

Awareness and Factors Influencing Farmers' Decision in Establishing Private Forest Plantation in Borgu Local Government Area of Niger State

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ABSTRACT

Private investments in forestry in Nigeria have not been as attractive as private investments in cash and food crops such as cocoa, rubber, rice, and maize. It is thought that these agricultural crops yield financial returns earlier than forestry crops. This study therefore, assessed factors influencing private forest plantations establishment among farmers in Borgu Local Government Area of Niger State. Simple random sampling and purposive sampling techniques were used to select 120 farmers from six wards in the study area. Data were collected from the respondents using interview guide. Data were analyzed using descriptive statistics such as frequency Tables and Charts. Results showed that 44.2% of the respondents were aware of private forest plantation establishments while 55.8% were not aware. The major sources of awareness were through community leaders (25.8%), radio (20.8%), and friends (15%). Major factors influencing farmers' decision to establish private forest plantation are seasonal bush burning (93.3%), long gestation period (85.8%), inadequate extension services (90.8%), Government policies (87.5%), climatic conditions (80.0%), transportation (79.2%), land availability (79.2%), planting stocks (76.7%). It was recommended that farmers' decision to establish private forest could be influenced by making land available to interested farmers, granting credit facilities and free planting stock.

Keywords: Private Forest, Plantation, Awareness, Extension Services, Policy.

INTRODUCTION

Forestry can be simply put as the skillful management of all natural resources which occur on, and in association with, forest lands for greater human benefit (Etukudo *et al.*, 1994). When a forest is given good management, it should be able to take care of humanity with certain key roles which are production, protection, and recreation. Production role has to do with forestry ensuring availability of a wide range of products that can meet man's economic needs such as timber production for building and construction purposes. Protection forestry has to do with preservation of our environment from the hazards of nature, for instance, using forest cover to check water and wind erosion. Recreational forestry deals with the preservation of wildlife for recreational purposes such as game viewing and sport hunting in game reserves. These three basic functions form the basis of forestry as an art, science, and practice (Etukudo *et al.*, 1994). Considering private forest plantations, forestry is therefore the establishment or development of forest plantations by individuals, families, communities, villages, companies, co-operative bodies, social clubs, and institutions other than government agencies. Private forest refers to trees on private agricultural or forest land used to supplement animal fodder, fuel wood and other basic resources or simply to produce saleable produce used for building construction, furniture and ship building (Akinbowale *et al.*, 2019).

The Nigerian natural forests that are noted for economic trees production have been over exploited, highly degraded and some species have gone extinction as a result of deforestation due to over exploitation (Ladipo, 2010). Private forest can be integrated into agricultural system inform of agroforestry system to provide forest products and to complement existing farming enterprise or it can be a stand-alone use of land. Involvement of

private forest owners in management of forest resources implies the use and management of forest resources by people who are opportune to own natural or artificial forests. Recognition of the role of forest management and successful reform of the agriculture sector contributed to the introduction of private forest (Akinbowale *et al.*, 2019).

The role of the forest cannot be overemphasized; it includes soil protection, ameliorating the environment, protection of biodiversity, conserving soil and water, the main carbon reservoirs as well as the most efficient ecosystem to trap carbon(iv)oxide from the atmosphere (Adebayo *et al.*, 2019). It was reported by Adedokun *et al.* (2011) that forest is a valuable resource on earth to the extent that man cannot survive without trees, particularly those that are fruit bearing. Also, the forest plays an important role in industrial development through constant supply of raw materials and in carbon sequestration; thus, there should be increase in the area covered by forest through plantation establishment (Ogunwusi, 2011).

Until recently, majority of the forest plantations were developed by the various state governments through their forestry Departments in Nigeria. There were little or no interests by individual, organizations or community willing to invest in forest plantation development because of traditional belief that forestry is a long-term investment that takes many years to mature before harvest. The trend has changed; public enlightenment through sustained extension services by the various states' forestry Departments has encouraged many communities, institutions, individuals to establish private forestry or woodlots (Alba, 2008 and Etukudo, 1994). Few examples of Private Forest Plantation in Nigeria are; Fuel wood plantations in Oke-ogun area, Oyo State, established by Nigerian Tobacco Company, African

Timber and Plywood plantation in Sakpoba, Edo State, Teak Plantation owned by Alhaji Taliat Ainkunmi in Ikire, Osun State (Jimoh and Bada, 2001), Evergreen Tree Planter situated at Ijari, Ijebu Ode, Ogun State (Akinbowale *et al.*, 2019). In view of the above, this study focused on farmers' awareness and the factors influencing farmers' decision to establish private forest plantation in Borgu Local Government Area of Niger State, Nigeria with the aim of suggesting strategies that can influence farmers' decision.

MATERIALS AND METHODS

Study Area

This study was carried out in Borgu Local Government Area of Niger State, Nigeria. It is one of the 25 Local Government Areas in the state with the headquarters in the town of New Bussa. It was formerly part of Kwara State until August 27, 1991 when it was transferred to Niger State (Ross, 2011).

Borgu Local Government has a population of 242, 800 according to Niger State projected population census 2016. It is located between Latitudes 9°55' 11.21"N to 9°89' 55"11"N and longitudes 4°30'37"11"E to 4°49'39"11"E. The Local Government is bounded to the East by the River Niger/Kainji Lake and Magawa Local Government Area, Kebbi State in the Northern part, Kwara State and Benin Republic in the West. There is aggressive production of food crops in the region such as guinea corn, maize, rice, yam, millet and cowpea (Agboarumi, 1997). The vegetation of the study area is southern guinea savannah and is characterized by tall grasses and shrubs, with trees of mean total height between 6 m and 15 m. Few examples of tree species in the study area include *Pterocarpus erinaceous*, *Anogeissus leiocarpus*, *Vitellaria paradoxa*, *Lannea acida*, *Lannea schimperii*, *Azalia africana*, *Burkea africana* and *Terminalia glaucoscens* (Adeniji *et al.*, 2021)

Sampling Techniques and Data Collection

Simple Random Sampling and Purposive Sampling Techniques were employed in this study. Simple random sampling technique was used to select six wards out of ten wards in Borgu Local Government Area of Niger State. The selected wards are New Bussa, Wawa, Malale, Kabe, Karabonde and Babanna. Purposive sampling technique was used to select 20 farmers from each ward in the study area and this gave a total sample of 120 respondents.

A well-structured interview guide was used to collect data on socio-economic characteristics of the farmers, awareness and factors influencing farmers' decision to establish private forest plantation in the study area. Data collected were analyzed using descriptive statistics such as charts, frequencies and percentages.

RESULTS AND DISCUSSION

Socio-economic Characteristics of Respondents

The result in Table 1 shows that majority (87.5%) of the farmers were male. This may relate to gender disparity found in some parts of Nigeria, this also agrees with the report of Adedoyin *et al.* (1999) that male dominated the agricultural workforce in Nigeria. Majority of the respondents (78.3%) were within the age range of 30-59 years with mean age of 43. This result implies that farmers were still at their productive or active working age. It was reported by Sheik *et al.* (2003) that the age of individuals affects their mental attitude toward new ideas and hence influences adoption in several ways. Majority (78.3%) of the respondents were married, thus family responsibilities could influence their participation in order to improve their standard of living.

Table 1 also shows that 21.7% of the respondents had primary education, 19.2% had Secondary education, 30.0% had NCE/OND and 14.2% had Bachelor's degrees and above. This implies that majority of the respondents had attained some level of formal education and were therefore literates and could utilize the knowledge to improve their work. The average household size was 7 which could contribute significantly in the supply of farm labour in the study area. Other livelihood activities of the respondents are civil service (20.8%), trading/business (35.8%), artisan (27.5%), and pensioners (15.8%). This implies that respondents are not farmers alone but engaged in other livelihood activities. This is in line with government policy of back to land and entrepreneurial skills programme. The average farming experience of the respondents was 13 years. This experience coupled with their literacy level could enhance the establishment of private forestry in the study area.

Awareness of Private Forest Plantation Establishment

Figure 1 reveals that 44.2% of the respondents were aware of private forest plantation while 55.9% were not aware of private forest plantation establishment in the study area. Respondents that were aware of the private forest plantation got the information through various sources (Figure 2); through community leaders was 25.8% while radio was 20.8%. The findings of Umar *et al.* (2015) noted that radio was a major source of awareness in his study on awareness and use of information and communication technologies among extension agents in Kaduna State of Nigeria. Friends and family had 15% which might be through close contact, meeting or clubs or cooperative societies. During these gatherings, awareness campaign on private forest plantation establishment may be delivered. Extension agents and internet had 12.5% each respectively. The forest extension agents might organize awareness campaign on forest plantation establishment in order to encourage afforestation and discourage deforestation. The internet has proved to be an invaluable resource for obtaining information and expansion of rural-urban linkage (Elijah, 2010).

Table 1. Socio-economic characteristics of the respondents

VARIABLES	FREQUENCY	PERCENTAGE (%)	MEAN
<u>Sex</u>			
Male	105	87.5	
Female	15	12.5	
<u>Age (Years)</u>			
20-29	05	4.2	
30-39	30	25.0	
40-49	54	45.0	43
50-59	10	8.3	
60 & above	21	17.5	
<u>Marital Status</u>			
Married	94	78.3	
Single	12	10.0	
Widowed	14	11.7	
<u>Religion</u>			
Islamic	75	62.5	
Christianity	41	34.2	
Traditional	04	3.3	
<u>Household size</u>			
≤5	46	38.3	
6-10	53	44.2	7
>10	21	17.5	
<u>Educational status</u>			
No Formal Education	18	15.0	
Primary Education	26	21.7	
Secondary Education	23	19.2	
NCE/OND	36	30.0	
Bachelor Degrees & Above	17	14.2	
<u>Other livelihood</u>			
<u>Activities</u>	25	20.8	
<u>Civil Service</u>			
Trading/Business	43	35.8	
Artisan	33	27.5	
Pensioner	19	15.8	
<u>Farming experience</u>			
(Years)			
≤5	08	6.7	
6-10	22	18.3	
11-15	41	34.1	13
16-20	20	16.7	
>20	29	24.2	

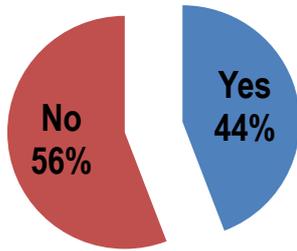
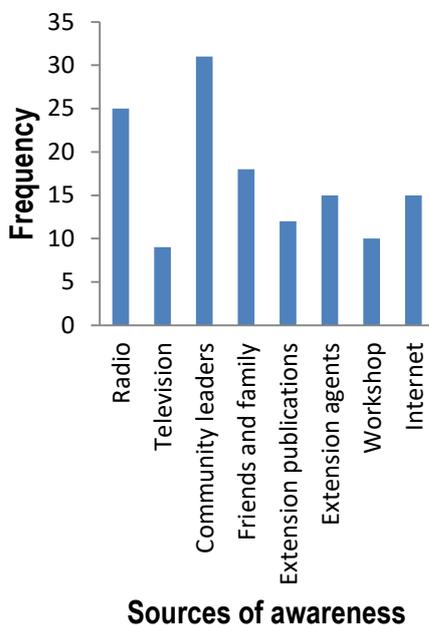


Figure 1: Awareness of private forest plantation establishment



Sources of awareness

Figure 2: Sources of awareness of private forest establishment

Factors Affecting Private Forest Plantation Establishment

The major factors affecting private forest plantation establishment in the study area (Table 2) are seasonal bush burning/fire outbreak (93.3%), inadequate extension services (90.8%), Government policies (87.5%), long gestation period of forest trees (85.8%), climatic conditions (80.0%), transportation (79.2%), land availability (79.2%), planting stock (76.7%), inadequate forestry skills (72.5%), and capital (67.5%). These could be the hindering factors for the full establishment of private forest plantation by the farmers in the study area. It was reported by the respondents in the study area that indiscriminate bush burning is rampant at the onset of dry season and mid-way. When this happens, it burns farm products and trees around. This is usually done by some villagers and hunters in the communities. It was reported by FAO (2001) that Ethiopia had an extreme wild fire

season early in the year as a consequence of the delayed onset of the rainy season. Also, wild fires burned about 2.8 million hectares of forests and grass lands in the United States (as of September, 2000). The principal cause of uncontrolled forest fires was human activities particularly from burning agricultural stubble and waste. In addition, 91% of wildfires in Italy originated from such practices. This then called for National fire legislation in Italy, Ethiopia and United States (FAO, 2005). Such legislation could be put in place by Nigeria Government. Inadequate extension services or coverage could lead to poor information on forestry skills, where to obtain planting stocks, marketing channels, and new development or innovations in the field of forestry. A study by Moguees *et al.* (2009) reported a relatively lower access to extension services among farmers in Ethiopia. This finding also concurs with the report of Adebayo *et al.* (2019) where inadequate forest extension workers was a major constraint on the need to establish private forest plantation. The respondents reported that Government policies on forestry such as illegal felling of timber, illegal farming in forest reserves, grazing in forest reserve, hunting and fishing in forest reserves, fraudulent use of pass hammer and other property marks, evasion of timber sales and trafficking rules and issuance of licenses to beneficiaries of forest concessions and payments of fees and royalties scare them from free establishment of private forest plantation as a business or source of livelihood.

The long period before maturity (long gestation period) of forest trees was also reported as a major discouragement to private forest plantation establishment by the respondents in the study area. They regarded forestry as a capital tie-down investment. Most finance houses in Nigeria prefer short term and highly profitable investment to lend money (Adebayo *et al.*, 2019).

Table 2 also revealed that climatic condition was a major factor preventing private forest plantation establishment by farmers in the study area. This could be traced to little rain fall per year and excessive drought in the study area. This is another factor that ginger up wildfire during the dry season. This is similar to delayed onset of the rainy season that caused extreme wildfire in Ethiopia (FAO 2001). Transportation as a major factor as reported by the farmers could be related to bad roads, outdated vehicle, cost of maintenance, risk involved in loading and offloading coupled with taxes to be paid which lead to high cost of production. Another major factor identified by the respondents is land unavailability. Forest establishment requires large hectares of land; this is hindered by land tenure system by inheritance and land use act of 1978 that vested ownership of land on government. Many interested farmers were unable to acquire large hectares of land for this purpose (Etukudo *et al.*, 1994).

Table 2 also revealed that capital is a major factor in private forest plantation establishment. Several studies have reported the need for loan and credit facilities for

rural farmers in Africa. This is limited by distance of the rural farmers to urban centres and their level of education (Bolarinwa and Oyeyinka, 2005; Olagunju and Adeyemo, 2008; Ekwere and Edem, 2014). Inadequate capital could hinder land acquisition and preparation, Stock procurement and other post planting operations. However, the above discussed factors negatively affect the establishment of private forest plantation in the study area.

Meanwhile, labour and market were considered as minor factors (70.8% and 52.5%, respectively). The labour could be due to household members' availability that could be used on the farm, while market could be due to the availability of sawmills within and outside the study area, furniture makers and carpenters and building contractors that would need timber for manufacturing and construction purposes.

CONCLUSION

This study examined and made contributions to research on the factors influencing farmers' decision to establish private forest in selected communities in Borgu Local Government Area of Niger State. It can be concluded that majority of the farmers sampled were male, married with long-term farming experience and are averagely educated. Less than half of the farmers interviewed were informed on private forest establishment and got awareness mostly through community leaders and radio. Seasonal bush burning, inadequate extension services, government policies, long gestation periods and climatic conditions were the major factors influencing farmers' decision to establish private forest in the study area. Therefore, it is necessary for institutions such as Forestry Research Institute of Nigeria, Department of Forestry, and other Stakeholders to intensify effort on tree planting campaign and establishment of sustainable investment in private forest plantation

Table 2. Factors affecting private forest plantation establishment

FACTORS	MAJOR INFLUENCE	MINOR INFLUENCE
	F (%)	F (%)
Land Availability	95 (79.2)	25 (20.8)
Long Gestation Period of Forest Trees	103 (85.8)	17 (14.2)
Transportation	95 (79.2)	25 (20.8)
Market	57 (47.5)	63 (52.5)
Labour	35 (29.2)	85 (70.8)
Capital	81 (67.5)	39 (32.5)
Planting Stock	92 (76.7)	28 (23.3)
Inadequate Forestry skills	87 (72.5)	33 (27.5)
Inadequate Extension Services	109 (90.8)	11 (9.2)
Climatic conditions	96 (80.0)	24 (20.0)
Seasonal Bush Burning/Fire Out Break	112 (93.3)	8 (6.7)
Government Policies	105 (87.5)	15 (12.5)

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