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Knowledge Level of Rural Dwellers on Sustainable Utilization of Forest Resources in Peri Urban Local Government Areas of Ibadan, Oyo State, Nigeria

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

Forest resources have been a major source of income for a sizeable number of the populace especially in the rural areas. This study therefore investigated the knowledge levels of rural dwellers on sustainable utilization of forest resources in Peri Urban Local Government Areas of Ibadan, Oyo State in which Oluyole and Akinyele Local Governments were purposively chosen. Using a multi-stage sampling procedure, 200 respondents were randomly sampled from the Study Area and data were collected using a structured questionnaire on their personal characteristics, knowledge level, accessibility and constraints faced in sustainable utilization of forest resources. Majority of the respondent 68.4% were males, had secondary education (34.7%). All the respondents (100%) were involved in forest resources utilization; majority (63.3%) sourced their information from forest workers. The high cost of forest resources (40.8%) ranked as the highest constraint faced in the utilization of forest resources.

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Significant relationship (x^2=15.76; p≤0.05) existed between household size and the knowledge level of respondents on forest resources utilization. Also, there was a significant relationship (r=-0.712, p= 0.000) between knowledge level and constraints associated with sustainable utilization of forest resources. The paper therefore recommends the use of public-private partnerships in creating awareness on sustainable utilization of forest resources.

Keywords: Sustainable; utilization; forest resource; knowledge.

1. INTRODUCTION

Forestry is the art and science of studying tree resources including plantation and natural stands. The main goal of forestry is to create and implement a system that allows forest to continue as sustainable provision of environment, supply of services and other goods [1]. Forests provide global food security and resources; hence man depends on forests and plants for their daily needs. The need ranges from food, medicine, wood, fuel, forages for animals and soil fertilization etc. Forests in Nigeria are recognized as a formidable base sustaining the economy of the country and a source of livelihood for the rural populace. Forest also maintains the fertility of the soil, protect the watershed and reduce the heat of natural disaster such as flood and land slice.

The trunks and branches of trees provide protection from wind and tree roots help solidify soil during heavy rain. In addition, trees and forests enhance the development of watersheds that act as buffers for the ecosystem during periods of drought [2]. Timber and wood products have been used as a construction material for over a thousand years [3]. Different parts of forest plant species are used for curative and preventive purposes against various types of ailments [4]. It can be succinctly put that forestry serves the purposes of industrial development, energy supply, environmental protection and medicinal needs of the people. Forest is a natural endowment that provides mankind with basic needs such as food, clothing, shelter and other services to support his livelihood and sustain his existence. Forest resources are crucial to people's economic, social and cultural survival. Firewood, bushmeats, fruits, medicinal plants, and building materials are all available in the forests. They are home to humans as well as numerous plants and animal species, many of which are threatened with extinction due to human activities [5]. The nature of indigenous belief systems is essential to the sustainability of forest resources, because, they determine how well forest resources are conserved [6]. As such, the stronger the belief system the stronger the conservation measures and vice-versa.

According to Ijeomah and Emelue [7], evidences of non-sustainable management of resources are numerous in Nigeria. One of the most serious global challenges to the present generation is how to sustain the utilization of limited natural resources in the face of ever-increasing human population. This is worse for countries like Nigeria with high rates of poverty, where the governments are non-responsive to the needs of the people, and the majority of the people heavily rely on natural resources, such as forests, land and water for survival.

The study was therefore carried out to assess the utilization of forest resources by the inhabitants of Oluyole and Akinyele Local Governments of Oyo State, Nigeria.

The specific objectives were to determine respondents' personal characteristics, sources of information on forest resources, access to forest resources commonly utilized in the study area, knowledge of forest resources utilization, and the constraints to sustainable utilization of forest resources in the study area.

The hypotheses of the study were :

1. There is no significant relationship between selected respondents' personal characteristics and their knowledge level on sustainable utilisatization of forest resources.
2. There is no significant relationship between constraints associated with sustainable utilization of forest resources and knowledge level of respondents

2. METHODOLOGY

The study was carried out in the Peri urban area of Ibadan. The Peri urban area of Ibadan consists of six local governments out of which Oluyole and Akinyele Local Government Areas of Oyo State were purposively selected.

Oluyole and Akinyele Local Governments have their administrative headquarters located at Idi-Ayunre.and Moniya respectively.

The study areas are located in low land and semi deciduous forest belts with topography generally undulating, the area hosts a large hecterage of forest plantation. This feature makes the study area suitable for the study.

A multistage sampling procedure was employed in selecting the respondents from the study area. The first stage involved the purposive selection of Oluyole and Akinyele Local Governments based on the large hectarage of forest plantation in the area. The second stage involved the use of random sampling technique to select 3 wards out of 12 wards in Akinyele Local Governments and 2 wards out of 10 wards in Oluyole local governments making a total of five wards. The third stage involved purposive selection of 2 villages each from the five wards making a total of 10 villages. For the fourth stage, simple random sampling technique was used to select 20 respondents from each village making a total of 200 respondents from the five selected wards.

Out of the 200 questionnaires distributed, 196 were retrieved which constitutes 98% and which were used in the study.

2.1 Data Collection, Measurement of Variables and Data Analysis

Data were collected using a structured questionnaire which was pretested before the beginning of the study with the coefficient of 0.85.

The variables of the study included socio-economic characteristics such as, age, sex, marital status, level of education, occupation of the respondents, constraints to the utilization of forest resources, knowledge and different ways of forest resources utilization. Data on respondents' knowledge of forest utilization was collected with 13 items in which respondents answered with Yes or No and this was later categorized into High (Above the mean) and Low (below the mean). Data on constraints to sustainable utilization of forest resources was collected with a 3-point scale of Not a constraint, Minor constraint and Major constraint.

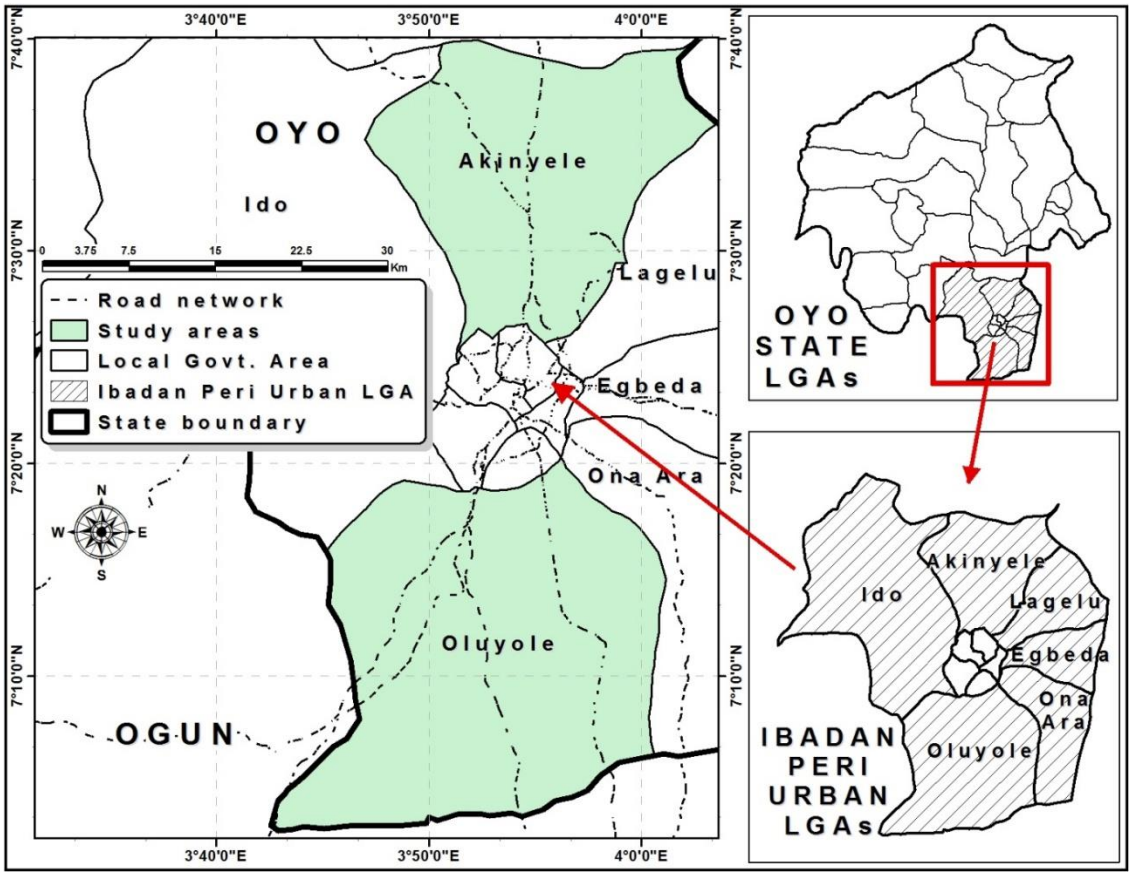

Fig. 1. Map of the Study area

Data collected was summarized using descriptive statistics such as frequency counts, mean and percentages. Chi-square and PPMC were used to test the hypothesis on the relationship between respondents' personal characteristics, constraints in forest resources utilization and respondents' knowledge level.

3. RESULTS AND DISCUSSION

Table 1 shows that overwhelming proportion of the respondents are male (68.4%) while 31.6% are female. This implies that more males partake in forest utilization than females. Also, respondents between the age brackets of 21-30 years are more involved in forest utilization. This means that youths in their active age were engaged in forest utilization. This is in line with the adventurous nature of youth and these findings also conforms with Adu [8] who reported that the highly productive age in farming falls between 21-40 years.

The educational attainment of the majority of respondents within the study area falls between primary (33.7%) and secondary (34.7%). The implication of the finding is that the majority of the respondents or the inhabitants of the study area had primary and secondary education.

This is corroborated by the fact that since the 50s when Chief Awolowo was the premier of the western region of Nigeria, infrastructural facilities such as, primary and secondary schools had been established in the community.

According to the table, the income-generating activities of the respondents show that the majority of them are involved in farming (39.8%) and trading (39.8%).

This is in line with Amusat [9] who stated that the majority of rural dwellers are either involved in farming or petty trading as there is no other major income generating activity in the rural areas.

3.1 Sources of Information

The majority of the respondents sourced their information on sustainable forest utilization from forest workers (63.3%), (52.0%) sourced information on sustainable forest resources from friends and neighbours while only 9.2% of the respondents relied on extension agents for their own information. Majority of the respondents were introduced to sustainable forest utilization through their friends/neighbours and forest workers.

Table 3 shows that all the respondents have access to the forest resources in the study area. This attests to the fact that the study area is largely occupied by forest reserves and as a result, all inhabitants of the community have unhindered access to forest resources.

Table 4 shows that (47.9%) respondents accessed and used forest resources daily, 68 (34.7%) accessed and used forest resources weekly, (8.2%) accessed and used forest resources fortnightly while only (9.2%) accessed and used forest resources monthly.

The above findings implied that the majority of the respondents accessed forest resources daily which implies that their means of survival such as fruits, food items e.g. cocoyam, bush meat and herbs for medical treatments were being taken from the forests on the daily basis.

3.2 Knowledge Level of Respondents on Sustainable Utilization of Forest Resources

Table 5 shows the knowledge level of respondents on sustainable utilization of forest resources. In the Study Area, the majority (64.3%) did not use forest resources for game viewing and tourism. Also, 84.6% did not consider the use of conservation for genetic resources. About 77% did not acknowledge the use of forest resources for sporting values, 81.6%. For natural and forest reserve 87.2% did not consider it for educational and research purposes. Furthermore, 100% of the respondents considered the use for domestic purposes, and 51.0% recognized the use for raw material production. Also, the majority (74%) had the knowledge of the fact that forest resources provide habitat for wildlife and 100% considered the use, lessing the force of wind. About 10.2% of the respondents know about the use for aesthetic values and beautification of the environment while only 25.5% considered the use for outdoor recreation.

Also, the majority (81.6%) had knowledge of forest resources as a means of income generation activities. In summary, the knowledge of respondents on sustainable utilization of forest resources is categorized into high and low based on the mean obtained. Table 5 revealed that the majority (57.7%) of the

respondents had a low level of knowledge on sustainable utilization of forest resources in the Study Area as shown in Table 5.A. The implication is that utilization of forest resources is tending toward unsustainable levels. This corroborates the report of Adebayo [10] that people basically engage in unsustainable practices because they find it profitable relative to sustainable practices which tend to have long-term horizon.

Table 1. Socio-economic characteristics of the respondents

Variable	Frequency	Percentage (%)
Sex		
Male	134	68.4
Female	62	31.6
Total	196	100
Age (years)		
Less than 20	8	4.1
21-30	76	38.8
31-40	52	26.5
41-50	42	21.4
Above 50	18	9.2
Total	196	100
Religion		
Islam	62	31.6
Christianity	130	66.3
Traditional	4	2.1
Total	196	100
Level of Education		
Primary	66	33.7
Secondary	68	34.7
Tertiary	50	25.5
Non-formal	12	6.1
Total	196	100
Marital Status		
Single	56	28.6
Married	104	53.1
Divorced	20	10.2
Widowed	16	8.2
Total	196	100
IncomeGenerating Activity		
Farming	78	39.8
Trading	78	39.8
Timber Contractor	4	2.0
Teaching	2	1.0
Agro-forestry	12	6.1
Others	22	11.2
Total	196	100
Years of Experience		
1-5	78	39.8
6-10	74	37.8
Above 10	44	22.4
Total	196	100
Household Size		
1-5	34	17.3
6-10	146	74.5
Above 10	16	8.2
Total	196	100

Source: Field Survey, 2022.

Table 2. Respondents' source of information on sustainable utilization of forest resources

Variable	Frequency	Percentage (%)
Forest Workers	124	63.3
Extension agents	18	9.2
Private agents	12	6.1
Government organizations	2	1.0
Friends and neighbours	102	52.0

Source: Field Survey, 2022.

Table 3. Respondents' accessibility of forest resources

Variable	Frequency	Percentage (%)
Yes	196	100
No	-	-
Total	196	100

Source: Field Survey, 2022.

Table 4. Regularity of access to forest resources

Variable	Frequency	Percentage (%)
Daily	94	47.9
Weekly	68	34.7
Fortnightly	16	8.2
Monthly	18	9.2
Total	196	100

Source: Field Survey, 2022.

Table 5. Knowledge level of respondents on sustainable utilization of forest resources

S/N	Variable	Yes %	No %
1	It is used for game-viewing tourism	70 (35.7)	126 (64.3)
2	It serves as a foreign exchange earning	106 (54.1)	90 (45.9)
3	It is used for the conservation of genetic resources	30 (15.3)	166 (84.6)
4	It is used for sporting values	45 (23.0)	151 (77.0)
5	It is used for natural forest reserve	36 (18.4)	160 (81.6)
6	It is used for education and research	25 (12.8)	171 (87.2)
7	It is used for domestic purpose	196 (100.0)	0 (0.0)
8	It is used for raw material production	100 (51.0)	96 (49.0)
9	To provide habitat for wildlife	145 (74.0)	51 (26.0)
10	Trees are used to lessen the force of the wind	196 (100.0)	0 (0.0)
11	It is used for outdoor recreation	50 (25.5)	146 (74.5)
12	It is used for aesthetic values (beautification of the environment)	20 (10.2)	176 (89.8)
13	It serves as income income-generating activities	160 (81.6)	36 (18.4)

Source: Field Survey, 2022

Table 5.A. Category of respondents based on their knowledge level on sustainable utilization of forest resources

Category	Frequency	Percentage (%)
High (above mean)	83	42.3
Low (below mean)	113	57.7
Mean Value= 5.7		
Total	196	100

Source: Field Survey, 2022

Table 6 shows the constraints associated with the sustainable utilization of forest resources, in the Study Area. The results show that 60.2% of the respondents identified high cost of farm produce as a major constraint, and 50% considered unfavorable forest laws and policies as a major constraint. This is supported by the report of Adebayo [10] that sustainable management of practices exists in the country largely on paper, in reality, very little of the required measures are carried out. About 54.1% of the respondents said poor private sector partnership was a major constraint. This is in line with the findings of Amiebenomo [11] that the private sector is not well involved in the management of forest resources in the country. Also, 70.4% considered cultural belief and tradition as a major constraint and 65.3% identified low-income of rural dwellers as a major constraint in the Study Area. This agrees with the findings of Iheke and Eziuche [12] that the forests provide income and employment for forest dwellers who engaged in forest products gathering, and marketing as their main source of livelihood or as supplementary source of household income. Also, this corroborates the report of FAO [5], that the collection, processing and marketing of forest products as well as forest labour constitute important economic activities for many rural people. Furthermore, majority (61.7%) identified the high cost of healthcare services in rural areas not to be a constraint and 51% considered the lack of better alternatives not to be a constraint.

In summary, it was revealed that the majority (54.1%) of the respondents considered the constraints to sustainable utilization of forest resources in the study area as high. The implication is that constraints faced by respondents will affect the sustainable utilization of forest resources in the study area.

Table 7 shows that there was significant relationship between respondents' household size and and their knowledge on sustainable utilization of forest resources. This implied that members of household may seek for positive information on sustainable utilization of forest resources from relevant sources and share within the family, thereby enriching their knowledge.

3.3 Relationship between Constraints Associated with Sustainable Utilization of Forest Resources and Knowledge Level of Respondents

The result shows that there was a significant relationship between knowledge and constraints associated with sustainable utilization of forest resources. This implies that the low level of respondents' knowledge on sustainable utilization of forest resources increases the constraints associated with sustainable utilization of forest resources in the study area.

Table 6. Constraints to sustainable utilization of forest resources

	Not a Constraint	Minor Constraint	Major Constraint
High cost of farm produce	30 (15.3)	48 (24.5)	118 (60.2)
Forest laws and policies	55 (28.1)	43 (21.9)	98 (50.0)
High cost of health care services in rural areas	121 (61.7)	15 (7.7)	60 (30.6)
Poor private sector partnership	18 (9.2)	729 (36.7)	186 (54.1)
Cultural belief and tradition	18 (9.2)	40 (20.4)	138 (70.4)
High cost of forest resources	100 (51.0)	56 (28.6)	40 (20.4)
Low income generation	20(10.2)	48 (24.5)	128 (65.3)

Source: Field Survey, 2022

Table 6.A. Category of respondents based on their constraints

Category	Frequency	Percentage (%)
High (above mean)	106	54.1
Low (below mean)	90	45.9
Mean Value= 8.7		
Total	196	100

Source: Field Survey, 2022.

Table 7. Relationship between respondents' personal characteristics and knowledge level of respondents on sustainable utilization of forest resources

Variable	Df	X^2 Value	P-Value
Age	4	3.82	0.312
Sex	1	4.72	0.334
Marital status	3	3.52	0.267
Educational level	3	3.69	0.275
Religion	2	2.59	0.280
Household size	2	15.76	0.001
Years of experience	2	5.56	0.423

Table 8. PPMC showing the relationship between knowledge level and constraints associated with sustainable utilization of forest resources

Variable	Correlation	P-Value	Decision
Knowledge level and constraint	-0.712	0.00	S

4. CONCLUSION AND RECOMMENDATIONS

The study concluded that most of the respondents utilized forest products either as timber product such as poles, fuelwood, chewing stick or non-timber products e.g., herbs, flower, fruits etc. Respondents sourced information from forest workers, friends and neighbors as extension activities were practically non-existent in the study area. High cost of forest resources and unavailability were the major limiting factors to the forest resources utilization in the study area. Government should try to incorporate forest extension into a unified agricultural extension system as this would enable extension agents to disseminate information on forest resource utilization.

The government should also encourage the use of forest products as it has become part of income-generating activities of the rural dwellers and at the same time a policy on afforestation should be evolved to make forest utilization sustainable.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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