Effectiveness Of Forest Management As Affected By The Land Use Act In Onigambari Forest Reserve, Oluyole Local Government Area Ibadan, Nigeria.

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ABSTRACT

The growing demands for forest goods and services are putting serious pressure on the resource base, leading to over-exploitation and subsequent forest degradation. In Nigeria both natural and plantation forests could not meet 100 million m³ of the 180 million m³ wood demand in 2000. At present, one of the most challenging problems facing the country is the production of sufficient food and fiber to meet the needs of the ever-increasing population (Peters, 2005). This study examined the effectiveness of forest management in Onigambari forest reserve, Oluyole Local Government Area Ibadan, Nigeria. The study employed a simple random sampling technique to select 43 forest farmers randomly. Descriptive tools such as frequency distribution, percentage, mean, ranking and Pearson product moment correlation (PPMC) was used as inferential statistical tool to determine the forest management performance in the study area while Student T-test was used to test for the significance difference of the relationship between the forest managers and locals. Result showed that mean age of respondents is 39.65 years. A tittle above Forty Eight percent of the respondents were females while 51.16% of the respondents were males, A tittle above Eighteen percent of the respondents were single while 81.40% of the respondents were married. The result of Student t- test revealed that the mean of age is higher than the mean total effects indicating improved performance of age on the total effects in the study area. The p value (0.0000) is smaller than the chosen alpha value (0.05) which has the t-value of 6.840. The result further revealed that deforestation is now becoming history as a result of land use policy on forest management and it has the highest weighted mean score of 2.86 and ranked as the first, followed by the demand of local industries can partially be met second (WMS= 2.74). The result on Pearson product moment correlation revealed that some of the selected factors such as poor participation of people involved in forestry (r= 1.000**; p <= 0.01), use of inexperience foresters (r= 0.262*; p <0.05) and poor conflicts management between local farmers and foresters (r= 0.387*; p < 0.05) respectively exhibited a significant relationship between forest managers and locals/indigenous people. The study recommended that there should be increase in communication among all stakeholders to ensure the harmonization of all interests towards a better use of forest resources, also effective continuous public enlightenment is essential to secure the interest and participation of farmers with an effective mechanism for good governance, equitable benefit sharing, and lastly, conflict resolution mechanism should be established.

Keywords: Forest management, Land Use Act, Foresters, Local farmers, Forest resources.

INTRODUCTION

The world's forest area has been declining for centuries but the process has accelerated to alarming proportions in the last half of the twentieth century (CFAN, 2003). In 2005, the estimated forest area for Africa was 635 million ha; net annual forest loss was about 4 million ha for the period 2000–2005, which amounts to almost 55% of the global reduction in forest area (FAO, 2007). A significant share of net forest loss was reported from countries with the greatest extent of forest, with Nigeria accounting for most of the loss in West Africa (FAO, 2007). Adedoyin (2001) put forest depletion in Nigeria at about 3.5% per annum, which translates to the loss of 350 000–400 000 ha per annum. (FAO, 2015) reported that, Nigeria with an annual loss of 410 000 ha between 2010 and 2015 is one of the countries with the greatest annual forest reduction. Tropical rainforests provide a vast array of products, which are relevant to the livelihood of the inhabitants of the tropical environment (Faleyimu, 2000). Around 80% of the population in developing countries uses non-wood forest products from tropical forests to meet nutrition and health needs.(FAO,1999).

In Nigeria, forests provide a wide range of wood and non-wood products as well as social and environmental services. However, the growing demands for these forest goods and services are putting serious pressure on the resource base, leading to over-exploitation and subsequent forest degradation (Onuoha, 1999; Oyebo, 2002). In Nigeria both natural and plantation forests could not meet 100 million m³ of the 180 million m³ wood demand in 2000 (Aruofor, 2000). At present, one of the most challenging problems facing the country is the production of sufficient food and fiber to meet the needs of the ever-increasing population (Peters, 2005). This outlook was earlier presented by (Akinsanmi, 1998) who observed existing pressure to destroy the forests through logging, agriculture, urbanization and indiscriminate deforestation for different purposes. In most developing countries, agriculture, forestry and urban development land uses are unplanned, resulting in improper land use. Integrating land uses with emphasis on sustainable economic development and ecological balance is imperative. Integration of agriculture and forestry results in various agroforestry practices incorporating various inter- and intra sectoral components in the system. However, in as much as the two interests must be integrated, the fact remains that forests cannot be substituted (Jarvis, 1991). Unlike Scandinavian countries, forest management in Nigeria is mainly a government concern. Earlier attempts made by the Colonial Administration to manage the Nigerian forest reserves using the tropical shelterwood system (TSS) and other enrichment planting recorded little success (Nwoboshi, 1982). The need to meet the increasing demand for wood products and the accompanying slow growth rate of most forest tree species shifted emphasis from natural to artificial regeneration (Oguntala, 1978; Evans, 1992). Two methods of artificial regeneration practiced in Oyo State, south-western Nigeria, to develop plantations were the direct planting system and the taungya system (Oyo State Forestry Department, 2008).

The management of most forest reserves fails to address the important functions of forest to host and protect sites with high cultural, spiritual or recreational values, and benefits to agriculture and rural livelihoods. Though there is usually provision in the constitution of forest reserves which stipulates admission of rights of local inhabitants to access routes and certain minor forest produce, the legal, policy and institutional arrangements necessary to support the above, including participatory decision making, governance, law enforcement, monitoring and assessment of progress, are not in place. As observed by Adeyoju (2005) the communities around most forest reserves have become hostile to forestry related activities and would hardly stop anything harmful to the forest estate. Records also show that most forest reservation processes were not completed especially in the South-South zone of Nigeria where adequate compensation were not paid and therefore, the original owners have since returned to claim their lands. Examples are Biseni and Orashi forest reserves where state forestry

department needs to take permission from the natives before carrying out any activity in the forest (Larinde, 2010).

The big question is how can forest management be effectively carried out to enhance forest enrichment? This paper therefore seeks to:
determine the effects of land use act on forest management and identify the relationship between the forest managers and locals/indigenous people in the area.

METHODOLOGY

The population of this study was 43% of the forest farmers in the study area. The farmers included those that have experience in forest management and other activities related to land use management. The data for the study was collected through questionnaire for the learned and interview schedule for the not so learned. The study employed a simple random sampling technique. Primary data was exclusively used for this study. The forest farmers were randomly selected and interviewed. The dependent variable was the perceived effects of land use act on forest management; while Independent variables were personal characteristics of the respondents.

The data for this study was analyzed with both descriptive tools such as frequency distribution, percentage, mean and ranking, while Pearson product moment correlation (PPMC) was used as inferential statistical tool to make an inference on the collected data. T-test was also used to test for the significance difference between foresters and local farmers in terms of the knowledge gap created by management effectiveness.

RESULTS AND DISCUSSION

The result of the descriptive statistics as shown in Table 1 revealed the mean age is 39.65 years. This implies that majority of the respondents are in their active age. The distribution of the respondents based on their sex revealed that 48.84% of the respondents are female while 51.16% of the respondents were male. This implies that majority of the respondents in the study area are males. The result also shows that 18.60% of the respondents are single while 81.40% of the respondents were married. This implies that majority of the respondents in the study area were married. The result of education levels indicated that 2.33% of the respondents attended primary school, 2.33% of the respondents attended secondary school while 95.34% of the respondents attended tertiary school. This implies that most of the respondents are educated. The result further shows that 9.30% of the respondents are into farming, 83.72% of the respondents are civil servant while 6.98% of the respondents engaged in others occupations. This implies that the civil servants in the forestry have adequate awareness and knowledge of utilizing forest resources. The result shown in Table 1 described the years spent in school by the respondents in the study area. 67.44% of the respondents spent between 1-6 years, 13.95% spent 7-12 years and 18.60% of the respondents spent above 12 years in school. This result shows that most of the respondents spent at least 6 years in school. Finally, the result of years of farming experience revealed that 4.65% of the respondents have less or equal to one year of experience, 51.16% have 2-10 years of experience, 39.53% of the respondents have 11-20 years of experience and 4.65% of the respondents have above 20 years of experience in their primary occupation respectively. This implies that most of the respondents have at least 10 years of experience in primary occupation.

Table 1: Distribution of the Respondent's by Age

Age (years)	Frequency	Percentage	Cumulative percentage
<=25	1	2.33	2.33
26-35	10	23.26	25.58
36-45	25	58.14	83.72
46-55	5	11.63	95.35
>55	2	4.65	100.00
Sex			
Female	21	48.84	48.84
Male	22	51.16	100.00
Marital Status			
Unmarried	8	18.60	18.60
Married	35	81.40	100.00
Education Level			
Primary	1	2.33	2.33
Secondary	1	2.33	4.66
Tertiary	41	95.34	100.00
Primary Occupation			
Farming	4	9.30	9.30
Civil servant	36	83.72	93.02
Others	3	6.98	100.00
Years spent in School			
1-6	29	67.44	67.44
7-12	6	13.95	81.40
>12	8	18.60	100.00
Experience			
<=1	2	4.65	4.65
2-10	22	51.16	55.81
11-20	17	39.53	95.35
>20	2	4.65	100.00

Source: Field survey, 2019.

EFFECT OF LAND USE ACT ON FOREST MANAGEMENT

The student t-test was used to analyze the effect of land use act on forest management in Onigambari Forest Reserve, Oyo state. The paired t-test and two sample t-test with equal variance are the types of t-test used. Table 2 revealed the result obtained from the mean value of the total respondents and the mean value of their age (paired t- test) and table 3 revealed the result obtained from the mean value of the total respondents and the mean of their sex. Two different groups (male and female) are compared with the total population of the respondents (the two sample t- test with equal variance). According to Table 2 the mean of age is higher than the mean total effects indicating improved performance of age on the total effects in the study area. The p value (0.0000) is smaller than the chosen alpha value (0.05) which has the t-value of 6.840. This implies that there is a significant mean difference between age and the total effects on forest management. The higher the age the higher the total effects on forest management

Table 2: Paired t-test to determine the Effect of Age on Forest Management

Variable	Observation	Mean	Standard Error	Standard Deviation	(95% Confidence Interval)	
Age	43	39.651	1.189	7.798	37.251	42.051
Total	43	29.814	0.889	5.828	28.020	31.608
Difference	43	9.837	1.438	9.431	6.935	12.740

Source: Field survey, 2019.

Mean (difference) = mean (age –total)   t = 6.840

GENDER EFFECT OF LAND USE ACT ON FOREST MANAGEMENT.

Student t-test was used to analyze the effect of land use act on forest management in Onigambari Forest Reserve, Oyo state. Two different groups (male and female) were compared with the total population of the respondents (the two sample t- test with equal variance). According to Table 3 there is no significant difference in the means. Therefore, the null hypothesis (H_0) is accepted which means that the gender has no effect on forest management.

Table 3: Two – sample t-test with equal variances to determine the effects of sex on forest management

Group	Observation	Mean	Standard Error	Standard Deviation	(95% Confidence Interval)	
Female	21	28.762	1.345	6.164	25.956	31.568
Male	22	30.818	1.160	5.440	28.407	33.230
Combined	43	29.814	0.889	5.828	28.020	31.608
Difference		-2.056	1.771		-5.632	1.520

Source: Field survey, 2019.

Difference = mean (female) – mean (male)   t = -1.161

DISTRIBUTION OF RESPONDENTS BASED ON PERCEIVED EFFECT OF LAND USE ACT ON FOREST MANAGEMENT

For this objective, five level likert scale of strongly disagree (SA); agree (A); undecided (U); disagree (D); and strongly disagree (SD) respectively. Weighted mean score was calculated which was used to determine the ranking order of perceptional statement regarding the relationship between the forest managers and locals/ indigenous people.

The result shows in Table 4 revealed that deforestation is now becoming history as a result of land use policy on forest management and it has the highest weighted mean score of 2.86 and ranked as the 1st , followed by the demand of local industries can partially be met 2nd (WMS= 2.74). The statement that the role of land use act in relation to forest management has led to dispute and conflicts is ranked 3rd (WMS =2.60), land use act has greatly affected the availability of non-timber forest products (NTFPs) (WMS= 2.56, 4th), the land use decree has denied the right of the migrant farmers/forest occupant whose means of livelihood hinge on availability of land for cultivation thereby leading to discouragement in the afforestation (WMS=2.49, 5th) were ranked in similar order, while the statement that afforestation is encouraged due to the land use act on forest management has the least weighted mean score of 2.19 and was ranked 12th.

The result above implies that land use act has not greatly impacted much to forest management. This may be due to variation in the level of management in different forest reserves.

Table 4: Distribution of Respondents based the Effects of Land Use Act on Forest Management

STATEMENT	Frequency (percentage) Level of agreement						
	SA	A	U	D	SD	WMS	RANK
Afforestation is encouraged due to the land use act on forest management	14 (32.56)	16(37.21)	6(13.95)	5(11.63)	2(4.65)	2.19	12th
Deforestation is now becoming history in this area as a result of land use policy on forest management	8(18.60)	9(20.93)	10(23.26)	13(30.23)	3(6.98)	2.86	1st
With the current population of forest in terms of its availability, the demand of local industries can be partially met which can be attributed to policy on land use on forest management	4(9.30)	17(39.53)	9(20.93)	12(27.91)	1(2.33)	2.74	2nd
Land use has encouraged many forest species and animal extinctions	10(23.26)	16(37.21)	6(13.95)	9(20.93)	2(4.65)	2.47	6th
Land use act policy has lead to desert encroachment which is invariably discouraging afforestation	8(18.60)	19(44.19)	5(11.63)	10(23.26)	1(2.33)	2.47	6th
The foresters play major role in the enforcement of land use policy and pre-requisite to forest management	9(20.93)	23(53.49)	5(11.63)	2(4.65)	4(9.30)	2.28	10th
The role of land use act in relation to forest management has lead to dispute and conflicts in this area	8(18.60)	16(37.21)	7(16.28)	9(20.93)	3(6.98)	2.60	3rd
Land use act has greatly affected the availability of non-timber forest products (NTFPs) in this area	10(23.26)	12(27.91)	10(23.26)	9(20.93)	2(4.65)	2.56	4th
The land use act has lead to displacement of many farmers in the forest area	7(16.28)	21(48.84)	6(13.95)	6(13.95)	3(6.98)	2.47	6th
Due to land use decree farmers are not only excluded from the ownership of their land and control of forest resources, they are also disempowered	10(23.26)	29(44.19)	3(6.98)	8(18.60)	3(6.98)	2.42	9th
The exclusion of stakeholders (such as local community dwellers, hunters, farmers, timber contractor and other non-timber resource users) in the administration of forest directly or indirectly has led to poor forest governance and the consequent crises in forest reserves	11(25.58)	19(44.19	5(11.63)	6(13.95)	2(4.65)	2.28	10th
The land use decree has denied the right of the migrant farmers / forest occupant whose means of livelihood hinge on availability of land for cultivation thereby leading to discouragement in the afforestation	12(27.91)	13(30.23)	6(13.95)	9(20.93)	3(6.98)	2.49	5th

Source: Field survey, 2019.

RELATIONSHIP BETWEEN THE FOREST MANAGERS AND LOCALS/ INDIGENOUS PEOPLE

Pearson product moment correlation was used. Test of the significant relationship between the factors that affecting forest management were used as the variables. According to the result of the analysis in Table 5, some of the selected factors such as poor participation of people involved in forestry (r= 1.000**; p <= 0.01), use of inexperience foresters (r= 0.262*; p <0.05) and poor conflicts management between local farmers and foresters (r= 0.387*; p < 0.05) respectively exhibited the significance relationship between forest managers and locals/indigenous people. Therefore, the null hypothesis (H_0) is rejected; hence alternative hypothesis (H_a) is accepted. This means there is significant relationship between the forest management and locals/indigenous people. The dependence of the locals on forest resources makes it imperative for them to relate with management activities and the forest managers.

Table 5: Test of significant relationship between the forest managers and locals/ indigenous people

Factors affecting forest management	Correlation coefficient	r- value	Decision	Remark
Poor participation of people involved in forestry	1.000**	1	S	Reject H_0
Sanction decision and importance of forest office	-0.435	0.006	NS	Accept H_0
Encouragement of discrimination and social inequalities in rural area	-0.166	0.319	NS	Accept H_0
Use of inexperience foresters	0.262*	0.112	S	Reject H_0
Poor relationship between forest managers and local farmers	-0.142S	0.396	NS	Accept H_0
Inadequate incentives on the part of foresters	0.093	0.577	NS	Accept H_0
Poor conflicts management between the local farmers and foresters	0.387*	0.016	S	Reject H_0

Source: Field survey, 2019.

**: Correlation is significant at the 0.01 level (2- tailed)

*: Correlation is significant at the 0.05 level (2- tailed)

 S: Significant

 NS: Non significant

 Ho: Null hypothesis

CONCLUSION AND RECOMMENDATION

From this study it can be concluded on findings that for the Land Use Act to achieve the reforms for which it was hoped, concerted and honest efforts need to be made to ensure its thorough and impartial implementation. The socio-economics characteristics of the respondents has effects on the land use act has on forest management. Other results also showed a significant relationship among all the variables included in the study and forest management. Land use act has not helped in the encouragement of discrimination and social inequalities in rural area. There is also a poor relationship between forest managers and local farmers.

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