ha was acquired in 1941 and formally constituted a reserve in 1956, to provide fuelwood, building poles, and protect the catchment area of Eleyele water works.

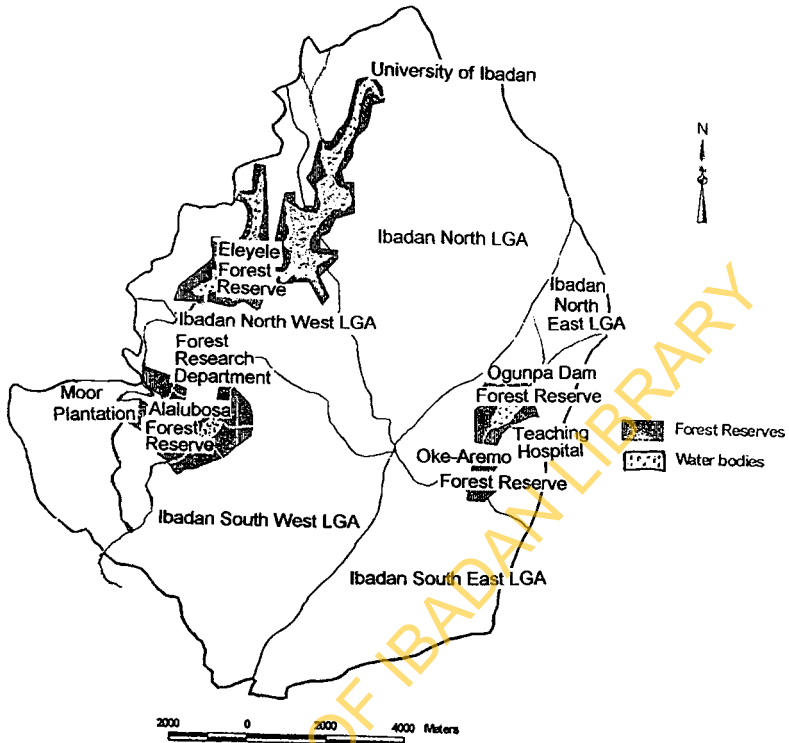


FIGURE 1. Map of Ibadan Metropolis showing the five Local Government Areas (LGAs) and the Forest Reserves.

Present status of the urban forests of Ibadan

The urban forests of Ibadan are presently in various degrees of degradation. The whole of Alalubosa forest reserve was clear-felled and replaced with Aleshinloye urban market and residential quarters. This was done by executive fiat (i.e. an order or decree) of military government. Oke-Aremo forest reserve has been virtually destroyed. A greater part of it was ceded for the development of the new King's (Olubadan) palace and associated projects (see Figure 2). Ogunpa dam forest reserve has suffered almost the same fate, as most of it has given way for the construction of the cultural centre, Premier hotel and public schools.

Except for Eleyele forest reserve, which still has a fairly sizeable portion of its original area not yet destroyed (Figures 3 and 4) and also Agodi gardens—a preserved small part of Ogunpa dam forest reserve used for recreation (Figure 5), the remnants of forests in Ibadan metropolis were almost 'mined'



FIGURE 2. The paramount Ruler's Palace and other building projects as evidence of 'dereservation' of Oke Aremo Forest Reserve.



FIGURE 3. Degradation and encroachment of the Eleyele Urban Forest Reserve, Ibadan.



FIGURE 4. 'Dereservation' of watershed of the Eleyele Dam.



FIGURE 5. Sandcrete fence surrounding Agodi Gardens—a protected area of the Ogunpa Forest in Ibadan.

during the 1994 national energy workers' strike. Thus today, images of devastated forests have become outstanding symbols of past environmentally-unfriendly activities.

Data Collection and Analysis

Data and Sampling Procedure

The data used in this study were obtained between July-December, 1998, using interviews of 400 residents of Ibadan metropolis. The interviews followed the format of a standard questionnaire which was used to guide the questions put to respondees (see Appendix). In all 382 interviews were successfully conducted, 12 were discarded for inconsistency, leaving 370 (92.5 per cent) that were used for the analysis. Interviews were regarded as being 'inconsistent' where responses were at variance with questions asked. In some cases multiple and conflicting answers were given to a single question.

Multi-stage random sampling was adopted to collect the primary data needed. The metropolis was thus stratified into two Zones:

- (I) Neighbourhood, comprising the inhabitants that live within 1km radius of adjoining areas surrounding the urban forest reserves, and
- (II) Non-neighbourhood which comprised inhabitants living outside 1km radius of the adjoining areas surrounding the forest reserves, but within the five local Government areas that make up the metropolis.

Zone I was further stratified into 4 cells, each cell in this case comprising residents living within 1km radius of adjoining areas surrounding of the four studied urban forest reserves, namely Ogunpa dam, Oke Aremo, Eleyele and Alalubosa sites. While Zone II was further stratified to 5 cells, each cell in this case comprised the residents living outside 1km radius of the adjoining areas surrounding the urban forest reserves, but within the 5 local government areas that constitute the metropolis, namely: Ibadan North-West, Ibadan North East, Ibadan North, Ibadan South-West and Ibadan South-East.

Names of major streets in each of the 9 cells were collected from the metropolitan planning authority. Using a table of random numbers, 2 streets were picked from each of the 9 cells.

Thereafter through careful sampling, 25 respondents were surveyed from each of the selected streets in each of the 4 cells in the neighbourhood Zone (I) while 20 respondents were surveyed from each of the selected streets in each of the 5 cells in the non-neighbourhood Zone (II). This gave rise to 200 respondents each from both the forests' neighbourhood and non-neighbourhood zones respectively.

Analytical Techniques

The data were subjected to descriptive statistics and chi-square test of independence.

Chi-square test of independence model of a $2 \times n$ contingency table is given by:

$$x^2 = \frac{1}{(A)(B)} \sum_{j=1}^n \frac{(a_j B - b_j A)^2}{T_j}$$

where

A = sum of observations in the 1st row

B = sum of observations in the 2nd row

a_i = individual observations in the 1st row

b_i = individual observations in the 2nd row

T_j = Summation of observations in each column

The result obtained is then compared with the tabular value of x^2 at $(c-1)$ degree of freedom, c being the number of columns in the table of data. Appropriate inference is made at $P = 0.05$, based on the formulated hypothesis.

Results and Discussion

Awareness of Purposes of the Urban Forests of Ibadan

Virtually all the respondents (99.7 per cent) indicated their awareness that these forests provide various socio-economic needs for the Ibadan populace. Responses of both the forest reserves' neighbours and non-neighbours as shown in Table 2 follow a similar trend in magnitude and pattern. The majority of the respondents (28.2 per cent) indicated their awareness about the environmental importance of these urban forests. This is possibly informed by the frequency and magnitude of environmental hazards like pollution from industries and motorized vehicles, flooding etc., prevalent in urban areas. In addition OGUNTALA (1993) in Table 1 identified occurrence of large scale erosion and flooding as well as siltation, and pollution of lakes and fish ponds as being attributable to the destruction of some of these forest reserves.

Furthermore, 26.1 per cent of the respondents revealed their awareness that these urban forest reserves serve as sources of fuelwood timber and poles to the community. The fact that these forests, especially Ogunpa dam and Oke Aremo reserves, served as emergency sources of fuelwood to the community during the 1994 energy crisis, give further credence to this observation (see Figure 6). The energy crisis led to the massive degradation of these forests (see

TABLE 2. Percentage distribution of responses on the awareness of purposes of the urban forests of Ibadan

		Fuelwood and Timber	Medicinal Plants Wildlife and Fruits	Environmental Protection	Recreation	No Purpose at All	Total
Neighbourhood	Number	50	45	50	34	-	197
	%	27.9	25.1	27.9	19	-	100
Non-Neighbourhood	Number	46	45	54	45	1.0	191
	%	24.2	24.2	28.5	23.3	0.5	100
Total	Number	96	90	104	79	1	370
	%	26.1	24.2	28.2	21.5	0.3	100

Source: Field Survey, 1998



FIGURE 6. Hewing of fuelwood—a regular activity particularly by women leading to loss of biodiversity in Oke Aremo Forests Reserve.

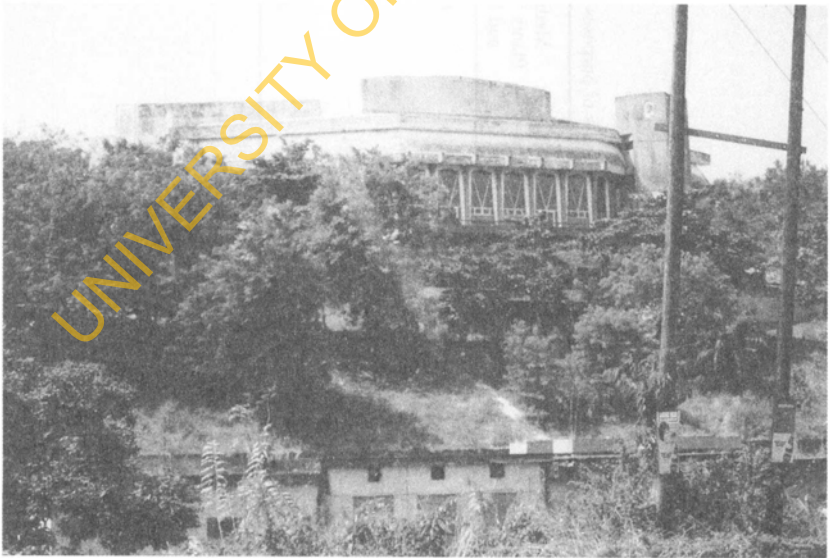


FIGURE 7. Relics of *Cassia siamea* plantation surrounding cultural centre—one of the buildings that replaced part of Ogunpa Dam Forest Reserve, Ibadan.

Figures 7 and 8) because of the inability of the management or government to foresee the possible implications of the crisis on the forests, and consequently to take preventive measures such as reinforcing security, or initiating a systematic exploitation to meet this emergency situation.

Also, 24.2 per cent of the respondents expressed their awareness that these urban forests are sources of medicinal plants. This is not surprising since more people, even among the urban residents, are becoming conscious of the safety and efficacy of herbs in primary health care delivery and forests are the natural repositories of wild medicinal plants. Some 21.5 per cent of the respondents are aware of the recreational importance of these urban forests. To give some context to this, Alalubosa and Ogunpa dam forest reserves which had lakes used to serve as recreational resort centres for Ibadan residents during public holidays and religious festivals.

Direct benefits obtained from the Urban Forests of Ibadan

Results in Table 3 show that many of the respondents (16.8 per cent) have at one time or the other enjoyed fuelwood while (percentage figures) 16.2, 15.4, 13.2 and 11.9 per cent of the respondents have equally enjoyed timber, medicinal plants, recreation and fruits respectively. The result underscores the trend observed earlier, on awareness of the purposes of these urban forests. More importantly, the results give insight to the un-priced or non-marketed



FIGURE 8. An urban forest tract adjoining Premier Hotel which is situated in the Ogunpa Dam Forest Reserve, Ibadan.

TABLE 3. Percentage distribution of responses on direct benefits obtained from the urban forests of Ibadan

		Fuel Wood	Timber	Medi. Plant	Wrap Leaves	Recreation	Venue Sport. Activ.	Foods	Fruits	Wildlife	Total
Neighbourhood	Number %	40 21.1	30 15.8	32 16.8	12 6.3	19 10.0	8 4.2	15 7.9	20 10.5	14 7.4	190 100
Non-Neighbourhood	Number %	22 12.2	30 16.6	25 14.4	11 6.1	30 16.6	7 3.9	14 7.7	24 13.3	17 9.4	180 100
Pooled	Number %	62 16.8	60 16.2	57 15.4	23 6.2	49 13.2	15 4.1	29 7.8	44 11.9	31 8.4	370 100

Source: Field Survey, 1998

contributions of these forests, especially to the household economy of the urban populace. For instance a good percentage of the respondents—16.8 per cent and 15.4 per cent claimed to have respectively made use of fuelwood and medicinal plants (most of which will be probably consumed at household level) obtained from these forests. This trend corroborates POPOOLA'S (1992) report that most households in Nigeria have had to put up with the use of fuelwood at one time or the other. This is hardly avoidable, given the almost unending fuel crisis that has plagued Nigeria since 1994, and the prohibitive costs of alternative sources of energy and their required accessories. OGUNTALA (1993) observed that Ibadan indigenes and other Nigerians have a socio-cultural background in which over 80 per cent of the people rely on herbs and other forest resources for medicines, foods and other cultural purposes.

AJEWOLE (2000) has also noted that the proliferation of so-called naturalists' hospitals in several Nigerian urban centres, the recent involvement of many educated people in traditional health care delivery, as well as the downward trend in the national economic fortune with the resultant impoverishment of the majority of the populace. This, it is argued, has cumulatively enhanced the urban populace's disposition to the use of medicinal plants in health care delivery.

Looking at the 6.2 per cent respondents that identified 'wrapping leaves' as urban forest benefit, this further attests to the contribution of these forests to the economic well-being of the urban poor who collect and sell these leaves for a living.

Furthermore, the social importance of these urban forests as evidenced by the 13.2 per cent of the respondents who claimed to have enjoyed recreation in these forests at one time or the other, is noteworthy. As a matter of fact, Agodi gardens—a substantial remnant of the Ogunpa dam forest reserve—still serves as a recreational resort for Ibadan residents, even though it is dilapidated.

Need for Continued Preservation of Urban Forests of Ibadan

Almost all the respondents (93 per cent) expressed their support for the continued preservation of the remaining urban forests of Ibadan. As observed in Table 4, 38.1 per cent based their support on the forests' ability to protect the environment, 35.9 per cent based it on the forest's capability to supply timber and medicinal plants and 25.9 per cent based it on the recreational potential of these forests. Implied in the above trend is that the public attach paramount importance to the environmental protection and economic functions of the forest, while the sociological function (i.e. recreation) is relatively lower in their ranking of potential uses. The susceptibility of the urban environment to hazards, and the dangers such hazards pose to the urban residents' lives must have contributed significantly to the high disposition of

TABLE 4. Percentage distribution of respondents' reasons for supporting continued preservation of urban forests of Ibadan

		Provision of Physical Needs	Environmental Protection	Recreation	Total
Neighbourhood	Number	68	67	40	175
	%	38.9	38.3	22.9	100
Non-Neighbourhood	Number	65	74	56	195
	%	33.3	37.9	28.7	100
Pooled	Number	133	141	96	370
	%	35.9	38.1	25.9	100

Source: Field Survey, 1998

residents to the preservation of these forests for the principal purpose of environmental amelioration.

Appropriate Management Strategies for the Urban Forests of Ibadan

The management strategies as shown in Table 5 (see next page) are ordered according to: the provision of adequate numbers of security guards (21.9 per cent), erection of physical barriers like fencing (21.6 per cent), education of the public about the invaluable importance of these forests (20.0 per cent), encouragement of recreation inside the forests (14.6 per cent), and using these forests as production sites for some selected non-timber forest produce (NTFP) (10.3 per cent). Some of these proposed management strategies are of particular importance. Adequate public education about the general function and specific purposes of these forests will go a long way in allaying pressures on the forests, because increased public awareness of the forests' role in environmental conservation and rehabilitation, as well as the grave consequences following their destruction, will no doubt engender public support for their preservation. Subsequently, this can motivate social resistance against policies or acts that might lead to forests' destruction and environmental degradation. Furthermore, the suggestions to encourage the use of these forests for recreation (14.7 per cent), and as sites for the production of various environmental friendly NTFP border on the optimum use of the forests' land. These will increase the socioeconomic benefits derivable from these forests, and can thus reduce the cost of preservation. These urban forest reserves must not be seen as inviolate sanctuaries but rather must be accessible via regulatory mechanisms, so as to increase their socioeconomic importance to the host community. Apart from the fact that this will increase the revenues generated for the forests' trustees, it will also serve as a good economic counter point to forests' supposed 'non/underproductivity', often put forward

TABLE 5. Percentage distribution of suggestions on the appropriate management strategies of the urban forests of Ibadan

		Disallow N/Forest Use	Physical Barriers	Security Guards & Posts	Educate the People	Encourage Recreation	Production of NTFP	Total
Neighbourhood	Number	21	42	46	30	22	17	178
	%	11.8	23.6	25.8	16.9	12.4	9.6	100
Non-Neighbourhood	Number	22	38	35	44	32	21	192
	%	11.5	19.8	18.2	22.9	16.7	10.9	100
Pooled	Number	4	80	81	74	54	38	370
	%	11.6	21.6	21.9	20.0	14.6	10.3	100

Source: Field survey 1998.



FIGURE 9. Encroachment of Eleyele Forest Reserve, for commercial activities.

by other governmental officials involved in urban land use management. It will also make it more socially and politically difficult for whoever might be interested in an alternative use of the destruction of these forests (e.g. see Figure 9).

Hypotheses Testing

The summary of the results of hypotheses tested at $P = 0.05$, is presented in Table 6. Since the chi-square calculated is greater than the chi-square tabulated, in each of the five (5) hypotheses tested, then it can be safely inferred that awareness of purposes of the urban forests of Ibadan, types of direct benefits obtained from these forests, reasons for supporting their continued preservation, types of suggested appropriate management strategies, for these forests are all dependent on residence proximity to at least one of these forest reserves.

Conclusion

A great historical, ecological, and research legacy has been destroyed with the 'development' of some of the urban forests of Ibadan. The least that can be done now is to concertedly preserve the remnant of this priceless legacy. In achieving this, the opinion and support of the public needs to be sought by the forests' managers. There is an urgent need for improvement of management

TABLE 6. Summary of results of hypotheses

No	X^2_{cal}	X^2_{tab}	(c-1)df	Remarks
1	1.52	0.352	3	Reject H_0
2	13.84	2.73	8	Reject H_0
3	3.18	0.103	2	Reject H_0
4	20.42	1.145	5	Reject H_0
5	0.03	0.004	1	Reject H_0
6	2.07	0.004	1	Reject H_0

strategies, *vis-a-vis* detailing of adequate and capable uniformed and professional staff, as well as increasing these forests' social value by expanding the management objectives. The results of this study have indicated the immense public support for Ibadan's urban forests, and as such are indicative of these forests' social value to the Ibadan populace. Decision makers should therefore, bear in mind when land use option decisions are taken that preservation of these forests is in fact the unequivocal wish of Ibadan public.

The cause of these urban forests' destruction can be succinctly summarised to include: the ambiguity and conflict in jurisdictional definitions of government departments involved in land use management in the state. Also the lack of properly coordinated inter-departmental relationship, especially in the area of policy formulation and implementation has equally been identified to be a contributory factor to this degradation. Moreover, the prolonged tenure of a military regime that was not accountable to the people, and the failure of government agents responsible for land use management, to seek both the public and expert's opinion on these forests have not helped their preservation.

Government agencies involved in environmental management could capitalise on the favourable dispositions of the Ibadan public towards the continued preservation and reforestation of these urban forests, as well as planting of trees within and around the city, to initiate the communal participatory 'greening of Ibadan metropolitan environment' program.

Bibliography

- AJEWOLE, O.I. (2000). Economic valuation of Environmental Service Functions of Forests in Ibadan Metropolis. *M.Phil Dissertation in the Department of Forest Resources Management*. University of Ibadan. 147pp.
- FAO (FOOD AND AGRICULTURE ORGANISATION) (1991). *Trees for Life*: 5-26.
- FAYANJU, E.O. (1992). Urban Forestry Dereservation and its impacts on the Environment in Ibadan Municipality. *BSc Project in the Department of Forest Resources Management*. University of Ibadan. 90pp.

- FREER-SMITH, P.H. and BROADMEADOW, M.S.J. (1996). The improvement of urban air quality by trees. *Arboriculture Research and Information Note*. Department of the Environment, U.K. NO 135.ERB-96.
- GUSMAILINA (1996). The role of several urban forest plants on the mitigation of emission in the air. *Bulletin-Penelitian-Hasil-Hutam*, **14**(2).
- OGUNTALA, A.B. (1993). Forestry for urban and rural development in Nigeria, with particular reference to urban environments, in Oduwaiye E.A. (ed) *Proceedings of Annual Conference of Forestry Association of Nigeria*. 1–10.
- POPOOLA, L. (1992). An assessment of the effect of structural adjustment programme on fuelwood consumption in Nigeria. *Journal of Tropical Forest Resources* **7**/8, 30–38.
- WORLD BANK (1992). Forestry Sector Review, Washington DC. pp. 7–30.
- XIE-W, H., DU., Z.X. WANG, LI, C.H. and YAN, M.S. (1998). Research on integrated environmental efficiency from urban circulating forest in Fushun city. *Journal of Plant Resources and Environment*. **7**(2), 42–47.

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APPENDIX: Example of the questionnaire used as a basis for the interviews.

PUBLIC PERCEPTIONS OF THE URBAN FORESTS OF IBADAN METROPOLIS: IMPLICATIONS FOR ENVIRONMENTAL CONSERVATION

QUESTIONNAIRE

Dear Sir/Madam,

The forest reserves within Ibadan Metropolis, namely Alalubosa, Eleyele, Oke Aremo and Ogunpa dam forest reserves have been under heavy pressure from urbanization and other forms of land use. Alalubosa forest reserves have undergone serious dereservation and degradation. However, some researchers have identified the destruction of these forests as one of the principal sources of the incessant flooding and environmental problems in the city of Ibadan (OGUNTALA, 1993).

Can you therefore, kindly answer the following questions concerning these forests.

1. Gender: Male Female
2. Age:
3. Are you employed: (i) Yes (ii) No
4. What is your income per month (specify)
5. Marital Status Married Single
6. No. of people in your household
7. Level of formal Education: (i) Illiterate (ii) Primary (iii) Secondary (iv) Tertiary (v) Postgraduate
8. Are you a native of Ibadan? (i) Yes (ii) No
9. How long have you been resident in Ibadan?
10. Have you noticed any forest reserves in Ibadan Metropolis?
(i) Yes (ii) No
11. If yes, since when? _____
12. What purpose do you think these reserves serve?
(You can tick more than one item please)
 - (i) Provision of fuelwood and timber
 - (ii) Provision of medicinal plants, wildlife and fruits
 - (iii) Protection of the environment
 - (iv) Provision of recreation
 - (v) All of the above
 - (vi) No purpose at all
 - (vii) Others (Specify)

13. What have you benefited directly from in any of these reserves? (You can tick more than one item please).
- (i) Fuelwood, (ii) Timber, (iii) Medicinal plants, (iv) Wildlife, (v) Wrapping leaves, (vi) Recreation, (vii) Spiritual meditation, (viii) Foods, (ix) Fruits, (x) Other (Specify).
14. Do you think there should still be forest reserves in Ibadan city: (i) Yes (ii) No.
15. If yes to (13), state your reasons: (You can tick more than one item please)
- (i) Forest reserves can provide: physical needs such as fuelwood, timber, medicinal plants etc for urban people.
 - (ii) Forest reserves can protect the environment against environmental hazards as flooding, windstorm, high temperature, etc.
 - (iii) Forest reserves can be used for recreation.
 - (iv) All of the above
 - (v) Others (Specify)
16. If no to question (13) State your reason:
- (i) Forest reserves serve no purpose in urban centers
 - (ii) There are better needs for use of land for non forestry purposes such as housing and industrialization.
 - (iii) Forest reserves are risks in urban centres.
17. How do you think the existing reserves should be managed: (You can tick more than one item please)
- (i) Government should disallow non-forestry land use of reserves.
 - (ii) Government should put up a physical barrier-like fence all around the reserves.
 - (iii) Government should put up security guards and sentry posts in the reserves.
 - (iv) The populace should be educated about the importance of reserves in urban centres.
 - (v) Government should encourage recreational activities inside the reserves.
 - (vi) Government should encourage production of non-timber forest products inside the reserves.
 - (vii) All of the above.
 - (viii) Others (specify).
18. How do you think the existing reserved forest estates can be increased in Ibadan (you can tick more than one item please)
- (i) Existing reserves should be replanted
 - (ii) Government should get more land for forest reserves development around Ibadan city.
 - (iii) Communities and associations within Ibadan metropolis should embark on afforestation and reforestation projects.

- (iv) Individuals should be made to plant trees round their houses.
 - (v) All of the above
 - (vi) Others (specify)
19. Which environmental hazard have you witnessed in Ibadan before:
- (i) Flood, (ii) Drying up of water surfaces, (iii) Too high atmospheric temperature, (iv) All of the above, (v) None of the above, (vi) Other (Specify).
20. Do you think that the destruction of the urban forests of Ibadan could be the cause of any or all of these environmental problems? (i) Yes (ii) No
21. If yes to (20), which of these environmental problems do you think is caused by deforestation?
- (i) Flooding, (ii) Drying up of water surfaces, (iii) Unbearably high atmospheric temperature, (iv) All of the above, (v) None of the above
22. Have you noticed any government official around any of these forest reserves before? (i) Yes (ii) No
23. If yes to (22), how long ago?
24. What do you think are the factors responsible for deforestation of the Ibadan urban forest reserves?
- (i) Land scarcity within the city to build houses and industries.
 - (ii) Land scarcity within the city to farm.
 - (iii) Residents' needs such as fuelwood.
 - (iv) Mismanagement and nonchalant attitude of the government.
 - (v) Ignorance of people about the environmental importance of reserves.
 - (vi) Open access attribute of the forest reserves.
 - (vii) Other (Specify)

Résumé

Cette étude examine les conceptions du public à l'égard des forêts urbaines d'Ibadan vis à vis de la conservation de l'environnement. Elle s'étend aux cinq régions de l'administration locale (LGA): Ibadan nord, Ibadan nord-ouest, Ibadan sud, Ibadan sud-ouest, Ibadan sud-est. Les données utilisées dans le cadre de cette étude ont été obtenues à partir d'un échantillonnage au hasard stratifié de 370 personnes interrogées à l'aide de questionnaires structurés.

Les résultats ont montré que 99,2 pour cent des personnes interrogées savaient et croyaient que ces forêts urbaines servaient dans une certaine mesure à répondre aux besoins socio-économiques et physiologiques de la population urbaine. De plus 94 pour cent se prononçaient en faveur de la conservation continue de ces forêts. Parmi ces personnes, 38 pour cent étaient favorables aux forêts parce qu'elles pouvaient protéger l'environnement, 36 pour cent parce qu'elles pourvoient à des besoins physiques et 26 pour cent parce qu'elles pouvaient être utilisées à des fins récréatives. Le test d'indépendance du khi-carré à $P = 0,05$ a révélé que les conceptions du public à l'égard de ces forêts dépendaient de la proximité du lieu de résidence des personnes interrogées par rapport à au moins une de ces réserves forestières ($P > 0,05$). Ces

conceptions du public peuvent être exploitées par le gouvernement et d'autres organismes de changement en vue d'une gestion durable des restes de forêts urbaines à Ibadan.

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