Dutse Journal of Agriculture and Food Security (*DUJAFS*) Vol. 6 No. 1, Dec. 2019

ASSESSMENT OF FOREST RESOURCES UTILISATION FOR THE LIVELIHOOD OF FARMING POPULACE IN KOGI AND NIGER, STATES, NIGERIA

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Abstract

The study was conducted to access forest resources utilized for the livelihood of rural populace in Kogi and Niger States. Structured questionnaires and interview schedule were used to collect data from 326 respondents using multi-stage sampling technique. Descriptive statistics and livelihood status index were used for statistical analysis. The findings revealed that mean age of respondents in the study area was 40.2 years and the mean household size was 9.0 persons while the mean farming experience was 18.6 years. The findings revealed that shea trees accounted for (54.0%) forest resources utilized for rural populace livelihood. The result of livelihood status index revealed that (50.0%) of the respondents had medium livelihood status while 0.6% of the respondents had low livelihood status. The constraints encountered in utilisation of forest resources among the respondents were wind blow ($\bar{X}$= 2.44) and bush burning ($\bar{X}$= 2.42). The study concluded that majority of respondents were contrained wind blow and bush burning in the utilisation of forest resources. It was recommended that farming populace should be educated, trained and sensitized on how to curb the menace of bush burning that strongly affect the utilisation of forest resources for their livelihood. Also, awareness should be created by government or stakeholders on how flood and erosion can be controlled in order to limit their effects on forest resources.

Keywords: Forest, resources, utilization, livelihood rural, farming populace.

Introduction

Forest resources are the key component of the natural resources base of any community, region or country and they play a fundamental role in the socio-economic well-being of the people of those communities (Sheil, 2013). This is particular in sub-Sahara Africa, where most of the countries have large rural farmers' population that depends on natural forest resources utilization for their livelihood (Amulya, 2014). Nigeria tropical forest resources are an integral component of the livelihoods of the majority of rural households, and a lower proportion of urban households (Borokini *et al.*, 2010).

Apart from meeting the socio-economic needs of rural households for food and shelter, tropical forests are also major sources of both industrial wood products and fuel wood. Fuel wood and charcoal make up 56% of global wood production and approximately 90% of this is produced in developing countries such as Nigeria. Fuel wood also known as fire wood is the most important source of energy in Nigeria and only sources of energy for most of the areas (Iorzua, 2010). Olujimi and Adekunle (2015) reported that the average annual value of forest products collected in Nigeria such as (fuel wood, construction materials, wild fruits and leaf litter) were estimated to be 39% of average gross cash income per year. He further stressed that an estimated charcoal supply across Nigeria earns between 60-80 million naira per month. According to Anjaneyulu (2005), forest provides food, medicine, timber, and also protect soil erosion, drought, floods, intense radiation etc. Forest also performs other functions such as recreation and aesthetics centers as well as habitat of diverse wild life.

The rural communities depend largely on subsistence agriculture as their major occupation which is characterized by small scale farming activities, low production and income. They also partake in other income generation activities like blacksmithing, motorcycle riding and other artisanal activities to argument output from farming activities to improve livelihood. Income generated from farming activities is not enough to carter for household needs such as

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payment of school fees, payments of hospital bills, purchase of households items, buying of agricultural inputs, as well as cultural activities such as marriage, naming and burial ceremonies (Sheil, 2013. The aforementioned forced the rural farming families in the study area to engage in the activities of exploitation and utilization of forest products to augment income from the farming activities in order to enhance livelihood. The specific objectives are:

i. describes the socio-economic characteristics of rural farming populace in the study area;
ii. examines the forest resources utilized for farming populace livelihood in the study are
iii. determines the livelihood status of rural farming populace;
iv. determines the environmental hazards encountered in forest resources utilization in the study area.

Hypothesis

There is no significant relationship between some selected socio-economic characteristics (age, marital status, household size) and livelihood status of rural farming populace

Methodology

The study was conducted in Kogi and Niger State. Kogi State lies to the South of the Federal Capital Territory, Abuja, and shares boundaries with nine other states in the country. Nasarawa by the North East, Benue State to the East, Enugu State to the South East, Anambra State to the South, Edo State to the South West, Ondo State to the West, Ekiti State to the West, Kwara State to the North West, Niger State to the north. This gives way to common inter state trade. The State has two seasons, the wet and dry seasons. The wet season begins in March and ends in October and the dry season spans between November and early March. The annual rainfall is between 1016mm and 1524mm, while the mean daily temperature ranges between 24°c and 27°c. It is located within longitude 5° 22^1 and 7° 49^1 East & latitude 6° 31^1 and 8° 44^1 North. The State have a total human population of 3,278,487 and with a growth rate of 3.2%, the State will has an estimated population of 4,636,071 in 2017, while the land area is about 30,354.74 square kilometers (Kogi State Ministry of Information, 2017).

Moreover, Niger State is located in the Guinea Savannah ecological zone of Nigeria. In terms of land mass, it is the largest State in Nigeria. It covers a total land area of 74,224km^2 accounting for about eight percent of Nigeria's land area. About 85% of its land area is good for arable crops production (Niger State Geographical Information System, 2015). It is located within latitudes 8– 10°N and longitudes 3--8°E with a population of about 3,950,249 (NPC, 2006) and with a growth rate of 3.2%, the State has an estimated population of 5,586,000 in 2017 (Niger State Geographical Information System, 2015). Eighty-five percent of the State's populations are farmers.. Furthermore, the State shares a common international boundary with the Republic of Benin at Babanna in Borgu Local Government Area (Niger State Geographical Information System, 2015).

Multi-stage sampling technique was used for this study in both States. The first stage involved random selection all the Agricultural zones in both States. The second stage involved random selection of one (1) Local Government from each of the selected agricultural zone. The third involved random selection of four communities each from these LGAs. The fourth stage involved the use of proportional sampling to select 10% of the respondents from the sampling frame of the selected communities which give a total of 326 sample size.

Table 1: Sample distribution of the respondents in the study area

Kogi State	LGAs	Communities	Sampling Frame	Sample Size (15%)
Zone A	Kabba Bunu	Iluke	99	10
		Ogidi	120	12
		Okebunku	102	10
		Okedayo	96	10
Zone B	Dekina	Abocho	120	12
		Egume	95	10
		Ochaja	114	11
		Ojodu	125	13
Zone C	Okehi	Eika	123	12
		Obaiba	100	10
		Oboroke	92	9
		Ikuehi	122	12
Zone D	Ofu	Ogwo-lawo	111	11
		Ajoda	132	13
		Akpodo	91	9
		Ayeye	84	9
Sub total	4	16	1726	173
Niger State				
Zone I	Mokwa	Kumigi	123	12
		Kpataki	130	13
		Rabba	121	12
		Ndayako		
		Apogi	120	12
Zone II	Shiroro	Tuluku	145	15
		Manta	116	12
		Alawa	113	11
		Shakwatu	157	16
Zone III	Mashegu	Tunga tanko	164	16
		Gbazhi	121	12
		Matane	105	11
		Kusoko	109	11
Sub total	3	12	1524	153
Grand total	7	28	3242	326

Sources of the sampling frame: Niger State Ministry of Agricultural and Rural Development (2017) and Kogi State Ministry Agricultural and Rural Development (2017)

Primary data was used for this study. Data was collected by researchers and trained enumerators using structured questionnaire and interview schedule. Dependent variable is livelihood status of the rural farming populace was achieved using livelihood status index adopted from Ifeanyi-obi and Mathews-Njoku (2014) in a research titled socio-economic factors affecting choice of livelihood activities among rural dwellers in southeast Nigeria. Also, Afeez *et al.* (2016) applied the same method on the determinants of rural women livelihood in Ibarapa North Local Government Area of Oyo State, Nigeria. The livelihood benefitted by each respondents (such as procurement of food item, expenditure from non-food item, household assets, procurement of farm inputs, expenditure on non-farm activities, expenditure on off-farm activities, livestock assets, livelihood expenditure, expenditure on cultural festival/ceremonies, settlement of hospital bills and sponsoring ward or pupils to school) in the study area will be divided by the total number of livelihood benefits and categories as $\leq$ 0.25 = very low, 0.26-0.49 = low, 0.50-0.75 = moderate and > 0.76 = high livelihood. Objective i, ii and iv was achieved using descriptive statistics such as frequency distribution, percentage and mean

Objective iii was achieved using livelihood status index

Where:

$$LSI = \frac{\text{Number of livelihood benefited by ith respondent}}{\text{Total number of livelihood benefits}}$$

Y=livelihood status index (LSI)

The categorization is stated below:

$\leq$ 0.25 = very low livelihood

0.26-0.49 = low livelihood

0.50-0.75 = moderate livelihood

> 0.76 = high livelihood

Results and Discussion

Result in Table.1 indicated that the mean age of the respondents in Niger State was about 41 years, while the mean age in Kogi State was about 40 years. The pooled result of the mean age which was 40 years is not far from the mean ages of the respondents in the two States. The finding suggests that the respondents belong to the middle age classes, who are physically fit to withstand the stress and rigorous activities involved in the exploitation and utilisation of forest resources for their livelihood and are more mentally alert to embrace new techniques that will reduce environmental hazards. This findings agreed with that of Olujide and Oladele (2014) who stressed that agro-forestry practitioners in Oyo State were in their active ages.

Finding in the Table 1 showed that majority (83.0%) and (78.6%) of the respondents in Niger and Kogi States respectively were married. In the same manner, the pooled result revealed that 80.7% of the respondents in the study area were married which is a strong indication of some kinds of family responsibilities that will propel them to seek for alternative source of livelihood from forest resources to argument their incomes. The result in Table 1 further indicated that majority (73.4%) of respondents in Kogi State and half of the respondents (58.2%) in Niger State respondents were male. On the whole, 66.3% of the respondents in the study area were male. The male dominance over female in the forest exploitation and utilisation might be linked to rigorous and tedious stress involved in the forest resource exploitation and utilisation. The finding agrees with that of Owunobi (2014) who stated that males are more involved in forest resources exploitation in most part of Nigeria than the female.

Table 2: Distribution of farming populace according to socio-economic characteristic

Socio-economic characteristic	Kogi State(n=173)	Niger State(n=153)	Pooled(n=326)
	Freq (%)	Freq (%)	Freq (%)
Age (year)			
≤20	7 (4.0)	4 (2.6)	11 (3.4)
21-30	42 (24.3)	34 (22.2)	76 (23.3)
31-40	39 (22.5)	35 (22.9)	74 (22.7)
41-50	56 (22.4)	55 (35.9)	111 (34.0)
51-60	24 (13.9)	21(13.7)	45 (13.8)
>60	5 (2.9)	4 (2.6)	9 (2.8)
Mean	39.8	40.6	40.2
Marital status			
Single	36 (20.8)	18 (11.8)	54 (16.6)
Married	136 (78.6)	127 (83.0)	263 (80.7)
Widow	1 (0.6)	6 (3.9)	7 (2.1)
Separated	-	2 (1.3)	2 (0.6)
Sex			
Male	127 (73.4)	89 (58.2)	216 (66.3)
Female	46 (26.6)	64 (41.8)	110 (33.7)
Household size (number)			
1-5	79 (45.1)	33 (21.6)	112 (34.4)
6-10	74 (42.8)	64 (41.8)	138 (42.3)
11-15	11 (6.4)	28 (18.3)	39 (12.0)
16-20	6 (3.5)	10 (6.5)	16 (4.9)
21-25	1 (0.6)	9 (5.9)	10 (3.1)
>25	2 (1.2)	9 (5.9)	11 (3.4)
Mean	6.7	10.7	8.6
Experience in resources utilization (years)			
1-10	54 (31.2)	33 (21.6)	87 (26.7)
11-20	57 (32.9)	61 (39.9)	118 (36.2)
21-30	46 (26.6)	32 (20.9)	78(23.9)
31-40	11 (6.4)	20 (13.1)	31 (9.5)
>40	5 (2.9)	7 (4.6)	12 (3.7)
Access to credit			
Yes	21 (12.1)	5 (3.3)	26 (8.0)
No	152 (87.9)	148 (96.7)	300 (92.0)
Mean	17.9	20.2	18.9

Sources: Field survey, 2018 Figures in parenthesis are percentages

Table 2 showed that the mean household size of respondents in Niger State was 11 persons, while that of Kogi State 7 members and the mean of the pooled result was 9 persons. Large households' sizes points to the availability of family labour for forest resources exploitation and utilization. Conversely, large household size could worsen the livelihood situation of farming populaceparticularly if they are composed of many dependents. Bola *et al.*,(2012) stressed that the large household with no alternative income rely more on forest resources for livelihood.

In Table 2, the average years of experience in forest resources exploitation and utilization in both States of Niger and Kogi were 20 and 18 years respectively, while the mean year of experience for the respondents for the pooled result was almost 19 years. The fact that majority of the respondents in the study area started forest products exploitation and utilization long ago and early in their lives signifies that most farmers in the study area earn their livelihood through forest resources exploitation and utilization. Acquisition of working experience over a long period of time will also go a long way in reducing the environmental hazards associated with forest

exploitation and utilization. This finding conforms with that of Mbuvi and Boon (2015) who stated that majority of forest users in Makuenni District of Kenya had long experience in forest resources utilisation.

Results of this study further indicated that a larger portion of farming populace in Niger (96.7%) and Kogi (87.9%) States did not haveto access credit, suggesting that most of the farming were using their personal saving. The pooled result revealed that 92.0% of the farming populace did not have access to credit facilities in the study area. The implication is that Farmers that have access to credit are more likely to utilised forest resources for their livelihood. This result is consistent with the findings of Ayoade *et al.*, (2012) who reported that lack of access to credit was the main institutional factor which affect the utilization of agricultural produce in Oyo State, Nigeria.

Types of forest resources utilized for rural populace livelihood

Table 3 revealed that majority of the respondents utilized shea tree (73.9%), Desert date (62.1%), Mahogany (61.4%), African Jointfril (60.8%), Neem (58.2%), bush mango (56.9%) and gmalina (58.2%) in Niger State, while in Kogi State, 36.4% utilizedshea tree, 32.9% utilized mahogany, 28.3% utilized bush Mango. The pooled result indicated that 54.0% of respondents in the study area utilizedshea tree. Forest resources are both utilized for domestic such as fire wood and industrial uses such as timber for roofing which will increase the income and better their livelihood of farming populace in the study area. This finding revealed that shea treewere mostly utilised by farming populace for their livelihood in the study area. This might be due to abundant of shea tree accross the villages. This findings agrees with that of Ibrahim *et al.*(2016) who stressed that shea treewas the most forest products utilised by rural farmers in New Bussa area of Niger State.

Table 3: Distribution of respondents according to forest resources utilized

Forest resources*	Kogi State(n=173) Frequency (%)	Niger State(n=153) Frequency (%)	Pooled(n=326) Frequency (%)
Forest plant			
African joinfril	30 (11.7)	93 (60.8)	123 (37'7)
Desert date	28 (16.2)	95(62.1)	123 (37.7)
Bush mango	49 (28.3)	87 (56.9)	136 (41.7)
Mahogany	57 (32.9)	94 (61.4)	151 (46.3)
Gmalina	33 (19.1)	88 (57.5)	121 (37.1)
Neem	30 (17.3)	89 (58.2)	119 (36.5)
Shea tree	63 (36.4)	113 (73.9)	176 (54.0)
Teak	36 (20.8)	77 (50.3)	113 (34.7)

Sources: Field survey, 2018

Livelihood status of farming populace

Table 4 showed that 52.9% of the respondents in Niger State were of moderate livelihood status, while 47.4% of respondents in Kogi State were also moderate livelihood status. The pooled result also showed that 50% of the farming populace in the study area were of moderate livelihood status. This finding implies that half of the respondents in the study area were of moderate livelihood status This result is in consorance with the findings of Ifeanyi-obi and Mathews-Njoku (2014)who revealed that majorities of farmers in South East of Nigeria medium livelihood. Also, Afeez *et al.* (2016)revealed that most of the rural women farmers in Oyo State of Nigeria had moderate livelihood.

Table 4: Distribution of respondents according to livelihood status of farming populace

Livelihood status	Kogi State(n=173) Frequency (%)	Niger State(n=153) Frequency (%)	Pooled(n=326) Frequency (%)
Very low livelihood	7 (4.0)	1 (0.7)	8 (2.5)
Low livelihood	35 (20.2)	2 (1.3)	37 (11.3)
Moderate livelihood	82 (47.4)	81 (52.9)	163 (50.0)
High livelihood	49 (28.3)	69 (45.1)	118 (36.2)

Sources: Field survey, 2018

Constraints encountered by farming populace in the utilisation of forest resources

Finding in Table 4 revealed that in Kogi State, wind blow ($\bar{x}$=2.42), bush burning ($\bar{x}$= 2.36) and flood ($\bar{x}$=2.02) were the severe constraint of forest resources used and utilized in the State. Similarly, in Niger State, bush burning ($\bar{x}$=2.49), wind blow ($\bar{x}$=2.46), flood ($\bar{x}$=2.37), intensive radiation ($\bar{x}$=2.33), soil erosion ($\bar{x}$=2.25) and drought ($\bar{x}$=2.06) were the severe constraints of forest resources exploitation and utilized in the State for the pooled result, wind blow ($\bar{x}$=2.44), bush burning ($\bar{x}$=2.42), flood ($\bar{x}$=2.18) and soil erosion ($\bar{x}$=2.12) were the severe constraint of forest resources used in the study area implying that wind blow was the major constraint encountered by rural farming populace in the utilisation of forest resources for their livelihood.This finding is in consonance with Inoni (2012) who reported that windblow was a major constraint faced by chainsaw operators in Nigeria. The researcher also stated that bush burning had resulted to the extinction of some fauna and flora resources in Sub-Saharan Africa.

Table 5: Constraints encountered in forest resources utilisation

Forest resources utilized	Kogi State(n=173)			Niger State (n=153)			Pooled(n=326)		
	Mean ($\bar{x}$)	R	D	Mean ($\bar{x}$)	R	D	Mean ($\bar{x}$)	R	D
Flood	2.02	3rd	S	2.37	3rd	S	2.18	3rd	S
Soil erosion	1.97	4th	NS	2.25	5th	S	2.12	4th	S
Drought	1.50	9th	NS	2.06	6th	S	1.76	6th	NS
Intensive radiation	1.59	6th	NS	2.33	4th	S	1.94	5th	NS
Snake bite	1.53	7th	NS	1.61	8th	NS	1.57	8th	NS
Stricken of bees on bees extractors	1.60	5th	NS	1.73	7th	NS	1.66	7th	NS
Windblow	2.42	1st	S	2.46	2nd	S	2.44	1st	S
Unpredictable fall of trees on wood loggers	1.53	7th	NS	1.58	9th	NS	1.55	9th	NS
Bush burning	2.36	2nd	S	2.49	1st	S	2.42	2nd	S
Wild animals attack	1.33	10th	NS	1.22	10th	NS	1.30	10th	NS

Sources: Field survey, 2018Note: R=Ranks, D=Decision, S=Severe, NS=Not severe

Testing of Hypothesis

The result of the correlation showed that there is significant relationship between age, marital status, household, access to credit, experience in forest resources utilisation and livelihood status of rural farming populace. This implies that age, marital status and household size access to credit, experience in forest resources utilisation influence the livelihood status.Therefore, the null hypothesis which states that there is no significant relationship between socioeconomic characteristic of the respondents and livelihood status was rejected.

Table 5: Relationship between socioeconomic characteristics and livelihood status of rural farming populace using correlation

Variables	Kogi State		Niger State		Pooled	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Age	0.1494	0.0498**	0.0717	0.3786	0.1239	0.0253**
Marital status	0.0609	0.4262	0.1191	0.1427	0.1212	0.0287**
Household size	-0.0609	0.4298	-0.18020	.0259**	-0.16460	.0002***
Credit access	-0.1993	0.0090***	-0.0520	0.5229	-0.2157	0.0001***
Experience in forest resources utilization	0.2939	0.0001***	0.0676	0.4063	0.2342	0.0000***

Source: Field survey, 2018

***Signicant at 1%, p= probabilitylevel, r= coefficient, S= significant

Conclusion

From the findings of the study, it was concluded that the mean age of the respondents was 40.2years. Also, 80.7% of the respondents were married. The findings revealed that shea tree (54.0%) was the most forest resources utilized for rural populace livelihood in the study area? The result revealed that (50.0%) of rural farming populace had high livelihood status in the study area. The result revealed that wind bow ($\bar{X}$= 2.44) and burning poor price ($\bar{X}$= 2.42). Age, marital status and household size had significant relationship with livelihood status of rural farming populace.

Recommendations

It was recommend that farming populace should be educated, trained and sensitized on how to curb the menace of bush burning that strongly affect the utilisation of forest resources for their livelihood. Also, awareness should be created by government or stakeholders on how flood and erosion can be controlled in order to limit their effects on forest resources.

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