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RESEARCH ARTICLE

PERCEPTION AND INVOLVEMENT OF MAJOR STAKEHOLDERS IN FOREST PROTECTION IN ONDO STATE, NIGERIA

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ABSTRACT

This study examined the perception and involvement of major forest stakeholders in the protection of forest reserves in Ondo state, Nigeria. The forest estate in the country has continued to diminish very fast through deforestation and over exploitation of forest resources. There is however the need to stop this ugly trend through proper protection of the forest by involving other forest stakeholders in forest protection. To achieve this objective four forest reserves were randomly selected Three communities close to each forest reserve were randomly selected to make a total of 12 communities. 20 household heads were randomly selected in each of the selected communities to make a total of 240 respondents. 20 forestry personnel working in each of the selected forest reserves were randomly selected. In addition seven timber contractors in each of the selected forest reserve were purposively selected. The results of the study showed that 52.3% and 71.3% of local community dwellers and timber contractors respectively perceived that the forests are not well protected. 63.5% of the forestry personnel perceived that the forest is partially protected. The results further showed that forestry personnel are involved in the protection of the forest by being involved in forestry extension, monitoring of timber contractors and through constant patrol of the forest reserves. Chi-square test ($p>0.05$) shows that economic status of forest community dwellers and timber contractors do not have any significant association with their involvement in the protection of the forest in the study area. The State forestry Department will do well by organizing training programmes for forest guards and workshops for forest community dwellers and timber contractors in order to improve their involvement in forest protection in the study area.

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INTRODUCTION

Nigeria's forest estate is a highly valuable asset (Akindele, 2001). This is because both the rural dwellers and urban inhabitants in Nigeria derive innumerable benefits from the forests. These benefits include direct benefits like income, fuel wood, medicines, wood for building, ropes, bush meat, fodder,, mushrooms, honey, edible leaves, roots, fruits e.t.c and indirect benefits like soil fertility improvement, carbon sequestration watershed protection and biodiversity conservation. It is however unfortunate to note that despite the many benefits of the forest to man, the forest estate in the country has continued to diminish very fast through deforestation and over exploitation of forest resources. At the dawn of a new millennium the rate of deforestation in Nigeria has become alarming (Adedayo, 2016). Nigeria lost 55.7% of its primary forest between 2000 and 2005 (Butler, 2005).

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He noted further that the annual rate of deforestation in Nigeria is 3.5% approximately 350,000 -400,000 hectares per year (Butler, 2005). It therefore follows that if any reasonable achievement is expected to be made in sustainable forest management in the country then the country's forest estate needs to be protected. Protecting the forest in Nigeria is no easy task. The reason for this is not unconnected with the increasing number of the poor who need the forest to survive and meet their basic needs. World Bank (1991) noted that policies meant to protect the forest seem doomed when pitted against the growing tide of the poor who needed the forest to survive. It therefore follows that protecting the forest estate in the country has become a herculean task. However, the continuous degradation and deforestation of the forest in the country must not be allowed to continue. Efforts must be made to reduce forest degradation and deforestation to the barest minimum. One way by which this can be done is to ensure the protection of the forest. Hitherto, the burden of forest protection has been placed on forestry personnel working with the states forestry Department in the country especially Forest Guards. It has however been discovered that the use of forestry personnel in the protection of the forest estate has not been

very effective in the country. This is because there has been increasing occurrence of deforestation and illegal felling in the country. Badejo (2012) noted that deforestation rate in Nigeria has been on the increase resulting in increased vegetal disappearance and intense radiation that tends to warm the earth surface. In addition Wikipedia (2011) and National Centre for Genetic Resources and Biotechnology (NCGRB) (2008) noted that deforestation rate in Nigeria translates to a loss of 350,000 -400, 000 ha of forest land per year. Therefore, efforts must be geared towards improving the protection of the forest estates in the country. Experience has shown that the use of forestry personnel (forest guards) has not produce good results. Other forest stakeholders must be involved especially the rural dwellers and timber contractors. Rural dwellers that live very close to the forest estate are known to be knowledgeable about the forest and about the local terrain of the forest. They will be in a better position to secure the protection of the forest than the forest guards. In addition the Timber Contractors will also be interested in the protection of the forest because of the benefits they derive from the forests. This is because protecting the forest means they are protecting their job. It is in view of this that this study seek to identify major stakeholders in forest utilization in forest reserves of Ondo State, to examine the perception of the major forest stakeholders in forest protection in forest reserves of the study area and to examine the involvement of major forest stakeholders in forest protection activities in the forest reserves of the study area. This is with a view to providing information on the various ways major forest stakeholders perceives and are involved in the protection of the forest estate in Ondo state, Nigeria. This information will help forest policy makers and forest managers to know how to improve the involvement of major forest stakeholders in forest protection so as to ensure that forest reserves and other forest estates are well secured.

Forest Protection

Forest protection is a process or activities meant to keep the forest safe from illegal felling, encroachment, trespass and all forms of abuse. These activities may be in the short run, medium or long run. Forest protection activities are meant to conserve the environmental "services" of the forest notably its biological diversity, soil conservation, watershed regulation, and climatic regulation (Bada, 1995).As noted by Wikipedia (2017) forest protection is the preservation or improvement of a forest threatened or affected by natural or manmade causes. Wikipedia (2017) further noted that forest protection also has a legal status and rather than protection from only people damaging the forests is seen to be broader and include forest pathology too. That is protection from diseases. As such, forest protection has been widely used as a tool to address forest degradation and biodiversity loss. A well-designed network of forest protected area is usually intended to preserve species richness, habitats and ecosystem processes, thus reducing the rate of species loss (FORMECU, 1999). However, many forest protected areas were established for purposes other than biodiversity protection. Some were established with emphasis on recreation or protection of cultural values. It is important to note that effective forest protection begets sustainable forest management. It therefore follows that sustainable forest management is not possible without effective forest protection. It is also important to note that traditional beliefs, myths and taboos have also helped in the protection of many forests in Nigeria. As noted by Akande and Lawal (2004) many forests have been reserved as forests for shrines, burial grounds and as enchanted forests where valuable tree species have been protected as a result of the rural people holding tenaciously to their traditional beliefs. They noted further that trees conserved through superstitious beliefs grow relatively bigger in size than those whose leaves and fruits are either more frequently utilized or abused.

Major Forest Stakeholders in Nigeria

Foresters

Foresters are the forestry personnel working in the various State Forestry Departments in the country. They are forestry professionals that have acquired various academic qualifications. They are government officials that play prominent roles in forest management. They are involved in the formulation and implementation of forest policies that will help to improve the management and protection of the forest. They are major stakeholders in forestry activities. Adedayo (2003) noted that the hall mark of this category of stakeholders in forestry activities is that they possess formal training in forestry that equipped them and which makes them better placed than the laymen when it comes to the issue of forestry. They help to enlighten other stakeholders about the policies made and the reasons why such policies were made based on the interest of the society. They also coordinate the activities of other stakeholders in forestry activities to ensure proper management of the forest in accordance with the principles of sustainable forest management. They help to improve the awareness and knowledge of forest dependent communities of their rights and responsibilities with regard to the management and use of forests in order to reduce illegal and corrupt practices, and increase the protection of the forest. Also foresters are involved in the patrol of the forest in order to check illegal felling and encroachment into forest reserves. This is the statutory function of forest guards which is highly needed to check mate forest abuse.

Rural Dwellers

Rural dwellers are the people living in small or remote communities. Some rural dwellers are living close or adjacent to the forest (forest reserves). They use enormous quantity of forest resources which they use to support their livelihood and earn income. As such rural dwellers are major stakeholders in forestry activities. Many rural dwellers possess skills that enabled them to convert forest resources into simple utilitarian products which are sold even in urban markets. Some communities around forest reserves are directly or indirectly involved in forest protection such as joint forest management (JFM) in Rivers State and Community Based Forest Management (CBFM) in Buru, Taraba State where interested youth members were organized into a Volunteer Patrol Group to patrol the forest and monitor the protection of the forest. (Aderopo 2013). They were given light training in patrol techniques. They did not carry fire arms but they were kitted with uniforms and boots. Fund for maintaining the patrol group was provided by the finance Management Committee (FMC). The FMC sources fund from fees collected from forest users and from fine imposed on members who breaches the regulations. They were to arrest poachers, illegal loggers and those collecting NTFPs without registering with FMC and not paying prescribed fees. Anybody arrested is brought to the village head that is responsible for taking the culprit to the police or Forestry officers who have powers to prosecute. Patrollers also collected information on plants and animals.

They observed and recorded plants that were flowering or fruiting, animals seen and what they were doing. Such records were kept for the use of Forest Officers and Researchers. Since the inception of the project, there has been no commercial logging in Buru Forest whereas there has been increase in family income due to harvesting and sale of non- timber forest resources (Babalola 2009).

Timber Contractors

Timber Contractors are also major stakeholders in forestry activity in Nigeria. Many of them have de facto access to the forests and to forest resources through the permit they obtained from forestry department to exploit the forest for a specified period of time. The permit can be in form of a licence or a lease allowing the timber contractor to take some prescribed forest produce from the forest. It therefore follows that timber contractors are usually given some regulations which are to be adhered to. When timber contractors are given a lease to a forest reserve it usually covers a longer period of time than a licence. They are therefore expected to be involved not only in the exploitation of the forest but also in the protection of the forest. This is to ensure sustainable forest management. They also offer incentives to the local community dwellers around the forest reserve such as employment of the youths in various forest operations such as felling of trees and loading of logs.

METHODOLOGY

The study area

The study was carried out in Ondo State, Nigeria. The State is one of the states in south western Nigeria. It lies between latitude $5^{0}45^{1}$ and 8^{0} 15^{1} North and longitude $4^{0}351$ and 6^{0} 5^{1}E (figure 1). Its land area is about 15,823.317 km^{2} (Adetula, 2008). Edo and Delta states bound Ondo state on the east, on the west by Ogun and Osun Sates, on the north by Ekiti and Kogi States and to the n the north by Ekiti and Kogi states and to the south by the Bight of Benin and the Atlantic Ocean (Augusta, 2002).

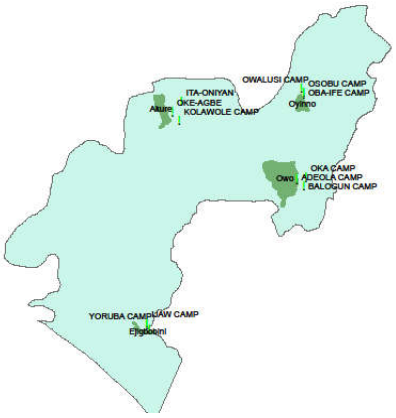

Figure 1. Map of the selected forest reserve

Data collection

Data for this study was collected from the major stakeholders in forestry activities. These stakeholders include rural dwellers living close to forest reserves, foresters working in Ondo State Forestry Department, Ministry of Agriculture and Natural Resources and timber contractors that are either forest concessionaire in the forest reserves or that have some activities that they are doing in the forest reserves.

Stratified random sampling was used to select four forest reserves out of 16 forest reserves in the study area. One forest reserve each was selected in mangrove and derived savanna ecological zone of the study area while the remaining 2 forest reserves were selected from the rainforest ecological zone. 3 forest communities in each forest reserve were randomly selected to make a total of 12 forest communities. 20 household heads were randomly selected in each of the selected forest communities to make a total of 240 respondents for this study (as representative of rural dwellers). To collect information from forestry personnel as a major stakeholder in forestry activities, semi-structured questionnaire was administered on 20 randomly selected forestry personnel working in each of the selected forest reserves. In addition seven timber contractors were purposively selected in each forest reserve. The purpose for the selection is the location base of the timber contractors (i.e. those timber contractors working in the selected forest reserve.

Method of Data Analysis

The data obtained were collated and subjected to descriptive statistics .This is in form of frequency and percentage distribution Tables and bar charts. In addition chi square test was used to test stated hypotheses.

Research Questions

- Who are the major stakeholders in forestry activities in the study area?
- In what way(s) are they involved in forest protection?
- Does the economic status of rural dwellers have a significant impact on their involvement in forest protection in the study area?
- Does the economic status of timber contractors have a significant impact on their involvement in forest protection?
- What are the factors that motivate each of the major stakeholders to be involved in forest protection?

Hypotheses Tested

- Ho – Educational qualification of rural dwellers does not have a significant association with their involvement in forest protection in the study area
- Ho -Economic status of rural dwellers does not have a significant association with their involvement in forest protection in the study area.
- Ho –Economic status of timber contractors does not have a significant association with their involvement in forest protection in the study area.
- Ho – Years of experience of timber contractors does not have a significant association with their involvement in forest protection.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Respondents in the Study Area

The result of the study showed that 8% of the respondents (Community dwellers) in Aponmu forest reserve have their age below 30years, 33% of the respondents in the same forest reserve have their age between 30-40years, 37% of the respondents have their age between 41-50years, 22% of the respondents have their age between 51-60year (Table 3).

Table 1. The Distribution of Forest Reserves in Ondo State and their Sizes

S/N	Forest Reserves	Vegetation Zones	Senatorial Districts	Sizes in sq km
1	Oyinmo (Akoko)	Derived Savanna	Ondo North	22.45sqkm
2	Owo	Rainforest	,,	242.16sqkm
3	Ifon	,,	,,	282.31sqkm
4	Ipele-Idoani	,,	,,	41.44sqkm
5	Okeluse	,,	,,	111.37sqkm
6	Otu (OA4)	,,	Ondo South	84.90sqkm
7	OluwaSenes (OA1,OA2,OA3,6OA)	,,	,,	878.16sqkm
8	Irele (OA11)	,,	,,	36.00sqkm
9	Onisere	,,	,,	95.42sqkm
10	Ala	,,	Ondo Central	199.43sqkm
11	Akure-Aponmu	,,	,,	70.19sqkm
12	Akure-Ofosu	,,	,,	401.45sqkm
13	Akure-Ofosu Extension	,,	,,	20.89sqkm
14	Idanre	,,	,,	540.53sqkm
15	EbaIsland	Mangrove/Freshwater	Ondo South	18.13sqkm
16	Ojigbobini	,,	,,	28.09sqkm
Total				3,075.66sqkm

Source: Ondo State Ministry of Agriculture, Fisheries and Forest Resources (2007)

Table 2. The Names of the Communities Selected in each of the Selected Forest Reserve

S/N	Ecological Zone	Forest Reserve	Community	Long.	Lat.
1	Rainforest	Aponmu Akure	Oke-Agbe	5.08	7.28
2	Rainforest	Aponmu Akure	Kolawole Camp	5.11	7.24
3	Rainforest	Aponmu Akure	Ita-Oniyan	5.12	7.33
4	Rainforest	Owo	Balogun Camp	5.65	6.94
5	Rainforest	Owo	Adeola Camp	5.62	6.97
6	Rainforest	Owo	Oka Camp	5.66	6.98
7	Derived Savanna	Oyinmo	Osobu Camp	5.65	7.37
8	Derived Savanna	Oyinmo	Oba-Ife Camp	5.65	7.36
9	Derived Savanna	Oyinmo	Owalusi camp	5.64	7.39
10	Mangrove Forest	Ojigbobini	Bolowo Camp	4.98	6.28
11	Mangrove Forest	Ojigbobini	Ijaw Camp	4.97	6.31
12	Mangrove Forest	Ojigbobini	Yoruba Camp	4.97	6.30

Source: Field data 2016

Table 3. Demographic characteristics of respondents in the Study area (Community Dwellers)

S/N	Demographic characteristics	Aponmu N%	Owo N%	Oyinmo N%	Ojigbobini N%
1.	Age				
	Less than 30 years	5 8	610	4 7	8 13
	30 -40 years	20 33	1020	18 30	14 23
	41 -50 years	22 37	2338	16 27	18 30
	51 – 60 years	13 22	1728	18 30	19 32
	Above 60 years	0 0	2 3	4 7	1 2
2	Educational Status				
	No formal education	36 60	2847	30 50	31 52
	Primary education	16 27	2033	17 28	22 37
	Secondary education	6 10	813	7 12	5 8
	Tertiary education	2 3	4 7	6 10	2 3
3.	Economic Status				
	Low economic class	37 62	39 63	33 73	40 67
	Middle economic class	22 37	19 32	16 27	18 30
	High economic class	1 2	2 3	0 0	2 3

Table 4. Demographic characteristics of Timber Contractors in the Study area

S/N	Demographic characteristics	Aponmu N%	Owo N%	Oyinmo N%	Ojigbobini N%
1.	Age				
	Less than 30 years	00	00	00	114
	30 -40 years	229	114	114	114
	41 -50 years	343	229	343	229
	51 – 60 years	114	343	229	114
	Above 60 years	114	114	114	229
2.	Economic Status				
	Low economic class	1 14	00	1 14	0 0
	Middle economic class	4 57	343	5 71	5 71
	High economic class	2 29	457	1 14	2 29
3	Years of experience				
	Less than 5 years	1 14	00	0 0	1 14
	5 -10 years	3 43	229	1 14	2 29
	11 – 15 years	2 29	457	3 43	2 29
	16 -20 years	1 14	0 0	2 29	1 14
	Greater than 20 years	0 0	1 14	1 14	1 14

Source: Field Survey, 2016

7% of the respondents (Community dwellers) in Oyinmo forest reserve have their age below 30 years 30% of the respondents have their age between 30-40years, 27% of the respondents have their age between 41-50years, and 30% of the respondents have their age between 51-60years, as presented in Table 3 This shows that all the respondents are matured. They are therefore competent and are in the best position to respond to the questions posed to them in the questionnaire. Fourty seven percent of the community dwellers living close to Owo forest reserve had no formal education. 33% of them had only primary education why 13% and 7% had secondary and tertiary education respectively. 52% of the local community dwellers living close to Ojigbobini forest reserve had no formal education. 37% had only primary education why 8% and 3% had secondary and tertiary education respectively. From the foregoing it therefore follows that the educational qualifications of forest community dwellers does not differ in any significant way from the educational qualifications of other rural dwellers in Nigeria. For instance Ogunsina *et al*. (2016) noted that an average of 48.96% of the respondents who are local community dwellers in four national parks in Nigeria had no formal education and 20.50% had only primary education. In addition Adejumo *et. al.* (2016) noted that 25% local community dwellers in Okomu forest reserve, Edo State, Nigeria had no formal education why 48.5% had only primary education.

Sixty two percent of the respondents (Community dwellers) living close to Apomu forest reserve belong to the low economic class.. 37% of the respondents in the same forest reserve belong to the middle economic class why only 2% of the respondents belong to the high economic class. 67% of the respondents (Community dwellers) living close to Ejigbobini forest reserve belong to the low economic class. 30% of the respondents in the same forest reserve belong to the middle economic class why 3% of the respondents belong to the high economic class (Table3). This shows that majority of the people living close to forest reserves are poor. The implication of this is that occurrence of forest offences or illegal felling will be high. This is because it has been established that there is a close correlation between high level of poverty and illegal felling and deforestation (Adeniyi and Olokesusi, 1998 and Idumah, 2001). World Bank (1991) also noted that forest protection policies meant to protect the forest seems doomed when pitted against the growing tide of the poor who need the forest to survive.

Table 4 shows that 14% of the timber contractors working in Owo forest reserve are between 30 years and 40 years of age. 29% and 43% of them in the same forest reserve are between the age of 41 years to 50 years and 51 years to 60 years respectively while 14% of them in the same forest reserve are above 60 years of age. In Ojigbobini forest reserve 14% of the timber contractors have their ages between 30 to 40 years. 29% of them have their ages between 41 years and 50 years while14% and 29% of them have their ages between 51 years to 60 years and above 60 years respectively. This shows that the timber contractors selected as respondents are all matured and are in a position to provide reliable information to the questions posed to them. 14% of the respondents (Timber contractors) in Aponmu forest reserve belong to the low economic class, 57% of them belong to the middle economic class why 29% of them belong to the high economic class. In Owo forest reserve none of the timber contractors belong to the low economic class. 43% of them are in the middle economic class while 57% of them are in the high economic class.. In the same vein in Ojigbobini forest reserve none of the timber contractors is in the low economic class. 71% and 29% of them belong to the middle economic class and high economic class respectively. From the foregoing it therefore follows that majority of the timber contractors are not poor. Many of them either belong to the middle class or the high economic class. The implication of this is that engaging in forest business as a forest concessionaire like timber contractors is a lucrative business and at the same time poor people find it difficult to venture into the business. Adedayo *et al*. (2010) noted that it is only the rich or the averagely rich people that venture into timber business as forest concessionaire. This is because of the tedious bureaucracy involved and money that is needed to be paid to obtain permit from government (State Forestry Department) of which many poor people cannot afford. Table 4 further shows that In Apomu forest reserve 14% of the timber contractors had less than 5 years of experience as a timber contractor. 43% of them in the same forest reserve had between 5 -10 years of experience as a timber contractor. 29% and 14% of them in the same forest reserve had 11 -15 years and 16 -20 years of experience as a timber contractor respectively. In Oyinmo forest reserve 14% of the timber contractors had between5- 10 years experience as a timber contractor. 43% of them in the same forest reserve had between 11 -15 years of experience as a timber contractor. 28% of them had between 16 -20 years of experience while 14% of them in the same forest reserve had more than 20 years of experience as a timber contractor. This therefore shows that majority of the respondents (timber contractors are well experienced in their ob as a forest concessionaire.

Perception of Respondents about Forest Protection in the Study Area

75% of the respondents (Community dwellers) in Ejigbobini forest reserve perceived that the forest is not well protected (i.e. less than 40% protection), 13% of the respondents (Community dwellers) are of the view that the forest reserve is well protected (i.e. greater than 70% protection), 11% of the respondents believed that the forest is partially protected (i.e. between 40% and 60% protection). 58% of the respondents (Community dwellers) in Owo forest reserve perceived that the forest is not well protected (i.e. less than 40% protection), 15% of the respondents (community dwellers) in the same forest reserve believed the forest is well protected (greater than 70% protection) while 27% of the respondents (community dwellers) believed that the forest is partially protected (i.e .between 40% and 60% protection). 43% and 36% of the respondents (community dwellers) in Oyinmo forest reserve and Aponmu forest reserve respectively perceived that the forest is not well protected (i.e. less than 40%protection). 13% and 35% of the respondents in Oyinmo forest reserve and Aponmu forest reserve respectively are of the view that the forest is well protected (i.e. greater than 70% protection) as presented in Figure 2. This shows that majority of the forest community dwellers believed that the forest reserve which they are living very close to is not properly protected. It means many of these rural dwellers must have been witnessing either lapses in the way forestry uniform personnel have been performing their duties or have been witnessing many illegal forest activities going on in the forest reserves unchallenged The perception of people must not be taken with levity. This is because the perception of people about security or protection goes a long way in determining their attitude or actions in getting involved in illegal activities in the forest reserves.

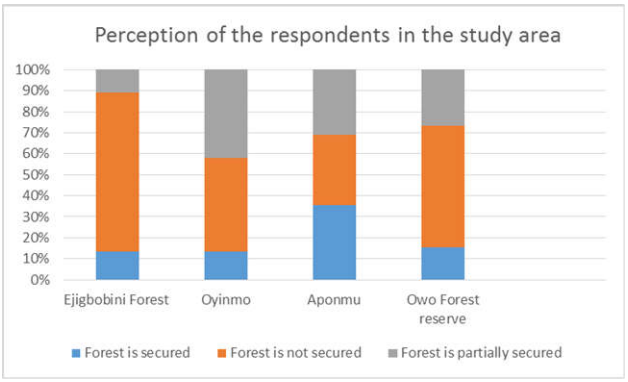

Figure 2: Perception of Respondents (community dwellers) about Forest Protection in the Study Area

For instance in a situation where people perceived that the forest reserves are well protected many people will not be ready to be involved in any illegal activity because of the fear of being caught. Shotuyo *et al*. (2016) noted that perception plays very important role in making some issues important and some unimportant, this is due to many reasons; sometimes perceptions are affected by lots of other things.

This shows that majority of timber contractors believed that the forest is not well protected.. The reason for this might probably be due to the fact that they are not satisfied with the way the forest reserves are being protected due to occurrence of illegal felling which is affecting their own legitimate activities. Ten percent of the respondents (Forestry Personnel) in Oyinmo forest reserve believed that the forest is well protected (i.e. more than 70% protection), 90% of the respondents in the same forest reserve believed that the forest is partially protected (i.e. between 40% and 60% protection) (Table6). 10% of the respondents (Forestry personnel) in Owo forest reserve believed that the forest is not well protected (i.e. less than 40% protection), 25% of the respondents in the same forest reserve believed that the forest is well protected (i.e. more than 70% protection), 65% of the respondents in the same forest reserve believed that the forest is partially protected (i.e. between 40% and 60% protection) as presented in Table 6.The shows that even though a low percentage of the forestry personnel believed that the forest reserves are not well protected a greater percentage of them believed that the forest is partially protected. This means that a greater percentage of the forestry personnel in the study area believed that they are putting in their best to protect the forest reserves in the study area.

Table 5. Perception of respondents (Timber Contractors) about Protection of forest reserves in the Study area

	Aponmu forest reserve		Owo forest reserve		Oyinmo forest reserve		Ejigbobibi forest reserve	
	N	%	N	%				
The Forest is well protected (>70% protection)	2	29	1	14	1	14	0	0
The Reserve is not well protected (< 40% protection)	4	57	5	71	6	86	5	71
The Reserve is partially protected (40% -60%)	1	14	1	14	0	0	2	29

Source: Field data 2016

Table 6. Perception of the respondents (Forestry Personnel about the protection of forest reserves in the Study Area

	Aponmu Forest reserve		Owo Forest Reserve		Oyinmo Forest Reserve		Ejigbobini Forest Reserve	
	N	%	N	%	N	%	N	%
The Forest is well protected (>70% protection)	10	50	5	25	2	10	6	30
The Reserve is not well protected (< 40% protection)	0	0	2	10	2	10	1	5
The Reserve is partially protected (40% -60%)	7	35	13	65	18	90	13	65

Source: Field data 2016

Table 7. Involvement of respondents (Community Dwellers) in the protection of forest reserves in the study area

Areas of involvement	Aponmu forest reserve		Owo forest reserve		Oyinmo forest reserve		Ejigbobini forest reserve	
	N	%	N	%	N	%	N	%
Give information to forest guards	0	0	6	10	12	20	2	3
Hired as private guards	0	0	2	3	5	8	0	0
No involvement	60	100	52	87	43	72	58	97

Source: Field data 2016

Table 5 shows that 86% of the respondents (timber contractors) in Oyinmo forest reserve believed that the forest is not well protected (i.e. less than 40% protection), 14% of the respondents (timber concreters) believed that the forest is well protected (i.e. greater than70% protection). 71% of the respondents (timber contractors) in Ejigbobini forest reserve believed that the forest is not well protected (i.e. less than 40% protection). 29% of the respondents (timber contractors) perceived that the forest is partially protected (i.e. between 40% and 60% protection).

However they believed that the protection of the forest reserves can be improved if some of the problems they are facing is overcome Most especially the problem of lack of vehicles for patrol.

Involvement of Forest Community Dwellers in the protection of Forest Reserves in the Study Area

Table 7 shows that 97% of the community dwellers in the Ejigbobini forest reserve are not in any way involved in the protection of the forest reserve.

3% of them are involved in the protection of the forest by giving information to forest guards. In Owo forest reserve 87% of the forest community dwellers are not involved in the protection of the forest reserve. 10% of them are involved in forest protection by giving information about illegal activities to forest guards. 3% of them are involved in forest protection by being hired as a guard. In Oyinmo forest reserve 72% of the respondents (community dwellers) are not involved in forest protection. 8% of them in the same forest reserve are hired as private guards and 20% are involved in forest protection by giving information to forest guards about illegal activities in the forest reserve. This shows that majority of the community dwellers in the study area are not involved in forest protection. This might be part of the reasons why the forest reserves are not well secured in the study area.

A few of them that are involved in forest protection are those that are hired by timber contractors or those that occasionally give information to forest guards about illegal activities going on in the reserves based on their personal rapport with forest guards Table 8 shows that majority of the timber contractors are not involved in the protection of the forest reserves in the study area. In Aponmu forest reserve 29% of the respondents (timber contractors) are involvrd in the protection of the forest through personal surveillance why 71%are not involved in the protection of the forest. In Owo forest reserve 14% of the respondents (timber contractors) are involved in the protection of the forest through given of incentives to forest guards, while the same percentage hire private guards. 71% of the timber contractors in the same forest reserve are not involved in forest protection.

Table 8. Involvement of respondents (Timber contractors) in the protection of forest reserves in the study area

	Aponmu forest reserve		Owo forest reserve		Oyinmo forest reserve		Ejigbobini forest reserve	
Areas of involvement	N	%	N	%	N	%	N	%
Give incentives to forest guards	0	0	1	14	2	29	1	14
Hire private guards	0	0	1	14	1	14	0	0
Personal surveillance	2	29	0	0	1	14	2	29
No involvement	5	71	5	71	3	43	4	57

Source: Field data 2016

Table 9. Involvement of Respondents (Forestry Personnel) in the protection of forest reserves in the Study Area

Involvement	Aponmu Forest Reserve		Owo Forest Reserve		Oyinmo Forest Reserve		Ejigbobini Forest Reserve	
	N	%	N	%	N	%	N	%
Carrying out extension service	10	50	8	40	9	45	6	30
Proper monitoring of timber contractors	12	60	10	50	8	40	11	55
Patrol of forest reserve	8	40	6	30	7	35	5	25

NB: There is multiple choice by respondents
Source: Field data 2016

Table 10. Statistical Test (Chi-square) for hypotheses tested

Hypothesis	Chi-square calculated	Chi-square Tabulated	DF	Remark
1. Educational qualification of rural dwellers v/s involvement in forest protection	6.24	16.90	9	ns
2. -Economic status of rural dwellers v/s involvement in forest protection	3.85	12.60	6	ns
3. Economic status of timber contractors v/s involvement in forest protection	4.74	12.60	6	ns
4.Years of experience of timber contractors v/s involvement in forest protection	6.97	21.0	12	ns

NB: * -means significantns- not significant

The reason is because local community dwellers are believed to be in the best position to watch over forest reserves in the country. As noted by Adedayo (2015) local community dwellers in Nigeria by virtue of their close proximity to the forest estates and good knowledge of the local terrain of the forest can help to protect and secure the forest from illegal exploitation and destructive use. It is however unfortunate that majority of the rural dwellers are not involved in forest protection. The few ones that are involved in forest protection are the ones that are hired by timber contractors to keep surveillance over the area of the forest for which they have secured a lease. Chi-square test ($p>0.05$) shows that educational qualification of rural dwellers in the study area and their economic status have no significant association with their involvement in the protection of the forest reserves in the study area (Table 10 and hypothesis 1 and 2). This means educational qualification of rural dwellers or their financial status is not a determinant for their involvement in the protection of forest reserves in the study area. Majority of them are not concerned with the security of the forest reserves.

In Oyinmo forest reserve 29% of the timber contractors give incentives to forest guards. 14% of them hire private guards. The same percentage is involved in personal surveillance of the forest why 43% are not involved in forest protection. From personal communication, some of the timber contractors give incentives to forest guards to ensure proper policing of the area of the forest that has been given to them on lease. In cases where this strategy is not working the timber contractors hire private guards from among the local inhabitants living close to the forest reserve. However only few of them do this. Majority of them are not involved in the protection of the forest reserves. Oso and Agbeja (2016) noted that 87% of the timber contractors are not involved in decision making on forestry issues. Chi-square test ($p> 0.05$) shows that the economic status of the timber contractors has no significant association with their involvement in the protection of the forest reserves in the study area. In the same vein chi-square test ($p >0.05$) shows that years of experience of timber contractors has no significant association with their involvement in forest protection (Table 10 hypothesis3 and 4).

This means that involvement of timber contractors in forest protection does not depend on their financial status or experience as a timber contractor. Other factors determine their involvement in forest protection especially level of occurrence of illegal activities in the forest reserves. For instance forest reserve where occurrence of illegal/ criminal activities has been very high the timber contractors will have to take extra caution to either give incentives to forest guards or hire private guards in order to secure the forest area that is on lease to them. As noted by Adetula (2008) in recent period another dimension has been added to the occurrence of criminal activities in forest reserves in Ondo state. He noted that youngsters constituted themselves into militant groups to resist or even harass uniform field staff whose mandate is to protect the forest estate. He noted further that cases of death have been recorded in the hands of these gangsters.

Table 9 shows that in Owo forest reserve 40% of the respondents (Forestry Personnel) are involved in forest protection by being involved in forestry extension. 50% of them in the same forest reserve are involved in proper monitoring of timber contractors why 30% are involved in the patrol of forest reserves. In Oyinmo forest reserve 45% of the respondents (forestry personnel) are involved in forest protection by being involved in forestry extension. 40% of the respondents (forestry personnel) are involved in forest protection by monitoring the activities of timber contractors. Why 30% of the respondents are involved in the patrol of forest reserves. From the foregoing it follows that some forestry personnel are involved in forest extension to enlighten local community dwellers on the need to abstain from illegal forestry activities in the study area. Some of them engage in proper monitoring of timber contractors.

This is because it has been established that some timber contractors are involved in illegal activities in the forest reserves. Oso and Agbeja (2016) noted that timber contractors in Ondo state, Nigeria are involved in illegal felling, felling of undersized logs, non-renewal of property hammer and failure to produce log certificate. A low percentage of the forestry personnel are involved in patrol of forest reserves in the study area because many of them do not have patrol vehicles. In some cases where there is patrol vehicle the vehicles are not functioning properly due to poor maintenance.

Conclusion

This study has shown that the major stakeholders that are involved in forest protection in the study area are local community dwellers living close to the forest reserves, timber contractors and forestry personnel (i.e. forestry personnel working with the Ondo State forestry Department). The study showed that majority of the local community dwellers living close to forest reserves and timber contractors working in these forest reserves in the study area .perceived that the forest is not well protected.

However majority of the forestry personnel believed that the forest reserves are partially protected and that the situation can be improved if patrol vehicles are provided. In addition majority of the local community dwellers and the timber contractors are not involved in forest protection. However majority of the forestry personnel are involved in the protection of the forest reserves. This is done by being involved in forestry extension, monitoring of timber contractors and in the patrol of forest reserves.

Recommendation

In view of the findings of this study the following recommendations are made

- The State Forestry Department need to take a different approach to forest protection in the study area. The findings of this study has shown that majority of forestry stakeholders have a lukewarm attitude to the protection of the forest reserves. The State Forestry Department should find a way of stimulating the interest of major forestry stakeholders (especially the local community dwellers living close to forest reserves) in the protection of the forest. One way to do this is to introduce Community Based Forest Management System (CBFMS). This will be in line with international conventions on sustainable forest management. The current international forest management trend wants State governments to involve other forestry stakeholders especially the local community dwellers in the taken of decisions as well as the development, management and sharing of benefits derivable from the management of the forests. When this is done it will go a long way in helping to secure the forest reserves. This is because the local community dwellers living close to the forest reserves are in a better position to keep surveillance on the forest reserves than the forest guards.
- Government should organize training for forest guards and properly equip them with ammunitions. This will enable them to improve on their forest protection activities and make them to effectively arrest forest offenders In addition to this the forest guards must be properly motivated through provision of patrol vehicles and prompt payment of allowances.
- The State Forestry Department should organize workshop or seminar for other forestry stakeholders especially the local community dwellers and timber contractors to raise their awareness on the need to be more involved in the protection of the forest. They should be enlightened on the need to give prompt information about illegal activities going on inside forest reserves to forest guards for prompt action.
- Government through the State Forestry Department should encouraged the establishment of community woodlots in forest fringe communities.. This will enhance the production of fuel wood and other NTFPs and help to reduce pressure on the forest reserves. Closely related to this is the need to put in place incentives that will motivate local community dwellers to plant trees on their private farm lands. This will help to improve availability of forest products especially fuel wood and reduce the pressure placed on forest reserves. Incentives such as provision of tree seedlings to farmers and tax holidays to farmers for planting trees. Can be introduced

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