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SOCIO-ECONOMIC FACTORS INFLUENCING PEOPLES' PARTICIPATION IN FOREST MANAGEMENT IN BENUE-PLATEAU REGION, NIGERIA

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ABSTRACT

Socio-economic variables of respondents from Benue-Plateau region of North-Central Nigeria were studied to determine their possible influence on participation in Forest Management. Multi-stage random sampling technique was employed for the selection of 460 respondents living in and around communal forest areas for questionnaire interview and 240 participants for focus group discussion. In addition, in-depth interviews were held with Directors of Forestry in each State. Data generated were analyzed at $p = 0.05$ using Logistic Regression to determine factors that influence participation in forest management in the study area. It was found that age ($p = 0.018$) and occupation ($p = 0.000$) had significant influence on aggregate participation. Also, occupation was found to have influence on individual participation in physical execution of work ($P = 0.010$), issuance of advice or directive ($P = 0.000$), decision making, ($P = 0.000$), donation of land ($P = 0.000$), leadership role ($P = 0.000$) as well as monitoring, directing and evaluation ($P = 0.000$). Age was found to have influence on donation of land ($P=0.046$) while attainment of primary education ($P=0.018$) and secondary education ($P=0.000$) were found to have influence on donation of land.

Key words: Local communities, Community forestry, Participation indices

INTRODUCTION

The World is losing its forest through wrong agricultural practices and deliberate destruction of ecosystems. As a result, forest resources that had been sustaining livelihood are becoming depleted through large scale deforestation (Popoola, 2002, Dagba, 2005). The history of colonial and states appropriation and control of forests under the guise of scientific forestry has been a common feature of a centralized technocratic century with the rise of the modern nation state (Agbeja, 2003). This arrangement has arrogated land of the local communities to the states and in some cases, to the private interests to exploit the timber and non-timber forest products (NTFPs). The result is the exclusion of local communities from benefiting from the forests and their resources, all in the name of sustainability.

This process has given rise to a number of factors that have put enormous pressure on the forests and the people living in and depending on them, who suffer unequal access to forest resources (Lise, 2000, Atte, 2002). The result has been large forest degradation and destruction, displacement of people and the loss of local livelihoods and cultures. In the face of this, there is now a growing concern to find a new way to preserve what is left of the worlds' forests. One way of doing this is the adoption of forest management by the people, (Lise, 2000).

Participation of the people in forest management has been described by the World Rain-forest Movement (WRM, 2000) as a community management system that seeks to guarantee access and control over forest resources to the people especially to those living in or around them with the objective of satisfying their social, economic, cultural and spiritual needs. It includes a wide range of activities such as establishment of woodlots, tree seedlings production, afforestation of degraded lands, urban forestry, fruit tree orchards, commercial use of non-timber forest products and large scale afforestation projects. Participation by local people in these activities is necessary if success in forest management is to be achieved. Earlier, Davids (1977), described participation as a mental, emotional and physical involvement of persons in group situations that encouraged them to contribute to group goals. Participation could take different forms and may include attendance at meetings, financial and material contributions, activities such as taking part in programs and exercising leadership responsibilities.

Socio-economic factors have been said to influence peoples' decision to participate in community forestry. According to Ladele (1999), participation is affected by age, education, income, leadership style, family size, gender and occupation. He explained further that for one to be involved in any community project, one must be matured enough, but not too old to be able to perform. Ogolo (1995) also posited that education is necessary for an individual to be able to understand the complex relationship between environmental components. In order to fight environmental problems in the study area, Federal Government of Nigeria introduced afforestation programme in the Northern part of Nigeria. It was in the light of this that this study was undertaken to determine socio-economic factors that probably influenced participation of the people in this project.

METHODOLOGY
Study area.
Benue and Nasarawa States lie within the coordinates of Longitudes $6^\circ 58^1$ and $1^\circ 00$ East, and $6^\circ 27^1$ and $9^\circ 36^1$ North of Equator (Age; 2006). Benue State is bounded by Nasarawa State to the North, Taraba State to the northeast, Cross River State to the south, Enugu State to the southwest and Kogi State to the West. It also shares a small section of the national boundary with the Republic of Cameroon to the southeast of the state. Nasarawa is borded by Federal Capital Territory (FCT) Abuja to the west, Bauchi State to the northeast, Taraba State to the east, Benue State to the south, Kwara State to the southwest and Kaduna State to the northwest. The study area has a tropical humid climate, which is divided into rainy (wet) and dry seasons.

Instruments for Data Collection
The main instrument of data collection was questionnaire which consisted of both the open and closed ended questions. The instrument was subjected to face and content validity through

careful scrutiny by experienced staff. The instrument's reliability was tested using 30 respondents from Taka Local Government area of Benue State where a test- retest method was used. Using Pearson Product Moment Correlation, a coefficient of reliability was found to be 0.75 which was considered adequate. In addition, Focus Group Discussion (FGD) and In-depth interview with key informants (IDI) were employed to enrich the data obtained through questionnaire.

Sample Size and Selection Procedure
The study area comprised Benue and Nasarawa States of North Central Nigeria. Purposive, multi-stage random sampling technique was adopted. The first stage involved the selection of Benue and Nasarawa States. In the second stage, the states were stratified into senatorial, local government area and council wards. Thirty percent (30%) sampling intensity (Webster, 1995 and Runyon 1996) was adopted in the final selection of local governments and council wards as contained in Table 1.This gave a total of 46 council wards.

Finally, ten (10) respondents were randomly selected per council ward giving the total of 460 respondents in the study area for questionnaire. All calculations were approximated to whole numbers using one place of decimal. Focus group discussion was held with 10 participants from the wards that were not sampled for questionnaire interview bringing the total number to 240. Equally in-depth interview interviews were held with 2 Directors of Forestry in the states.

Table 1: Showing sample size selection process for the study area

State	Senatorial zone	Number of LGAs	30% of LGAs	Names of selected LGA	Total no of council wards in the LGAs	30% of Council wards	Minimum of 10 Respondents per ward
				Konshisha	11	3	30
	East	7	2	Ushongo	11	3	30
				Makurdi	11	3	30
Benue	West	7	2	Gwer	14	4	40
				Ohimini	10	3	30
	South	9	3	Obi	12	4	40
				Otukpo	12	4	40
				Doma	12	4	40
	South	5	2	Obi	15	5	50
Nasarawa	North	3	1	Akwanga	14	4	40
				Keffi	12	4	40
	West	5	2	Nasarawa	15	5	50
Total					149	46	460

Data Analysis
Data collected from the field were collated, classified and tabulated as appropriate. Descriptive statistics such as frequency and percentage were used for the non-inferential tests. Logistic Regression Analysis was employed to test the influence of socio-economic factors on participation in forest management in the study area.

RESULTS
Socio-economic Variables
Table 2 indicated that in Benue State, 75.4% of respondents were males while 24.6% were females. In Nasarawa state, 78.2% of respondents were males while only 21.8% were females. Most of the respondents in the study area (Benue 92.8% and Nasarawa 93.6%) were married with 82% of the married from Benue State and 77% of their counterparts from Nasarawa State had monogamous type of marriage. In Benue state, it was found that 43.4% of the respondents had their family sizes ranging between 1-5 while in Nasarawa State, 46.4% of respondents had theirs ranging between 6-10. It was also found that 75% of respondents from Benue and 83.1% from Nasarawa States had their ages within the range of 35-54 years. In Benue State, 95% 0f respondents had formal education at various levels while 82% of their counterparts from Nasarawa State equally had the same level of education.

Types of Community forestry Practices
Table 3 shows different types of forest management practices in the study area. In Benue State, the types indicated by respondents included forest nurseries, woodlots, forest plantations, orchards, apiculture, alley cropping, amenity planting, scattered trees, live-fencing, enrichment planting, boundary planting, farm forestry, commercial use of non-timber forest products (NTFPs), home-gardens and windbreaks.

Mode of Participation of Respondents in Community forestry Practices in the study area.
Different modes/types of participation as indicated by respondents are contained in Table 4. They included physical execution of work, issuance of advice or directive, helping to make contact, participation in decision making, donation of materials, diffusion of ideas, leadership role (supervision) and monitoring, directing and or evaluation.

Effect of socio-economic variables on participation in forest management in the study area
Results obtained from respondents were analyzed using logistic regression analysis. It was found that age (P = 0.018) and occupation (P = 0.00) had positive significant relationship with participation in forest management (p < 0.05). On the individual modes of participation, age was again found to have positive association with donation of materials (P = 0.048) at 0.05 level of confidence. It was also found that occupation, particularly being a civil servant had a negative association with physical execution of work (P = 0.010) and donation of materials (P = 0.000) at 0.05 level of confidence. Education at the primary (P = 0.018) and secondary level (P0.000) was found to have positive relationship with donation of materials (P < 0.05). Secondary education was again found to have positive relationship with participating in decision making (p < 0.05) Household size (P = 0.013) was equally found to have positive relationship with diffusion of ideas (p < 0.05).

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DISCUSSION

Results of the study tend to agree with some earlier studies by some authors. For example, age was reported by Fakoya *et al.*, (2006), Ladele (1999) and Adekoya (1997) to have positive relationship with participation in the adoption of agroforestry technologies. According to them, age is a reflection of the physical strength of an individual to participate in physical task that requires expending energy such as forestry. Therefore it is only likely that at matured age, one would have energy to afford participation. According to Ogolo (1995) participation increased in the age range of 40 - 55.

In the same way, it is equally likely that at old age, one could own land to be able to donate for any public project. Occupation was also found to have effects on participation particularly being a civil servant. This observation could be explained that as a civil servant, one might lack time to participate in physical execution of work and probably might lack land to donate in the way a farmer who has land would do.

With regard to education, results indicated that attaining primary and secondary education have positive effect on participation. Many of our rural farmers have these levels of education which have positioned them to easily adopt new technologies. It is possible that these categories of people are likely to have free land so that they could afford to donate. On the other hand, they are not likely to be in the management cadre to participate in decision making. This observation agrees with Blum (1991), who stated that education predisposes a person to ideas and also widens mental horizons that may help to develop a system of assessment.

CONCLUSION AND RECOMMENDATION

Based on the above findings therefore, it was concluded that age, occupation and education do significantly play important role in local participation in community forestry in the study area. It was recommended that for effective participation to take place in this area, young adult farmers must be properly educated about the need for people to participate in the act of forest conservation for our environment.

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Table 2: Distribution of respondents according to types of forest management practices available in the study area

Identified Forest Management Practice	Benue (n=240)		Nasarawa (n=220)	
	Available	Not available	Available	Not available
Forest Nurseries	101(42.1)	139(57.9)	173(78.6)	47(21.4)
Woodlots	195(81.3)	45(18.8)	143(65.0)	77(35.0)
Forest Plantations	154(64.2)	86(35.8)	122(55.5)	98(44.5)
Orchards	194(80.8)	46(19.2)	271(98.6)	3(1.4)
Apiculture	71(29.6)	169(70.4)	171(77.7)	49(22.3)
Alley Cropping	38(15.8)	202(84.2)	29(13.2)	191(86.8)
Amenity Planting	39((16.2)	201(83.8)	41(18.6)	179(81.4)
Scattered Trees	198(82.5)	42(17.5)	164(74.5)	56(25.5
Live Fencing	150(62.5)	90(37.5)	159(72.3)	61(27.7)
Enrichment planting	43(17.9)	197(82.1)	26(11.8)	194(99.2)
Boundary planting	219(91.2)	21(8.8)	215(97.7)	5(2.3)
Farm forestry	170(70.8)	70(29.2)	164(74.5)	56(25.5)
Afforestation of degraded lands	118(49.2)	122(50.8)	121(55.0)	99(45.0)
Urban forestry	31(12.9)	209(87.1)	32(14.5)	188(85.5)
Commercial Use of non timber forest products	118(49.2)	122(50.8)	184(83.6)	36(16.36)
Home Gardens	206(85.8)	34(14.2)	197(89.5)	23(10.5)
Windbreaks	165(68.8)	75(31.3)	155(70.5)	65(29.5)
Shelterbelts	0(0)	240(100)	0()0	220(100)

Source: Field Survey, 2007
Note: percentages in parenthesis

Table 3: Logistic Regression Analysis showing effects of socio-economic variables on participation

Independent variables	Physical execution of work	Issuance of advice of directive	Helping to make contact	Participating in decision making	Donation of materials including land	Diffusion of idea to win public support	Leadership role (supervision)	Monitoring directing and or evaluation	Aggregate participation
Age	0.018(0.400)	0.026(0.238)	-0.003(0.815)	0.024(0.360)	0.028(0.046)	0.003(0.842)	0.057(0.053)	0.025(0.403)	0.210(0.018)
Education Primary	0.389(0.510)	-0.377(0.530)	-0.202(0.486)	-0.201(0.266)	0.716(0.018)	0.474(0.115)	-6.780(0.713)	-7.892(0.792)	0.683(0.732)
Special	0.183(0.815)	0.079(0.900)	-0.299(0.498)	-0.256(0.719)	0.725(0.123)	0.630(0.157)	0.634(0.347)	0.809(0.221)	4.470(0.137
Secondary	-0.265(0.453)	-0.421(0.314)	-0.171(0.463)	-1.597(0.007)	1.070(0.000)	-0.197(0.438)	-0.238(0.662)	-1.224(0.071)	-1.049(0.511
Non-formal	0.091 (0.934)	-5.653(0.706)	-0.400(0.464)	-4.913(0.738)	-0.243(0.673)	0.376(0.506)	-7.061(0.856)	-8.076(0.901)	-4.270(0.253
Family Size	0.071(0.123)	0.042(0.335)	0.021(0.441)	-0.038(0.474)	-0.027(0.374)	-0.076(0.013)	-0.002(0.967)	-0.049(0.439)	-0.096(0.607)
Gender (male)	-0.292(0.451)	0.253(0.530)	0.256(0.267)	-0.291(0.496)	-0.087(0.731)	0.384(0.134)	0.394(0.468)	0.137(0.807)	1.488(0.345)
Occupation Civil Servant	-0.931(0.010)	1.464(0.000)	0.357(0.129)	2.533(0.000)	-1.110(0.000)	0.209(0.403)	2.476(0.000)	2.282(0.000)	6.653(0.000)
Trader	-0.378(0.452)	-0.496(0.522)	-0.197(0.512)	-0.314(0.776)	0.044(0.887)	0.008(0.981)	0.150(0.896)	-7.221(0.832)	-1.347(0.514)
Job Seeker	-1.092(0.114)	0.574(0.607)	-0.039(0.945)	1.230(0.296)	0.470(0.423)	-0.295(0.639)	1.938(0.110)	1.546(0.201))	1.576(0.687)
Polygamy	-0.189(0.657)	-0.831(0.117)	-0.020(0.937)	-0.1372(0.080)	0.078(0.777)	0.150(0.578)	-0.251(0.686)	0.559(0.338	-1.231(0.484
CONSTANT	1.577(0.095)	-4.000(0.000)	-0.018(0.975)	-3.559(0.003)	-0.774(0.006)	-0.760(0.225)	-6.567(0.000)	-4.571(0.001)	19.82(0.000)
Pseudo R^2 (R^2)	(0.085)	(0.174)	(0.025)	(0.343)	(0.150)	(0.045)	(0.289)	(0.303)	(0.076)
χ^2 (F-Ratio)	19.751(0.049)	41.630(0.000)	8.725(0.647)	77.368(0.000)	53.280(0.000)	15.111(0.177)	53.879(0.000)	51.934(0.000)	3.323(0.000)

Note: a = Tertiary serves as reference class
b = Female serves as reference class
c = Artisan serves as reference class
d = Monogamy serve as reference class
Probability values in parenthesis