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Perception of Locals on Management and Improvement of Forest Resources and Timber Exploitation in Akwa Ibom State, Nigeria

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Abstract

A study was carried out in Imo River Estuary, Akwa Ibom State of Nigeria to evaluate the perception of the local people on the environmental and socio-economic effects of timber harvesting and management. Five local government areas were purposively selected based on their proximity to the Imo River Estuary. Despite the high effect rates of timber exploitation, most of the locals of the study area have little or no knowledge of the severity of these effects on their environmental and socio-economic well-being; thereby, limiting the required rate and application of necessary mitigation measures as revealed by the C_{max} of 0.89 affirming of the relationship of the perception of the locals to the implications of timber exploitation in the study area. Based on the findings, the constraints hindering effective timber utilization and management in the study area are lack of public awareness and poor value system supported, respectively, by 180 and 165 of the respondents out of 300. Hence, the study suggests that the local people of the study area should be educated about sustainable utilization and management of forest resources. Moreover, state government and logging companies should embark on reforestation, afforestation and regeneration programmes in order to replace extracted tree species and regenerate extinct species.

Keywords

Awareness; Sustainable; Systematic; Utilization

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Introduction

Timber exploitation has caused a substantial reduction of average size of the trees which has lessened the grandeur of forests. The greatest aesthetic impact in a forest is the appreciation of trees of great stature and age, but, apparently, most of these have now been removed. People travel great distances just to observe the few remaining trees and to hold them in awe (Cronin and Amit, 2009). The traditional mode of natural resources consumption and development as well as the current exploitation are severely threatening long-term utilization of timber. The rate at which forests are destroyed in the name of furniture making, pulp and paper production and provision of domestic energy is alarming. According to Keegan (2011) and Laird (2008), in Central and West Africa, the tropical rainforest has been an important source of timber and other valuable non-timber forest products (NTFPs). Whilst different countries around the world promote economic growth, at the same time, most of them have committed themselves to reduce environmental impacts and to reverse global environmental deterioration (MEA, 2013).

Unfortunately, an increased demand for timber resources and the destructive technology adopted by human for extraction of wood has caused severe degradation of forest resources (Jimoh, 2011). The estimated timber losses in Africa between 2000 and 2010 was about 5.2 million hectares of forest, accounting for about 52% of the global reduction of forest cover (FAO, 2012). Further, the forest loss in Nigeria is estimated to be 40,000 hectares per year, while afforestation has been only 32,000 ha yearly. The cumulative effect of widespread degradation is that the continent has lost about 50 million hectares of forest in less than 100 years (Mmon and Mbee, 2014). Furthermore, this could lead to desert expansion, global warming, food chain depletion, destruction of soil structure, extinction of wildlife, drought and exposure of bush to burning (Rhett, 2005). According to Barbier (2015), rising poverty and unemployment have increased pressure on environmental resources as more people have been forced to rely more directly upon them.

Currently, in Nigeria, the forest management is at crossroads because the guiding principles of managing the forest sustainably are no more present. Challenges, such as illegal activities in the forest, declining manpower and capacity in Forest Departments, inadequate forest patrolling, lack of returns from timber felling accruing to local people, outdated forestry laws and regulations, etc. pose grave threat to sustainable forest management (SFM) in the country (Adetula, 2008). Therefore, the present study aims to provide baseline information of local people's perception about effective timber management and exploitation and to determine major constraints to effective timber management in the study area.

Materials and Methods

The present study was carried out in Imo River Estuary in Akwa Ibom state, southern Nigeria. The estuary covers five local government areas where 60 respondents were selected from each of the local government areas, bringing it to a total of 300 respondents, who were administered structured questionnaire. A five point Likert-type rating scale was used in this work as also applied by Agbo, Onyenekwe and Obasi (2015) based on their study on sustainable timber utilization and management. This technique was used in this work for determining objective (i) which entails the perception of the local people regarding systematic management; and improvement of forest areas to ensure sustainability of timber resources in the study area and the objective (ii) which involves understanding the major constraints of effective timber management. The scaling was regarded as:

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Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), Strongly Disagree (SD) or other similar ratings with corresponding values of 5, 4, 3, 2 and 1, respectively.

The Chi square (X^2) technique which is a non-parametric test was used in testing the second hypothesis (Ho) from the generated data. Chi square is used to: (i) determine the degree of association between the perception of the locals of Eastern Obolo local governance area (X) and the implications of timber exploitation (Y); and (ii) investigate the nature of dependency between the two variables.

Results and Discussion

The table 1 depicts the perception of the local people in relation with the rate of timber exploitation in the study area. 8.3% of the respondents agreed on the high rate of timber exploitation, while 35% of the respondents agreed to it having a low effect rate. The Chi square analysis revealed that the calculated value of 356.86 is greater than the table value of 15.507. Therefore, Ho is rejected and H1 is accepted. The perceptions of the local people on the implications of timber exploitation in their environment indicate that there is an increase in the rate and effect of timber exploitation in the study area. Thus, the locals are incapable of rescuing their environment from present predicament due to their ignorance about the extent of the effect of timber exploitation. Moreover, the coefficient of contingency value of 0.34 shows that there is a positive correlation between the perception of the locals and the implications of timber exploitation in the study area. On the other hand, the Maximum value of contingency (Cmax) of 0.89 indicates that there is a strong positive relationship between the perception of the locals and the implications of timber exploitation in Eastern Obolo local governance area.

Table 1: Respondents' Perception on the Rate of Implication of Timber Exploitation

Rate of Implication	*SA*	*A*	*U*	*D*	*SD*	*TOTAL*	*SA*	*A*	*UN*	*D*	*SD*
High	25	35	60	70	110	300	8.3	11.6	20.0	23.3	36.6
Moderate	75	60	45	50	70	300	25.0	20.0	15.0	16.6	23.3
Low	105	70	60	35	30	300	35.0	23.3	20.0	11.0	10.0

Note: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), Strongly Disagree (SD)

Similarly, the data in table 2 below depicts that lack of public awareness, poor legal framework, lack of government governance, and poor value system, and moral ethics were strongly agreed upon by 50.0%, 48.3%, 51.6% and 46.6% of the respondents, respectively, as the major constraints to effective management and utilization of timber in the study area.

Table 2: Respondents' Perception on the Constraints of Effective Timber Management

Variables	SA	A	U	D	SD	Total	Item Mean Score	Remark	SA	A	U	D	SD
Lack of public awareness of timber resources management	150	70	40	30	10	300	4.06	SA	50.0	23.3	13.3	10.0	3.3

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Poverty and institutional factor	60	75	85	50	30	300	3.28	A	20.0	25.0	28.3	16.6	10.0
Poor legal framework	145	70	45	25	20	300	4.16	SA	48.3	23.3	15.0	8.3	6.6
Absence of alternative source of energy	60	45	100	55	45	300	3.04	UN	20.0	15.0	33.3	18.3	15.0
Population pressure	55	50	105	60	30	300	3.12	A	18.3	16.6	35.0	20.0	10.0
Lack of government governance	135	85	35	30	15	300	3.98	SA	45.0	28.3	11.6	10.0	5.0
Limitation of manpower to enforce environmental laws and regulations	75	50	95	45	35	300	3.28	A	25.0	16.6	31.6	15.0	11.6
Lack of funds to tackle the problems of unsustainable use of timber	55	70	90	50	35	300	3.20	A	18.3	23.3	30.0	16.6	11.6
Financial and social pressure	55	50	95	55	45	300	3.04	UN	18.3	16.6	31.6	18.3	15.0
Poor value system and moral ethics	140	95	35	20	10	300	4.07	SA	46.6	31.6	11.6	6.6	3.3

Source: Researcher's Field Work, 2017.
Note: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), Strongly Disagree (SD)

Additionally, 25.30%, 16.6% and 16.6% of the respondents, respectively, agreed that poverty and institutional factors, population pressure, and limitation of manpower to enforce environmental laws contributed to hinder systematic management and sustainable use of timber in the study area. On the other hand, 33.3% and 31.6% of the respondents were indecisive on the effects of absence of alternative source of energy and financial and social pressure needed for sustainable utilization of timber resources. Lack of funds to tackle the problems of unsustainable exploitation of timber was agreed on by 23.3% of the respondents in the study area.

It was revealed that the local people residing in the study area have neither practiced any form of forest management nor they have knowledge about forest management practices. There are no community councils or committees taking care of land allocation and management in the study area. Similar findings were observed by Agbo, Onyenekwe and Obasi (2015). The perception of the respondents was captured regarding systematic management and improved utilization of timber, and the results are presented in table 3. Proffered solutions to the problems of timber exploitation as well as the constraints to effective timber management include emphasis on afforestation and reforestation programmes and awareness building on the need for environmental protection. These two solutions were offered by, respectively, 58.3% and 71.6% of the respondents. This was affirmed by findings of Fuller *et al.* (2007), stating that afforestation and reforestation programmes are of eminent importance because they reduce global warming and prevent soil erosion. 43.3% of the respondents suggested other applicable solutions to include use of forest guards/regulators. Likewise, 31.6% of the respondents supported the idea of research on alternative source of energy; whereas 25.0% of the respondents favoured the adoption of improved

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technology. Remarkably, these solutions suggested in this study corroborate with the earlier findings of Agbo, Onyenekwe and Obasi (2015).

Table 3: Respondents' Perception on the Systematic Management and Utilization of Timber Resources

Variables	VI	I	U	FI	NI	Total	Item Mean Score	Remark	SA	A	U	D	SD
Adoption of improved technology in harvesting of timber	70	130	45	30	25	300	3.62	5th	23.3	43.3	15.0	10.0	8.3
Use of forest guards/regulators	90	130	50	20	10	300	3.89	3rd	30.0	43.3	16.6	6.6	3.3
Arresting of defaulters and subsequent charging of fines	25	75	100	70	30	300	2.97	6th	8.3	25.0	33.3	23.3	10.0
Creating awareness on the need for environmental protection/sustainability	175	110	10	5	0	300	4.44	2nd	58.3	36.6	3.3	1.6	0.0
Emphasis on agroforestry, afforestation, & reforestation programmes	215	75	5	5	0	300	4.66	1st	71.6	25.0	1.6	1.6	0.0
Support of research on alternative sources of energy	95	110	70	15	10	300	3.87	4th	31.6	36.6	23.3	5.0	3.3

Notes: Very Important (VI); Important (I); Undecided (U); Fairly Important (FI); Not Important (NI)
Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), Strongly Disagree (SD)

Conclusion

This study investigated the perception of the local people on the environmental and socio-economic effects of timber harvesting and systematic management and improvement of forest areas in Imo River Estuary, Eastern Obolo segment. The field investigations revealed that the people are ignorant of the extent of effects of timber exploitation on their environmental, economic and social well-being of the inhabitants. It was also observed that no forms of forest management practices are being utilized to counter the adverse effects of timber exploitation in their communities. The practice of timber utilization for food, fuel, medicine, shelter and raw materials for income generation and livelihood has been detrimental to their environment and future generations. These practices have drastically reduced forest wood population in the study area. Thus, there is a need to hastily control the dangers of excessive/illegal logging in the study area. Hence, the following recommendations are made:

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(i) Employment and skill-based training to more forestry personnel should be given so that they can guard and manage the forests and enforce established rules.
(ii) The forest reserves in mangrove ecosystem for *in-situ* conversation should be established.
(iii) The Forestry Departments and non-governmental organizations should educate the inhabitants of various communities on the importance of forests and how to manage and sustainably utilize the forest resources.
(iv) Training courses should be taught to loggers on appropriate sustainable methods of timber harvesting and transport.

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