Characterization of Forest Resources and their Users for Evolving Management Options for Local Users in Ozubulu community of Anambra state, Nigeria

Nwakile T.C[*], **Ejiofor T.E and Ali C.C**

Department of Agricultural and Bio-resources Education, University of Nigeria, Nsukka

Abstract

This study was designed to characterize forest resources and their users for evolving management options for local users. A descriptive survey research design was adopted for the study. It was carried out in Ozubulu community of Anambra state. Five research questions guided the study. The population for the study was 120 comprising 65 farmers, 25 hunters, 17 civil servants and 13 palm wine tappers. Snowball sampling technique was used to select 52 respondents comprising 29 farmers, 12 civil servants, 6 hunters and 5 palm wine tappers. Questionnaire consisting of 45 items was used to elicit information from the respondents. The questionnaire was validated by three experts from the Department of Agricultural and Bio resources Education, University of Nigeria, Nsukka. Cronbach alpha was used to determine the reliability of the instrument which yielded a coefficient of 0.76. The data collected was analyzed using frequency distribution/percentages for the demographic data and mean/Standard Deviation to answer the research questions. The paper identified various situations of forest users and the characteristics of forests in Ozubulu community. The study also identified factors inhibiting the proper use of forests, conservation methods as well as factors affecting the choice of management options. The study recommended the following; discouragement of fuel wood plantation system, Government ensuring adequate adherence to forest rules and regulation and there should be regulated or planned cutting of trees.

Keywords: Forest, Forest resources, Degradation, forest users, management options

1. Introduction

A forest is an agricultural resource which is a large area of land covered by trees. Forest remains a reliable source of fresh and naturally occurring animal and plant resources for human and industrial uses. According to Ikehi, Paradang and Ayeh (2015), Forest is a large area of land covered with trees and bushes, either growing wild or cultivated. Forests provide a variety of resources that are of benefit to human survival. Forests provide a full suite of goods and services that are vital to human health and livelihood, which is called ecosystem services (United States Department of Agriculture, 2014). The goods and services are of high importance to humans and the ecosystem. For example, forest stores carbon, preserves soil and nurtures a diversity of species. Healthy forest ecosystems are ecological life-support systems and provides habitat for wildlife (Centre for International Forest Research, 2014). Forest provides humans with wood, which are exported and used in all parts of the world for production and construction. Forest provides hydrological services to agriculture, moderates the

quantity and quality of surface water available for irrigation and also controls sedimentation of irrigation infrastructure (Carmenza, Markku & Lucio, 2005). Forest provides employment to people such as forest guards and those involved in lumbering (Iwena, 2012). Forests provide a source of income for individuals as well as a source of generating revenue for government. Forest accounted for 0.50% of gross domestic product (GDP) in Nigeria in 2012 (National Bureau of Statistic (NBS), 2013). Despite the importance of forests, history has, however, shown that with human mismanagement and over-exploitation, forest and other renewable resources can either be degraded or entirely lost (United Nations University Centre, 2014).

Degradation is the act or process of ruining or damaging something. Forest degradation refers to the impoverishment of standing woody land mainly caused by human activities (Food and Agricultural organization, 2010). In Nigeria, deforestation and exploitation of forest resources for economic or social reasons is very common, leading to subsequent increased degradation (Ladipo, 2010). Forest, over the years, has been an unrestricted source of wood, charcoal, and land for agricultural purpose which has led to present depletion. To

*Corresponding author's ORCID ID: 0000-0002-3234-7573

encourage forest regeneration and conservation of the available resources, it is necessary to evolve management measures for forest users in their locality.

Conservation of forest resources through sustainable practices ensures continues supplies of the resources in times of need and also enables the forest to adequately and continually perform its natural roles in the ecosystem. Sustainable management of resource is the simultaneous usage and maintenance of such resource to serve present and future needs. Sustainable forest management refers to environmentally appropriate, socially beneficial and economically viable utilization of forests and its resources for present and future generation. (United Nations, 2008). Management practices to ensure forest sustainability include selective exploitation, encouraging prolonged fallow system for adequate regeneration and replenishment of resources, the practice of planting two tree seedlings to replace one harvested forest tree, afforestation/reforestation and taungya/mixed farming system (Iwena, 2012). However, the type of management options adopted depends not on the characteristics of the forest and also on the situation of forest users in the community (Osinem, 2016).

Ozubulu is a town in Anambra state characterized by the presence of ever green forests and tropical forests, which the local users depend on for its resources such as wood for construction, food materials, fuel wood, meat and medicine. Agriculture is a mainstay of the community as a large proportion of rural dwellers are into farming, hunting for wildlife and harvesting of forest trees as firewood for domestic use and sales to generate income. The major forest users in Ozubulu community include farmers, palm wine tappers, civil servants and hunters. In an attempt to satisfy their basic needs from the forest, the rate of exploitation by the local users could lead to complete depletion of the abundance of forest trees and other forest resources. When this happens, it will lead to scarcity of food like meat, reduced trees for timber, inadequate raw materials for industries as well as reduction in employment opportunities. Hence the need for conservation methods. However, the type of management measures to adopt depends on the characteristics of the forest as well as the situation of the forest users. (Osinem, 2016) It therefore became necessary to evolve management options for Ozubulu community forest users based on the characteristics of their forests as well as the characteristics of the forest users.

Hence, the study is geared towards characterizing forest resources and their users for evolving management options for local users in Ozubulu community of Anambra State, Nigeria.

2. Purpose of the Study

The major purpose of the study is to characterize forest resources and their users for evolving management options for local users in Ozubulu community of Anambra State.

Specifically, the study seeks to;

1) Identify the situations and systems of forest users in Ozubulu community.
2) Find out the characteristics of forest resources in Ozubulu community.
3) Identify the constraints inhibiting the use of forest resources in Ozubulu community
4) Identify management options that forest users know in forest resource conservation in Ozubulu community.
5) Ascertain the factors considered in the choice of forest conservation methods in Ozubulu community

3. Literature Review

In this section, the following will be discussed; the concept of forests and forest resources, description of forest users situation and systems, characteristics of forest resources, constraints inhibiting the use of forest resources, management options adopted in forest resource conservation, factors considered in the choice of forest resource conservation as well as contingency theory of management.

3.1. Concept of Forest and Forest Resource

Forest is a large area of land covered with trees and bushes, either growing wild or cultivated. It is a complex ecological system dominated by tall growing trees (Lund, 2006) and covers about 30% (1/3) of the total earth surface containing roughly 90% of the world's terrestrial biodiversity (Mama & Osinem, 2007). According to Ikehi, Paradang and Ayeh (2015), Forest is a large area of land covered with trees and bushes, either growing wild or cultivated. Forests provide a lot of resources.

Forest resources are such materials obtainable from forest lands to satisfy a need in production or direct utilization (Ikehi, Paradang & Ayeh, 2015). Forest resources are grouped into three categories of timber based, non-timber based resources of plant origin and non-timber based resources of animal origin (Mama & Osinem, 2007). Timber based resources are the wood-producing plants while the non-timbers are plant and animal resources of value uniquely found within forest lands. Most forest resources are of great importance to man.

3.2. Forest Users Situation and Systems

Forest users are those that make use of resources from the community for their benefits. According to Ikehi, Paradang and Ayeh (2015), Forest users include those that harvest forest resources for their benefit as well as those that buy forest resources from those that harvest forest resources. There are so many systems adopted by forest users. According to Iwena, (2012), forest users mostly adopt taungya system, agro forestry, continuous

cropping and monoculture. Ikehi, Paradang and Ayeh (2015) indicated that forest users make use of fuel wood plantation system and timber plantation system. Taungya system involves the cultivation of arable crops alongside forest trees. Agro forestry involves planting trees or shrubs among crops. Continuous cropping involves planting crops on a yearly basis on a particular piece of forest land. Monoculture involves the growing of trees that belong to a particular specie on a piece of land. Fuel wood plantation is the growing of trees whose main purpose is to produce trees for firewood. Finally, timber plantation is the growing of trees for the main purpose of timber production. The system adopted by forest users usually depends on their situation.

Forest users' situation has to do with the characteristics of individuals in a community that use forests. (Ojo, 2009). Ojo stated that in considering the situation of forest users, factors like gender, marital status, age, educational status and occupation are usually considered.

3.3. Characterization of Forests

Forests can be characterized based on their classifications. Forests are classified into natural and artificial (Mama & Osinem, 2007). Natural forests occur without human intervention while the artificial forest is man-made which involves planting of tall growing trees at calculated distribution, usually planting variety of species on an allocated land.

Natural Forest could further be classified into deciduous, evergreen, tropical rain forests or tropical savannas depending on the geographical location (Oriola, 2009). Each of these forest types have their unique characteristics.

1) Ever green forests: They are characterized by abundance of trees that do not shed their leaves all year and abundance of coniferous trees such as pine, spruce, fir, and cedar. (Oriola, 2009).
2) Deciduous forests: These are characterized by an abundance of trees that shed their leaves at a particular season especially dry season, abundance of trees that grow very quickly together as well as abundance of trees like oak, beech, and birch. (Mama & Osinem, 2007).
3) Tropical rain forests: are characterised by an abundance of tropical hardwood and softwood trees, abundance of trees that grow in great profusion, abundance of various layers of vegetation as well as producing different types of trees and plants such as oil palm, rubber producing trees.
4) Tropical Savannas: These consists of mainly grasses dotted by woodlands, scattered trees or shrubs. (Mama & Osinem, 2007).

Also, according to Grabianowski (2013), the characteristics of most forests include multiple species composition, natural habitat for wildlife and multiple layers of tree crowns. Finally, Lund (2006) noted that a major characteristics of forest is the presence of climbers/ undergrowth.

3.4. Constraints Inhibiting the Proper Use of Forest Resources

There are so many constraints inhibiting the proper use of forest resources. In Nigeria, deforestation and exploitation of forest resources for economic or social reasons is very common, leading to subsequent increased degradation (Ladipo, 2010). Forest, over the years, has been an unrestricted source of wood, charcoal, and land for agricultural purpose which has led to present depletion. According to Ikehi, Paradang and Ayeh (2015), "in recent time, large areas of forest vegetation have been completely cleared out or opened up for urban expansion, industrialization and arable cropping leading to forest degradation". Other causes of forest degradation include some agricultural practices such as short fallow system, commercially logging of trees, poaching of wildlife and other forest fauna, bush burning, constructions (of roads, bridges and buildings), overgrazing as well as over fetching of firewood (Osinem, 2005). This has led to a steady decline in the productivity of the resources and their contribution to agricultural production

3.5. Management options adopted in forest resource conservation

Conservation of forest resources through sustainable practices ensures continuous supply of the forest resources. Management practices to ensure forest sustainability include selective exploitation, encouraging prolonged fallow system for adequate regeneration and replenishment of resources, the practice of planting two tree seedlings to replace one harvested forest tree, afforestation/reforestation and taungya/mixed farming system (Iwena, 2012). Another way of ensuring sustainable management of forest is the proper enabling of forest institutions. (Grabianowski, 2013). Forest institutions conduct research and make recommendations on sustainable activities while devising means for maximum utilization of forest and its available resources. Also, controlled bush burning is a forest sustainable practice that can reduce death of forest seedlings by fire. Finally, a notable approach to resource sustainability is through public awareness and orientation of the public on proper forest resource usage (Osinem, 2005).

3.6. Factors in the Choice of Management Options

There are so many factors that might affect the choice of conservation methods. In Nigeria, social and economic factors affect the choice of management. (Ladipo,

2010).Oriola (2009) suggested that availability of land, customs/traditions, level of education, religion, and age of the forest users affects the choice of management. Grabianowski (2013) said that the conservation technique adopted is based on type of education, forest laws, social status, finance as well as location.

4. Contingency Management Theory

The study is guided by William Scott's contingency management theory propounded in 1981 which states that the best way to manage depends on the characteristics of the environment to which the organization must relate. This relates with this work in the sense that even though there are general management options for conserving forest resources, the characteristics of the environment (Ozubulu community forests and Ozubulu people) have to be considered before evolving management options that would be suitable to the community.

5. Methodology

Descriptive survey design was adopted for the study. It was conducted in Ozubulu community of Anambra state. Ozubulu is located in tropical rain forest zone. Ozubulu indigenes are predominantly crop farmers, palm wine tappers, civil servants and hunters and depend to a large extent on forest resources for livelihood. The population for the study was 120 comprising of 65 farmers, 25 hunters, 13 palm wine tappers and 17 civil servants in the community. Snowball sampling technique was used to select 52 respondents. The sample comprised 29 crop farmers, 12 civil servants, 5 palm wine tappers and 6 hunters. Five specific and 5 research questions were formulated to guide the study. A 45 item structured questionnaire was developed from literature to obtain data for the study. The response options in the questionnaire were Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

The questionnaire was first cross validated by colleagues before being subjected to face validation by three experts from the Department of Agricultural and Bioresources Education, University of Nigeria, Nsukka. Cronbach alpha was used to determine internal consistency of the questionnaire which yielded a coefficient of 0.76. The questionnaire was administered to 52 respondents and there was 100% return rate. Frequency distribution/percentages was used to analyze the situation of the forest users which was gotten from the demographic data. Mean/Standard deviation were used to analyze research questions 1-5. Real limit of numbers was applied in decision making for the research questions thus; 0.50-1.49 –Strongly disagree, 1.50-2.49 – Disagree,2.50-3.49 –Agree and 3.50-4.00- Strongly Agree. Standard Deviation was used to check how close or far the responses were from each other.

Results

Research Question 1: What are the situation and systems of forest users in Ozubulu community?

Table 1A: Frequency Distribution/Percentages showing the situation of forest users

Variable	Frequency	Percentage
Gender		
Male	31	59.6
Female	21	40.4
Total	52	100.0
Age		
21-30	14	26.9
31-40	14	26.9
41-50	18	34.6
51-60	4	7.7
61 and above	2	3.8
Total	52	100.0
Marital Status		
Married	34	65.4
Single	18	34.6
Total	52	100.0
Education Level		
No formal Education	6	11.5
Primary Education	8	15.4
Secondary Education	19	36.5
B.sc/HND	17	32.7
Masters	1	1.9
PhD	1	1.9
Total	52	100.0
Occupation		
Civil servant	12	23.1
Farmer	29	55.8
Palm wine tapping	5	9.6
Hunting	6	11.5
Total	52	100.0

Table 1A shows that 59.6% of forest users are males while 40.4 % are female. 26.9 % are between the ages of 21-30, 26.9% are also between the ages of 31-40, 34.6% are between the ages of 41-50, 7.7% are between the ages of 51-60 and 3.8% are 61 and above. Also the table reveals that 65.4% are married while 34.6 % are unmarried. In terms of level of education, 11.5% have no formal education, 15.4% had primary education, 36.5% had secondary education, 32.7% had tertiary education, 1.9% had a master's degree and 1.9% had a PhD. Finally, the table reveals that 23.1% of the respondents were civil servants, 55.8% of them are farmers, 9.6% are palm wine tappers and 11.5% are hunters.

Table 1B: Mean ratings of the responses of respondents on the systems that forest users adopt

s/n	Item statement	$\bar{X}$	SD	Remarks
1	Agro forestry system	3.54	0.67	SA
2	Taungya system	3.07	0.60	A
3	Continuous cropping	3.29	0.61	A

4	Mono culture	2.17	0.74	D
5	Fuel wood plantation	3.08	0.81	A
6	Timber plantation.	3.19	0.72	A

Key: $\overline{X}$ **=mean, SD= standard deviation, SA= Strongly Agree, A= Agree, D= Disagree, SD*=Strongly Disagree**

In Table 1B, all the items apart from item 4 had their mean scores ranging from 3.08 to 3.54 which fall under the category of Agree and Strongly Agree. Item 1 was Strongly Agree while items 2, 3, 5 and 6 were Agree. Item 4 falls under the category of Disagree. This shows that forest users in Ozubulu adopt Agro forestry, Taungya system, continuous cropping, fuel wood plantation and timber plantation. They however do not practice monoculture as a forest system in Ozubulu based on the responses of the respondents. The SD ranged from 0.60-0.81 which showed that the respondents are not too far from each other in their responses.

Research Question 2: What are the characteristics of forest resources in Ozubulu community?

Table 2: Mean ratings of the responses of respondents on the characteristics of forest resources in their community

s/n	Item statement	$\overline{X}$	SD	Remarks
1	Abundance of trees that do not shed their leaves all year round	3.69	0.54	SA
2	Abundance of various layers of vegetation.	3.31	0.73	A
3	Abundance of grasses/shrubs in comparism to trees	1.87	0.77	D
4	Abundance of trees that shed their leaves during a particular season of the year.	1.83	0.76	D
5	Home for wildlife	3.58	0.54	SA
6	Presence of rugged terrains	3.29	0.70	A
7	Presence of climbers/ undergrowth	3.50	0.58	SA
8	It contains multiple species	3.38	0.60	A
9	Little light reaches the forest floor due to plant canopy	3.48	0.64	A

From Table 2, all the items apart from items 3 and 4 had their mean scores ranging from 3.29 to 3.69 which fall in the category of Agree and Strongly Agree. The items that are in the category of Strongly Agree include items 1, 5 and 7 while the items in the category of Agree are items 2, 6 8 and 9. This shows that the respondents agree that forests in their community have the above listed characteristics apart from characteristics 3 and 4 which they disagree with. Items 3 and 4 have their means to be 1.87 and 1.83 respectively which falls in the category of Disagree. The SD ranged from 0.54-0.77 which showed that the respondents are not too far from each other in their responses

Research Question 3: What are the constraints inhibiting the use of forest resources in Ozubulu community?

Table 3: Mean ratings of the responses of respondents on constraints inhibiting the use of forest resources in their community

s/n	Item	$\overline{X}$	SD	Remarks
1	Low level of education by community members	2.31	0.66	D
2	Lack of trained personnel needed to manage forest	3.58	0.50	A
3	Poor funding by the government to forest commission	3.58	0.61	SA
4	High rate of deforestation	3.44	0.57	A
5	Bush burning	3.48	0.67	A
6	Inconsistent forest policy/regulations	3.33	0.71	A
7	Forests pests and diseases	3.31	0.67	A
8	Increase in population/ urbanization	3.29	0.72	A
9	Wind erosion	2.90	0.82	A
10	Over grazing	3.00	0.86	A
11	Illegal feeling of trees	3.17	0.71	A

From Table 3, apart from item 1 with a mean of 2.17, all the items had their mean scores ranging from 2.90 to 3.58 which fall in the category of Agree and Strongly Agree. Item 3 falls under the category of Agree while items 2, 4, 5, 6, 7, 8, 9, 10 and 11 are in the category of Agree. This shows that all the items listed above are constraints inhibiting the use of forest resources in Ozubulu community apart from item 1 (Low level of Education by community members). The SD ranged from 0.50-0.86 which shows that the respondents are not too far from each other in their responses.

Research Question 4: What are the management options forest users know in forest resource conservation in Ozubulu community?

Table 4: Mean ratings of the responses of respondents on forest resources conservation methods that they know

s/n	Item statement	$\overline{X}$	SD	Remarks
1	Afforestation	3.75	0.56	SA
2	Reforestation	3.46	0.54	A
3	Controlled grazing	3.23	0.70	A
4	Avoidance of bush burning	3.21	0.82	A
5	Adoption of alternatives to fuel wood for cooking	3.40	0.77	A
6	Educating the public on the value of forest resources	3.30	0.58	A
7	Prevention of unauthorized persons from encroaching the forests	3.48	0.73	A
8	Proper enforcement of forest protection laws	1.56	0.61	D
9	Regulated/ planned cutting of trees	1.48	0.67	SD

From table 4 above, all the items apart from items 8 and 9 had their mean scores ranging from 3.21 to 3.75 which fall in the category of Agree and Strongly Agree. Item 1 is in the category of Strongly Agree while items 2, 3, 4, 5, 6 and 7 are in the category of Agree. This shows that the respondents agree that the listed items are the conservation methods that they know apart from items 8 and 9 which they disagree with. Items 8 and 9 have their means to be 1.56 and 1.48 respectively which falls in the category of Disagree and strongly disagree respectively. The SD ranged from 0.52-0.82 which shows that the respondents are not too far from each other in their responses

Research Question 5: What are the factors considered in the choice of forest conservation methods in Ozubulu community?

Table 5: Mean ratings of the responses of respondents on the factors considered in the choice of forest conservation methods

s/n	Item statement	$\overline{X}$	SD	Remarks
1	Availability of forest land	3.71	0.61	SA
2	Customs/ tradition.	3.29	0.57	A
3	Level of education	3.37	0.60	A
4	Religion	3.25	0.59	A
5	Age of the forest users	3.19	0.84	A
6	Forest laws and regulation	3.27	0.72	A
7	Type of occupation.	3.15	0.78	A
8	Social status	3.40	0.53	A
9	Finance	3.25	0.65	A
10	Location	3.02	0.80	A

From table 5 above, all the items had their mean scores ranging from 3.02 to 3.71 which fall in the category of Agree and Strongly Agree. Item 1 is in the category of Strongly Agree while others fall in the category of Agree. This shows that all the all the items listed above are factors considered in the choice of forest conservation methods. The SD ranged from 0.53-0.84 which shows that the respondents are not too far from each other in their responses

Discussion of the Findings

The findings from Table 1A indicate that majority of forest users in Ozubulu are males (59.6%), majority of forest users in Ozubulu are between the ages of 41-50 (34.6%), majority of forest users in Ozubulu are married (65.4%), majority of forest users had secondary education (36.5%) and majority of forest users are farmers (55.8%). This was in line with the findings of Onyekachi (2010) in his work titled forest degradation in South Eastern Nigeria. The author had 30 percent of his sample to be females and 70 percent to be males showing that there are more male forest users than females. Also, Onyekachi's findings on level of education attained by most forest users supports the current work which shows that secondary school

graduates are the majority. Also, Ojo (2009) supports the findings of this work in relation to occupation. His findings agree with the current work based on farmers forming the majority that use the forests

The findings from table 1B shows that the systems practiced by forest users include Agro forestry, Taungya system, continuous cropping, fuel wood plantation and timber plantation. The findings are supported Ikehi, Paradang and Ayeh (2015), who said that forest users mostly adopt fuel wood plantation and timber plantation as their preferred systems in growing forests. Also, Ladipo (2010) opined that forest users adopt Taungya system.

The findings from table 2 shows that the characteristics of forests in Ozubulu community are abundance of trees that do not shed their leaves all year, abundance of various layers of vegetation, home for wildlife, presence of rugged terrains, presence of climbers/ undergrowth, it contains multiple species and little light reaches the forest floor due to plant canopy. This shows that their forests are tropical rain forests because these are the characteristics of tropical rain forests. The findings are supported by Grabianowski (2013) which noted that the characteristics of most tropical forests include multiple species composition, natural habitat for wildlife and multiple layers of tree crowns. The findings are also in line with Lund (2006) when he opined that presence of climbers/ undergrowth is a major characteristic of forests.

The findings from table 3 show that the constraints to the proper use of forests are; Lack of trained personnel needed to manage forest, Poor funding by the government to forest commission, High rate of deforestation, Bush burning, Inconsistent forest policy/regulations, forest pests and diseases, Increase in population/ urbanization, wind erosion, illegal felling of trees and over grazing. These findings are supported by Ikehi, Paradang and Ayeh (2015) when they stated that in recent time, large areas of forest vegetation have been completely cleared out or opened up for urban expansion, industrialization and arable cropping leading to forest degradation. Also Osinem, (2005) supports these findings by stating that some agricultural practices such as short fallow system, commercially logging of trees, poaching of wildlife and other forest fauna, bush burning, constructions (of roads, bridges and buildings), overgrazing as well as over fetching of firewood are constraints inhibiting forest use.

The findings from table 4 shows that forest conservation methods adopted by forest users in the community include Afforestation, Reforestation, Controlled grazing, Avoidance of bush burning, Adoption of alternatives to fuel wood for cooking, Educating the public on the value of forest resources and Prevention of unauthorized persons from encroaching the forests. This is backed up by Iwena (2012) when he stated that management practices to ensure forest sustainability include selective exploitation, encouraging prolonged fallow system for adequate regeneration and

replenishment of resources, the practice of planting two tree seedlings to replace one harvested forest tree, afforestation/reforestation and taungya/mixed farming system . Grabianowski (2013) also backs up the findings by suggesting that another way of ensuring sustainable management of forest is the proper enabling of forest institutions.

Finally, the findings from table 5 show that the factors considered in the choice of forest conservation method are; availability of forest land, level of education, customs/tradition, religion, location, age, social status, finance and location. The findings are backed up by Oriola (2009) who suggested that availability of land, customs/traditions, level of education, religion, and age of the forest users affects the choice of management. Grabianowski (2013) also said that the conservation technique adopted is based on type of education, forest laws, social status, finance as well as location.

Conclusion

In Ozubulu community, the situation of the forest users show that a majority are males, majority of forest users are between the ages of 41-50, majority of the forest users are married, majority had secondary education while majority are farmers. The systems adopted by forest users in the community include Agro forestry, Taungya system, continuous cropping, fuel wood plantation and timber plantation. In Ozubulu community, the characteristics of their forests include abundance of trees that do not shed their leaves all year, abundance of various layers of vegetation, home for wildlife, presence of rugged terrains, presence of climbers/ undergrowth, it contains multiple species and little light reaches the forest floor due to plant canopy. In the use of forests in the community, there are certain constraints which the forest users encounter which include poor funding by the government to forest commission, high rate of deforestation, bush burning and inconsistent forest policy/regulations. The forest users are aware of certain management options to counter the effects of the constraints to forest management. These management options include afforestation, reforestation, controlled grazing and avoidance of bush burning. Finally, there are certain options which the forest users in Ozubulu community consider before choosing a management option. These factors include availability of forest land, level of education, customs/tradition, religion, location, age, social status, finance and location.

Recommendations

Based on the findings of the study, the following recommendations were made;
1) Fuel wood plantation system which is the growing of trees for the major purpose of fire wood should be discouraged by the leaders of the community such as the king and the chiefs. This can be done by placing a fine on whoever cuts forest trees for fuel wood without permission.
2) Government at all levels should properly enforce forest laws and regulations.
3) Government should increase the funds made available to Forest commissions to aid proper management of Forests resources.
4) Outreach programmes that emphasize various modern forest management techniques have to be undertaken by Government through extension agents to aid in awareness of such techniques among forest users.

References

[1]. Carmenza, R., Markku, K. & Lucio, P. (2005).Tropical forests and adaptation to climate change: In search of synergies/Bogor. *Centre for International Forestry Research (CIFOR).* CATIE, Costa Rica.
[2]. Center for International Forest Research. (2014.).W*hat you might not have known about forests and food security.* Accessed 14 July 2016. Available: http://blog.cifor.org/8619/what-you-mightnot-have-known-about-forests-and-foodsecurity#.U1le1qKqCho.
[3]. Food and Agricultural Organization. (2010). *Global forest resources assessment.* United Nations Forestry paper 140. Rome. Accessed 10 September 2016. Available: http://www.fao.org/docrep/.
[4]. Grabianowski, E. (2013). *How sustainable forestry works.* Accessed 10 September 2016. Available from http://science.howstuffworks.com /environmental/green-science/sustainableforestry1.htm. 21.
[5]. Ikehi, M.E., Paradang, S.P. & Ayeh, L.O. (2015). Forest resources degradation and sustainable practices in Plateau state, Nigeria. *Journal of Agriculture and Ecology Research International, 2(1*), 30-38.
[6]. Iwena, O.A. (2012). *Essential agricultural science.* Enugu Nigeria: Tonad Publishers Limited.
[7]. Ladipo D. (2010). *The State of Nigeria's Forests.* Accessed September 10, 2016. Available: www.r4dreview.org/2010/04/thestate-of-nigeria-forests/.
[8]. Lund, H.G. (2006). *Forest information services.* Accessed September 10, 2016 from www.comcastnetgyde.com
[9]. Mama, R.O & Osinem, E.C. (2007). *Ecological features of tropical forests and environmental forestry.* Nsukka: Great AP express publishers ltd.
[10]. National Bureau of Statistics. (2013)*Gross domestic product for Federal Republic of Nigeria (The Presidency).* Revised 2011 and estimates for 2012 q1-q4. Abuja: Author.
[11]. Ojo, B. (2009). *Impact of community forestry on community development in Okene L.G.A of Kogi State.* (Published PhD thesis), Kogi State University.
[12]. Onyekachi, A.S. (2010). Forest degradation in South Eastern Nigeria. *Agricultural Journal 3 (6): 482 -487*
[13]. Oriola, E.O (2009). Forestry for sustainable development in Nigeria. *International Journal of African Studies, 1*, 11-16. Accessed on September 14 from http://www.eurojournals.com/African.htm
[14]. Osinem, E.C. (2005). Environmental education in agriculture. Enugu: Cheston Agency Ltd
[15]. Osinem, E.C. (2016). *Characterization of agricultural resources.* A lecture delivered for the course VTE 515(Agricultural resources management) on June 20, 2016

at the department of Agricultural and Bioresources Education, University of Nigeria, Nsukka.

[16]. Scott, W.R. (1981). *Organizations: rational, natural and open systems*. Englewood cliffs NJ: Prentice Hall Inc.

[17]. United Nations University Centre. (2014). N*ine unique features of forests. Introduction to Forestry, Forest Policy and Economics.* Accessed 2 March 2016 Available:http://foper.unu.edu/course/index.html@page_id=152.html.

[18]. United Nations. (2008). *Non-legally binding instrument on all types of forests*. Accessed 10 September 2016. Available: http://daccessdds.un.org/doc/UNDOC/GE N/N07/469/65/PDF/N0746965.pdf?OpenElement

[19]. United State Department of Agriculture. (2014). *Valuing Ecosystem services*. Accessed July 20, 2016 fromhttp://www.fs.fed.us/ecosystemservices/