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## ASSESSMENT OF LOCAL PEOPLE'S PERCEPTION TOWARDS CONSERVATION OF FOREST RESOURCES: A CASE OF ONIGAMBARI FOREST RESERVE, IBADAN, NIGERIA.

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### ABSTRACT

Rural people living near forest protected areas often depend on forest resources for their basic needs, these resources are gradually reducing due to overexploitation. Therefore, this study examined the local people's perception of forest resources (FR) conservation of communities around Onigambari Forest Reserve (OFR), Oyo state, in order to identify the best ways to preserve the forest resources in the Area. Questionnaire and personal interview were used to collect data from 130 randomly selected respondents who have lived in Onigambari, Busogbooro, and Onipe for more than five years and are above 10 years old. Data were analyzed using descriptive statistics such as percentages, chi-square, and multiple response analysis. The results show that most respondents depend on forest resources for their livelihood and that there is a relationship between respondents' activities in the forest and gender as well as income. Respondents generally held a positive perception about conserving FR as they believe that conserving forest resources will preserve their means of livelihood (66.2%) and future generations (57.7%). But their attitudes on forest resources conservation are predominantly unfavourable. There were significant relationships between respondents' educational level and the willingness to plant trees and protect the forest ( $P < 0.05$ ). This study, therefore, recommends extensive training for rural people on the need to conserve forest resources.

**Keywords:** Forest resources, Conservation, Onigambari, Livelihood

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### Introduction

Nigeria ranks among the countries of the world with abundant forest resources with forest swamps in the extreme Southern part of the country, the tropical rainforest in the Southwestern part and the wooded savannah in the middle belt (Ogundele *et al.*, 2016). However, despite the large expanse of forests in Nigeria, the amount of available forest area is on a constant decrease. The steady decline of the available forest has become an issue of general consensus and concern despite the wide variety of resources forests provide to the entire Nigerian populace. Defaunation and deforestation are the two major ways in which forest resources are continuously depleted.

Abere and Opara, (2012) described deforestation as the clearing away of forests and is the process by which an area is deprived of existing natural forest vegetation and resources. Deforestation is the removal of forests and another source of vegetative cover from a site without replacement and is the alteration of the natural arrangement of trees (Adekola and Mbalisi, 2015). Defaunation is the loss of both species and populations of wildlife as well as local declines in abundance of individuals. Defaunation needs to be considered in the same way as deforestation (Rodolfo *et al.*, 2014).

Nigeria could face a scarcity in timber and fuel-wood towards the end of the century



given the rate at which the forests are diminishing (Aliyu *et al.*, 2014). Ogundele *et al.*, (2016) advocates' promotion of sustainable forest management, substitution of forest resources for other alternatives where possible, increase in the area for forest plantation and area permanently reserved for timber production, the need for the enforcement of policies, legislature regulatory measures, massive research in forestry education and creation of awareness. Community education is necessary in order to ensure the continuity of the benefits provided by forests to human beings as well as to forestall the phenomenon of deforestation and defaunation and the excruciating effects on human beings (Adekola and Mbalisi, 2015).

It is of the general consensus that the need for the protection, preservation, and conservation of forest areas (among other solutions) should be of paramount importance. Also, it is imperative that community perception and attitude should be checked upon especially in rural areas where the populace depends heavily on forests for survival and livelihood. According to Arowosoge, (2015) forest resources conservation involves the management of resources that are found in the forest in such a way that they will not only provide highest sustainable benefit for the present while also maintaining the potentials to satisfy the need of the future generations. Protected areas (PAs) form part of the government's efforts on forest conservation which is very evident in the existence of national parks. According to Arowosoge, (2015), the conservation of forest resources have only been feasible in forest reserves and in these reserves; the management and conservation efforts are followed through strictly. However, these reserves have been under serious threats from not only the government but also the surrounding

population who depend heavily on these forest resources.

In order for conservation efforts to work, there is a need for a collaborative effort from the part of rural dwellers as well. Kwag *et al.*(2014) corroborated this by mentioning that mutually supportive relationships between communities and protected areas within close proximities are critical to the long term success of conservation efforts. Participation of local communities is pivotal to the sustainable management and conservation of natural resources including forests(Garekae *et al.*, 2016).Faleyimu, (2014) further adds that in order to encourage and ensure community involvement, it is important to understand the public's shared beliefs and attitudes towards trees (and other forest resources) that promotes their care, management, and protection. It is very important to understand the beliefs and awareness so as to understand the nature of the relationship local and rural communities have with forests.

Understanding the perceptions of rural communities, the complex political, social, religious and economic relationships and interactions will assist policymakers to draw an all-inclusive management plan for forest protected areas and thus conservation efforts can be channelled to meet the specific needs of that particular community. Many studies in forest management do not take into account the specific perceptions and attitudes of conservation in rural communities in Nigeria. This study sought to identify and determine the level of conservation knowledge, perception and attitudes in rural communities in Nigeria with particular attention to the Onigambari Forest Area considering demography and socioeconomic factors in order to determine how best to channel conservation efforts in Nigeria.



## Methodology

### Study Area

Onigambari forest reserve as shown in fig 1 is located along Ijebu ode road, in Oluyole local government area of Oyo state. The reserve was created by the resolution of Ibadan council on the 14<sup>th</sup> September 1899(Adedeji *et al.* 2015) and takes the name of Onigambari a nearby village to the reserve. The reserve is located on latitude 7°25' and 7°55'N and longitude 3°53' and 3°9'E. The forest reserve, which used to be part of the lowland rainforest, is now in the Guinea savanna and Derived savanna zones. It covers a total land area of 13932.18 hectares consisting of five zones: Mamu, Onigambari, Busogboro, Odo-Ona/Onipe, and Alonge. The management structure according to IUCN can be classified

into category IV. Onigambari Forest Reserve falls within the low land semi-deciduous forest belt of Nigeria and covers a total land area of the reserve is divided into natural and plantation forests. The natural forest is made up of indigenous species such as *Terminalia spp.*, *Triplochiton scleroxylon*, *Irvingia gabonensis*, *Treculia africana*, among others while the plantation forest is made up of mainly exotic species such as *Gmelina arborea* and *Tectona grandis*. The average annual rainfall in the area is 1592.3mm with high relative humidity (72– 86.5%) and high mean daily temperature of 30°C (Chukwu and Olajuyigbe, 2017). The forest reserve is rich in many forest resources such as fuel-wood, food, bushmeat, medicine and raw material for the artist.

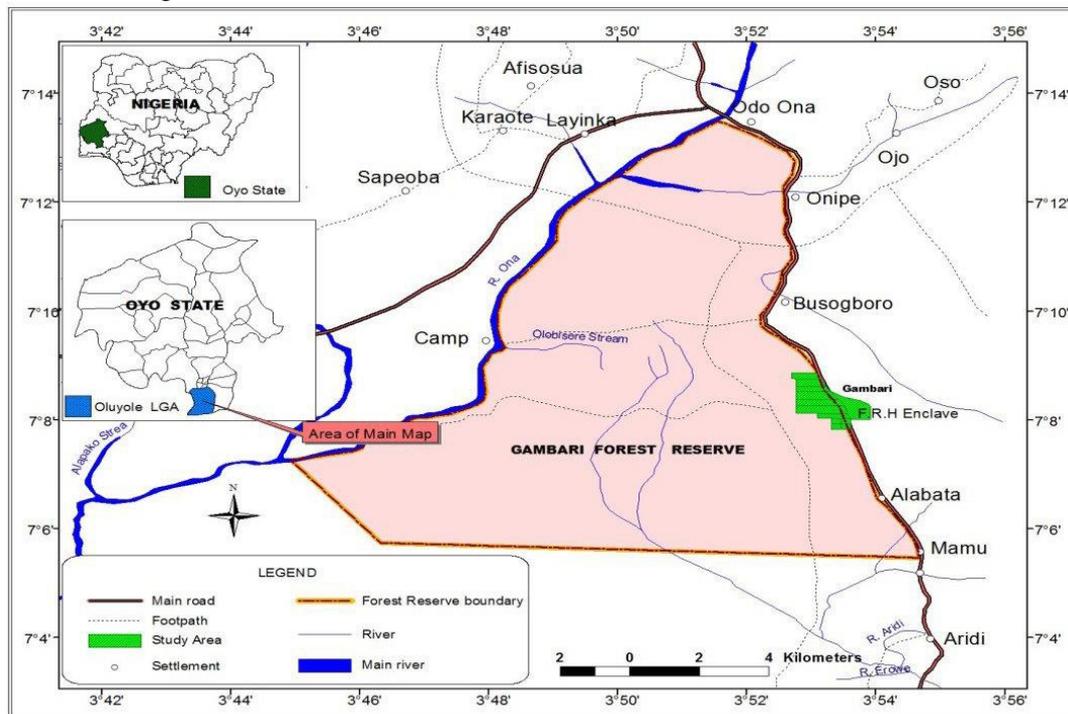


Figure 1: Map of Onigambari forest reserve showing forest protected area and human settlements



### Data Collection Method and Sampling Techniques

Data was sourced from three communities (Busogbooro, Onipe, and Onigambari) closely located to the forest reserve at about 5km were selected and a total of 141 questionnaires were administered randomly to villagers from the three selected communities who have stayed in the communities for more than 5 years and are more than 10years old. This made a total of 47 questionnaires per community. Due to incomplete information to some vital questions, the study made use of 130 respondents spread across the three communities. Data were collected by semi-structured questionnaire and personal interview. Data were generated on the socioeconomic characteristics of the respondents, respondents' interaction with forest resources, respondents' perception and attitude of forest conservation and respondents willingness to conserve forest resources.

### Data Analysis

Data were analyzed using descriptive statistics such as mean, frequency, percentage, and multiple response analysis

**Table 1: Demographic characteristics of the population**

Terms	Status	Percentage (%)
<b>Age</b>	11-20	16.9
	21-30	24.6
	31-40	23.1
	41-50	20.8
	50 above	14.6
<b>Gender</b>	Male	63.1
	Female	36.9
<b>Income per day (Naira)*</b>	< 30,000	47.7
	31,000-60,000	28.5
	61,000-90,000	19.2
	91,000-120,000	3.8
	120,000 above	0.8
<b>Occupation</b>	Farmer	40.2

was used to analyze multiple response data. The relationships between variables were done by Chi-square analysis and crosstabs by multiple response analysis.

### Results and Discussion

Table 1 shows the respondents socio-economic profile, all the respondents are above 11 years old and have been living in communities near OFR for more than five years. The respondents were closely spread across the age group. Male was the dominant gender among the respondents (63.1%). The majority of the respondents (47.7%) earns below 30,000 naira per month which is the benchmark for the countries' minimum wage (PWC, 2019). The dominant occupation in the community is farming (40.2%), this is similar to the report of Uzokwe *et al.* (2004) who stated that farming was predominant around OFR and that taungya farming, a form of agroforestry were practiced by the people. However, artisan and traders were commonly seen in the communities. Household size ranges between 2-8 people. Majority of the respondents have basic education only a few of them have a higher educational qualification.



	Trader	29.2
	Artisan	25.4
	Civil servants	3.1
	Student	2.1
<b>Household Size</b>	2	10
	3-5	37.70
	6-8	45.4
	8 above	6.9
<b>Education</b>	None	22.0
	Primary	44.6
	Secondary	23.4
	Tertiary	3.1

\*1USD is equivalent to 306.95 naira (CBN, 2019)

Table 2 shows the respondents' interactions with forest resources. People in these forest communities visit the forest majorly for firewood, food, Medicine, bushmeat and livestock feed. Takuro *et al.*(2014)stated that the forest has special connections with humans' lifestyle, culture, and wellbeing. Majority of the respondents engage more in Agroforestry (farming).Contrary to the report of Larinde and Olasupo, (2011), Females were more involved in harvesting firewood, medicine, and livestock feed while their male counterparts are active in providing food and hunting bushmeat (Fig. 2). Respondents with low income depend more on forest resources than those with higher income(Fig. 3).Varinde and Prakash, (2014)stated that about 2.7

billion people in developing countries relied on wood for cooking, out of which 82% live in rural areas. No doubt, other alternatives to the fuel-wood are also available in some parts of the developing countries but people mostly prefer fuel-wood as their major cooking fuel due to perhaps rising liquid fuel cost (LPG and Kerosene ), poverty, unemployment, and population pressure. Majority of the respondents believed that forest resources conservation is important and that the available forest resources are reducing. Most people leaving in this area said they heard the term forest resources conservation from community campaign and personal contact with experts in the field.

**Table2: Respondents' Interactions with Forest Resources**

<b>Respondents' Knowledge</b>	<b>N</b>	<b>(%)</b>
<b>Benefits derived from the forest**</b>		
Firewood	106	81.5
Food	105	80.8
Medicine	94	72.3
Bushmeat	90	69.2
Livestock Feed	52	40.0
<b>Forest activities engaged by the respondents**</b>		



Farming	90	72.6
Harvesting of leaves, saps, seed, and fruits	79	61.3
Hunting	59	47.6
Fuelwood gathering	53	42.7
<b>Is the conservation of forest resources necessary</b>		
Yes	58	44.6
No	72	55.4
Do not know	0	0
<b>Where did you hear of the term forest resources conservation **</b>		
Community campaign	58	52.3
Personal Contact	58	52.3
School	54	48.6
Mass media	36	32.4
Training	15	13.5
<b>Are you aware that the available forest is reducing</b>		
Yes	74	56.9
No	56	43.1
Do not know	0	0

\*\* Respondents can provide more than one response and therefore responses do not add up to 100 %.

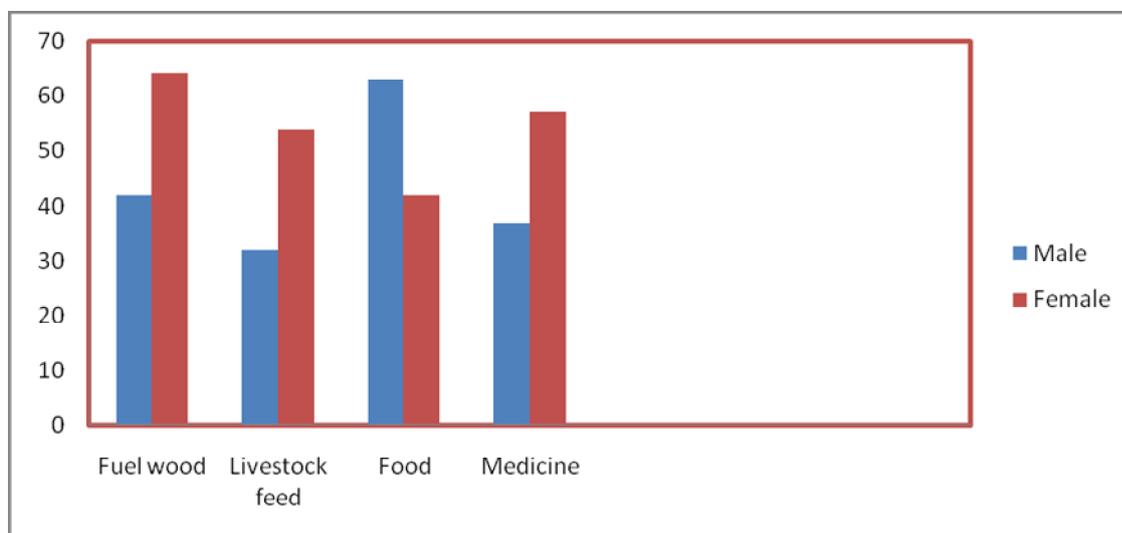
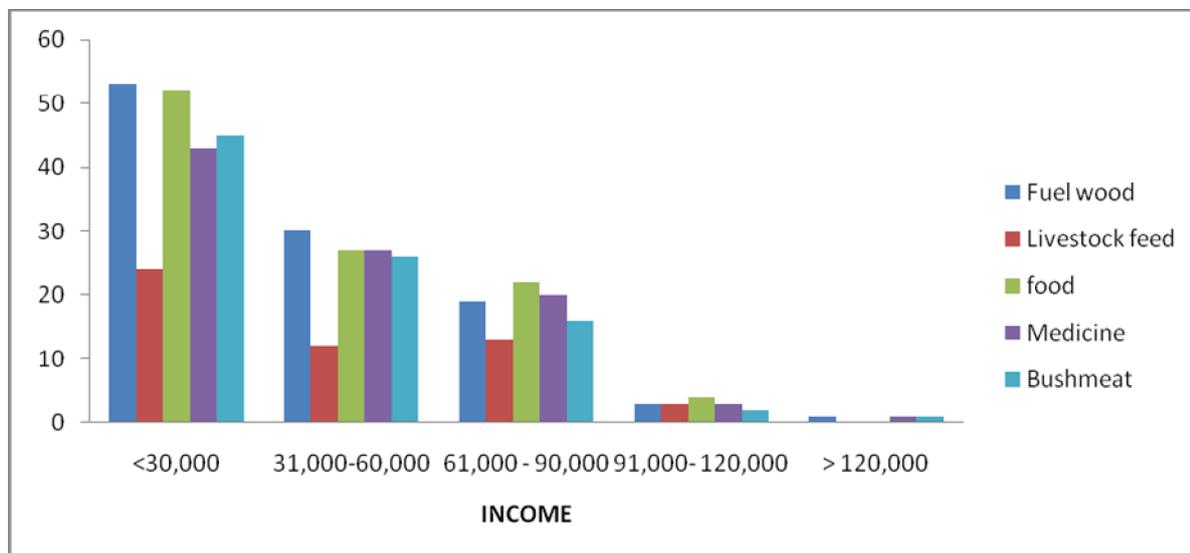


Figure 2: Distribution of Respondents' forest activities stratified with Gender



**Figure 3: Respondents' forest activities stratified with income**

Table 3 shows the perception of the respondents on forest resources conservation. Most of the respondents perceived that forest resources are conserved for their livelihood (66.2%) and future generations (57.7%). Most respondents believed that improper land use (74.6%) and poverty (72.3%) contributed more to forest resources depletion. Mfon *et al.* (2016) reported that industrial growth depends on utilization of natural resources, the land is needed for the development of infrastructure, and therefore depleting of the

available forest land is often the target for infrastructural development of many nations. Convention on Biological Diversity (CBD) reported that there is a recognized link between poverty and forest resources depletion, but neither can be said to be the cause of the other. The majority of the respondents said they have been noticing some adverse effect such as climate change (83%) and Animal scarcity (46.4%) as a result of excessive forest resources depletion.

**Table 3: Perception of respondents on forest resources conservation**

Effects**	N	(%)
<b>Why are forest resources conserved</b>		
Livelihood	86	66.2
Future generation	75	57.7
Environmental Implications	74	56.9
Extinction of biodiversity	52	40.0
Religious reasons	39	30.0
<b>Which activities in your area contributed more to depletion of forest resources</b>		
Improper land use	97	74.6
Poverty	94	72.3
Over-exploitation of resources	84	64.6
Population growth	71	54.6



<b>What adverse effects have you noticed as a result of the reduction of forest resources</b>		
Climate change/weather changes	93	83.0
Animal extinction/ Scarcity	52	46.4
Scarcity of wood/ expensive wood	45	40.2
Desertification	19	14.6

\*\* Respondents can provide more than one response and therefore responses do not add up to 100 %

Table 4 shows the attitude of local people towards forest resources utilization. Most respondent (91.5%) said they use fuelwood because they can't afford the alternative. Traditional alternative energy includes fuelwood, charcoal, manure, and crop residues. These are important sources of energy for many developing countries, and provide the bulk of energy supply for many dispersed and poor rural populations around the world. Fuelwood is by far the most important biomass type; total annual wood removals are 3.3 billion m<sup>3</sup>, more than half of which is used for energy (FAO, 2007). Majority of the respondents (77%) said they will prefer to use fuel-efficient stoves in place of fuelwood.

Most respondents admit to pick fuelwood from the forest (83.1%) or occasionally buy them (69.2%) when it is raining season. Only a few percentages of the respondents (7.6%) admit to growing fuelwood. Respondents (95.3%) admit that folder requirements were gotten from the forest and that only rare occasion will they buy. Respondent admits to mostly (75.4%) buy their bushmeat from local hunters, but many(53.8%) still admits they kill them. Most respondents (93.1%) rejected the idea of rearing bushmeat because they believed the bushmeat they love to eat cannot be reared. The majority also held the opinion that it is easier to kill the animals than to rear them.

**Table 4: Attitude of local people towards the use of forest resources**

<b>Respondents' Attitude**</b>	<b>N</b>	<b>(%)</b>
<b>Why do you use fuelwood</b>		
Can't afford the alternative	119	91.5
It is freely available	105	80.8
Medicine	93	72.3
Alternatives are not available	90	69.2
<b>Have you adopted the following alternative fuel devices</b>		
Fuel-efficient stoves	101	77
Solar cooker	5	3.8
Dug cooker	1	0.8
Crop residue	70	53.8
<b>If fuelwood is not available, how do you meet your fuel demand</b>		
pick from forest	108	83.1
Buy from market	90	69.2
Switch over to another source	71	54.6
Grow fuelwood	10	7.6



<b>Folder requirement for your animal is sourced from where</b>		
Forest	124	95.3
Agricultural feeds	96	73.8
Purchase in the market	101	77.7
<b>If the folder is not available what will you do</b>		
collect from the forest	96	73.8
Plant them	0	0
Reduce the number of animals	34	26.2
Purchase from the market	86	56.2
<b>Where do you source your Bushmeat</b>		
Kill them	70	53.8
Buy them	98	75.4
Don't know	0	0
<b>Will you rear wild animal if you are skilled</b>		
Yes I will rear them	20	15.4
The animal I love eaten can't be reared	121	93.1
It is easier to catch the animal than to rear them	98	95.4

\*\* Respondents can provide more than one response and therefore responses do not add up to 100 %

Table 5 shows respondents' willingness to conserve forest resources; the majority of the respondents (51.5%) are willing to protect the forest if they are involved in its management. However, the notion of planting trees is not acceptable by most respondents (57.7%). The idea of forest guard doesn't go well with the majority of the respondents but the majority of the communal (58.5%) are pleased with the

suggestion of giving a specific time to explore the forest resources. There is a relationship between willingness to protect the forest with respondents' level of education ( $P < 0.05$ ). Dagninet *et al.*, (2016) reported that willingness to protect a forest is dependent on the educational level of the community. Willingness to plant a tree is associated with respondents' income and age ( $P < 0.05$ ).

**Table 5: Respondents' willingness to conserve forest resources**

<b>P- Value</b>					
<b>Respondents' willingness</b>	<b>(%)</b>	<b>age</b>	<b>gender</b>	<b>income</b>	<b>Education</b>
<b>Are you willing to protect the forest</b>					
Yes	51.5	0.765	0.854	0.064	<b>0.001</b>
NO	48.5				
<b>Are you willing to plant a tree in your community</b>					
Yes	42.3	0.384	0.950	<b>0.035</b>	<b>0.001</b>
No	57.7				
<b>Are you willing to participate in a community conservation program</b>					
Yes	47.7	0.412	<b>0.030</b>	0.353	0.721



No	52.3				
<b>Do you like the idea of Forest guards</b>					
Yes	40.0	0.056	0.344	0.759	0.887
No	60.0				
<b>Will you be pleased if you are given time to visit the forest</b>					
Yes	58.5	0.437	0.063	0.834	0.725
NO	41.5				

### Conclusions and Recommendation

The study demonstrated that the rural people surroundings the forest reserve interact with the forest resources. They depend on the forest for their livelihood through continuous exploration of forest resources. Respondents' gender and income affect the extent of the interaction with the forest resources. The people are aware of the degradation of forest resources and the need for conservation and restoration. Generally, they have a positive perception of forest resources conservation as they are aware of the dangers of not conserving the resources. However, their attitudes towards the conservation of these resources were not favourable. The attitude of consuming forest resources without replenishing is mostly found amidst the people. Futuristically, Respondents are willing to protect the forest and plant trees to replenish it but these are significantly related to the educational level of the people. Therefore, this study recommends that people should be sensitized on the importance of conserving forest resources. Also, the management of the reserve should accommodate the indigenous people during policy formulation to encourage community participation in biodiversity conservation.

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