FARM LEVEL TREE PLANTING IN MAIGATARI LOCAL GOVERNMENT JIGAWA STATE NIGERIA

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ABSTRACT

The low proportion of forested land and continuous degradation of existing forest cover are serious threats to the sustainability of forestry. The consequences of which have resulted to environmental degradation and accelerated wind and water erosion of the fertile land that can seriously affect sustainable agricultural production in Nigeria. Reforestation

Introduction

Forest is scarce renewable natural resource, however, renewability is a socio-economic concept; what is renewable may be non-renewable if there is no proper management. Hence, there is the need to put all hands together in managing the forest. Afforestation is one of the key remedies to reducing deforestation and forest degradation and restoring ecosystem integrity by providing the necessary environmental and ecosystem services to mankind. According to Ikojo, (2008) Nigeria had about 65 million hectares of intact forest cover in 1897 but presently the forest cover has reduced to four million hectares Population explosion, indiscriminate felling of trees for timber, over exploitation of firewood for fuel and charcoal,

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clearing of land for agricultural expansion and industrial development have exposed the land to rapid soil organic matter decomposition, accelerated water and wind erosion, flooding, land slide, desertification and threat of extinction of economic trees (Adedire, 2007). These hazards result in environmental degradation and make sustainable agriculture increasingly difficult.

To work effectively, forest resources management must be biologically as well as economically

through small-scale village based farmers' participation has been identified as a feasible solution. This study analyzed the factors that influences farm-level tree planting in Maigatari local government Jigawa State. Five (5) communities from amongst the communities in Maigatari LGA Jigawa state were randomly selected, 20 respondents/farmers from each of the communities were then randomly sampled. Data collected through structured questionnaires and interviews were analyzed using frequency distribution such as mean and percentage while chi-square test was used to establish the relationship between community participation (dependent variable) and socio-cultural, economic and environmental factors (independent variables). The results shows that majority (53%) of the respondents were above the youthful age, and most of them were male, only few (28%) of the respondents have no formal education whereas many (52%) possess either secondary (32%) or tertiary education. 82% of them have 1-10 persons in their household. The results indicated that only one factor significantly determined farmers' intention to plant trees, which is their recognition of environmental consequences of deforestation. However, desertification was identified by most of the respondents as the major consequence of deforestation. One of the major factors that affect farmers' decision for planting or not planting trees is the damage caused by animals and humans, especially during dry season when farmlands were left for grazing animals. Thus, this study recommends that government should ensure that factors which determine farmers' reasons for planting or not planting trees were addressed for sustainable farm forestry.

Keywords: Farm level, Tree planting, Maigatari, Afforestation

sound. Management of forest resources refers to the application of business methods and technical forestry principles and techniques to the management of forest properties. This is concerned with efficient planning so that a forest is made to provide the greatest benefits that are possible to obtain. Like the management of any enterprise it clearly includes the organization and conducts of all operations that are needed to fulfill the purposes for which it was established. Management must ensure that the forest is maintained so that overcutting and undercutting do not occur. Management also ensures that correct records of operations are kept.

Many countries have taken steps to arrest the rate of deforestation through programmes such as afforestation, domestication of medicinal plants and protection of threatened species. Attempts to create awareness about tree planting started around the late thirties especially in the northern parts of Nigeria (Adegbehin *et al*; 1998).

In 1985, a consortium of international agencies including the World Bank and World Resources Institute, unveiled a far-reaching strategy to halt the destruction of forests in the third world. The report stressed that the destruction of forest was having a profound impact on the third world food production and as such recommended that policies should be established to encourage local participation in rural afforestation programme and natural forest management (Bertus *et al*; 1991).

Project approaches to development remain a vital instrument by development agencies to reach and assist poor communities in the developing world. Development interventions in the past have tended to focus on resource and knowledge transfer to beneficiary communities through the 'top-down' approach (FAO, 1991). Several decades of development funding have demonstrated the failures of the 'top-down' approach to reach and benefit the rural poor (Cernea and Ayse, 1997). This realization has led to the adoption of the 'bottom-up' approach to development. However, despite the recent upsurge in the 'bottom-up' approach to development, project beneficiaries are still not fully participating in the identification, planning, implementation and monitoring and evaluation of projects that are meant to improve their lot (Blackman, 2003). Even when an element of 'participation' is built into projects, it is all too often largely in

terms of local investment of labor and not in real decision-making. Beneficiary communities are only informed after plans have been made and that this is done through formal meetings where the officers justify their plans but modification is not considered (APO, 2002). Limited community participation in the implementation and management of projects means that the projects have few chances of sustainability (Rahmato, 1991). Lack of reliable data on effective community participation in development projects constitutes a major constraint to rural development practitioners such as policy-makers, planners and managers. This frequently leads to incorrect assessment of the development needs of rural people hence, making it difficult for governments and development agencies to properly measure progress achieved by development projects in improving livelihoods of rural communities (FAO, 1991; Karki, 2001). This often leads to poor performance of the projects and eventual failure. Recognizing the central role of communities in the project cycle, it is important for project donors/sponsors (Government, Private or Non-Governmental) to involve all stakeholders in the design and implementation of afforestation projects so as to ensure beneficiary ownership and also to instill virtues of accountability, transparency and sustainability. Active participation of beneficiaries in project design and implementation will also enable donors/sponsors to identify and address the factors leading to poor community participation in afforestation projects (James, *et al.* 2010). Such as awareness and inclusion of the affected people's felt needs.

Ananda (2004) reported that, the success of participation can be evaluated against several 'social goals' such as incorporating public values into decision making and resolving conflict among competing interests.

Enthusiasm is the driving force that can move a programme away from paternism to increasing participation. This may occur in both decision-making and programme execution. Participation can provide tremendous advantages for development programme. Involvement of local people helps to ensure that the programme will respect local cultural values and will be continually oriented towards the people's felt need. Participation is the cooperation of farmers in the execution of the

extension programmes by attending extension meetings, demonstrating new methods on their farms and listening to different farmers in order to understand their needs, goals and opportunities through consultation (Van den bau and Hawkins, 1996). For a successful participation, it is desirable that ordinary farmers gain insight into decision made for the extension programmes. Effective participation begins with participatory efforts being developed as a process to fit the rhythms of local communities and within a time frame long enough to ensure continuity.

The objective of this paper is to determine the socioeconomic factors influencing farmers' decisions to participate in voluntary afforestation.

METHODOLOGY

Study area

Maigatari (coordinates: 12°48' North, 9°27' 5" East) is a Local Government Area in the north of Jigawa State, Nigeria, bordering on the Republic of Niger. Its headquarters are in the town of Maigatari. It has an area of 870 km² and a population of 177,057 at the 2006 census. Maigatari experiences semi-arid climate with average annual temperature of 25°C but mean month values range between 21°C in the coolest and 31°C in the hottest month and average annual rainfall is 418mm. the driest month is January and precipitation reaches its peak in August averaging to about 169mm.

Sampling Techniques

The target population of this study are the people of Maigatari local government, there are 11 wards in Maigatari Local Government these comprises of Maigatari Arewa, Maigatari Kudu, Matoya, Turbus, Galadi, Fulata, Madana, Dankumbo and Kukayasku. However only five wards were randomly selected for the purpose of this research, this is due to limited time and resources available to the researchers, the villages selected were Maigatari Arewa, Matoya, Galadi, Madana, and Kukayasku. However, in each of the villages above, 20 people were randomly selected, thereby making 100 people sampled out of the population.

Data collection and analysis

Data was collected using a standardized questionnaire, interviews and focus group discussions. The questionnaire contained structured and unstructured questions. Structured questions were accompanied by a list of all possible alternatives from which the respondents were able to select the answer that best described the situation. Where it was impossible to exhaust all categories, the study included a category 'other specify' to take care of those responses. In unstructured questions, the respondents were given the freedom of responses. In addition to the questionnaire observation and secondary data were used for this research work; written records like lecture series, national seminars on Afforestation in Nigeria, text books, journals and magazines etc. were also used

Data gathered was analyzed using descriptive statistics; The Chi-square (X^2) test was used to establish the relationship between farmers intention (dependent variable) and socio-cultural, economic and environmental factors (independent variables) and also to test the strength of the relationships between the independent and dependent variables.

Results

CHARACTERISTICS	FREQUENCY	PERCENTAGE
1.0 Age		
50 Years and above	13	13%
40 – 49 Years	40	40%
30 – 39 Years	28	28%
20 – 29 Years	19	19%
Total	100	100%
2. Sex		
Male	85	85%
Female	12	15%
Total	100	100%
3. Educational Qualification		
Non Formal Education	28	28%
Primary School	20	20%

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Secondary School	32	32%
Tertiary School	20	20%
Total	100	100%
4. Farm Size(Hectares)		
1-5	46	46%
6-10	27	27%
11-15	18	18%
16 above	09	09%
Total	100	100%
Family Size		
1 – 5	36	36 %
6 – 10	46	46 %
11 – 15	16	16%
16 and above	02	02 %
Total	100	100%

Source: Field survey 2017

Table 2. Cross-tabulation of farmers Age Group and Intention to plant trees

	Intention to plant trees		
Age Group	**Strong**	**Weak**	**Total**
20-29	10	9	19
30-39	16	12	28
40-49	32	8	40
50-59	8	5	13
Total	**78**	**22**	**100**

Source: Field survey 2017

Table 3. Cross-tabulation of farmers Educational Status and Intention to plant trees

	Intention to plant trees		
Education	**Strong**	**Weak**	**Total**
Non formal	18	10	28
Primary	17	3	20
Secondary	28	4	32

Tertiary	15	5	20
Total	**78**	**22**	**100**

Source: Field survey 2017

Table 4. Cross-tabulation of farmers House Hold Size and Intention to plant trees

	Intention to plant trees		
House Hold	**Strong**	**Weak**	**Total**
1-5	25	11	36
6-10	36	10	46
11-15	15	01	16
16 above	02	00	02
Total	**78**	**22**	**100**

Source: Field survey 2017

Table 5. Cross-tabulation of Environmental Problems and Major Reasons for Planting trees

	Major Reasons for Planting				
Environmental Problem	**Wind Break**	**Fuel Wood**	**Shed**	**Income**	**Total**
Wind Storm	10	12	2	4	**28**
Desertification	8	25	3	17	**53**
Climate Change	0	2	5	5	**12**
Others	0	3	3	1	**7**
Total	**18**	**42**	**13**	**27**	**100**

Source: Field survey 2017

Table 1 shows that 40% were at the age of 40 - 49 years, 28% were at the age of 30 - 39 years while the remaining 13% of the respondents were at the age of 20 - 29 years.

Majority (85%) of the respondents were male while only a few (15%) were females.

About 48% of the respondents have little (20%) or no (28%) formal education while only 20% of them had tertiary qualification.

About half (46%) of the respondents cultivates about 5 hectares, many others (27%) cultivates about 10 hectares, 18% cultivates about 15 hectares while 9% own above 16 hectares.

About 82 percent had between 1- 5 (36) percent and 6 – 10 (46) percent family sizes while only 2 percent had 16 and above family size.

Majority (78%) of the respondents indicated their strong willingness to plant trees; cross tabulation between farmers' age group and intention to plant trees indicated no relationship existed between the two variables, similarly, farmers educational background was found to have no relationship with their intention to plant trees (table 2). Also size of farmers household was not related to their intention to plant trees (Table 3).

The researchers also carried out cross-tabulation between the Environmental Problems identified by the respondents and their Major Reasons for planting trees. The intention here was to find out whether the respondents' recognition of threats from deforestation had any influence on their intention to plant trees. Majority (53%) of the respondents indicated Desertification as the major consequence of deforestation, and most (42%) of their intention to plant trees is to stop desertification and serve as sources of fuel wood for their household energy requirement (Table 4).

Discussion

The results shows that majority (53%) of the respondents were above the youthful age (>40 year old), This signifies that higher percentage of the respondents are among the community elders, they have more experiences on impact of deforestation and thus if motivated to plant more tree they can help in making impact for younger generations to also pick interest on whatever can boost their economy and wellbeing. Such age group may therefore be willing to participate in afforestation programme that will improve the heir income level and protect their environment. Maskey et al. (2003) on a study in Ludi-damgade, Nepal. observed that older people tended to participate more in the community forestry programmes than younger people. This current study also found that most of the respondents were male, this is not surprising because cultural beliefs have put some hindrances on active

participation in farming for female in the study area. A study by Ogunmefun and Achike (2015) reveals similar results with majority of the respondents (46.1%) above 50years old and most of them were male, they further explained that this is as a result of the fact that the study area is an agrarian society where wealth is measured by the large size of one's land and the amount of produce one can come up with each season. In a society where women are mostly not allowed to own land and other fixed assets, men possess the much access to own these fixed assets, which therefore gives them (men) a huge advantage over their counterparts (women).

Although only few (28%) of the respondents have no formal education whereas many (52%) possess either secondary (32%) or tertiary education, respondents' level of education has no effect on their decision to plant or not to plant trees. 82% of them have 1-10 persons in their household, his implies that for most of the respondents, labor may not be limiting factor if they decided to plant trees, they can utilize family labour to execute farm work, and hence farm forestry. In contrast, a study on community participation in social forestry in Zathila and Betaga villages in Gazipur, Bangladesh, by Chowdhury (2004) found out that people's level of education influenced their participation in forestry projects, while a study on community participation in projects in India by Jakariya (2000), similarly, observed that peoples' participation was influenced by educational level.

The results indicated that only one factor significantly determined farmers' intention to plant trees, which is their recognition of environmental consequences of deforestation. Desertification was identified by most of the respondents as the major consequence of deforestation. A study by Chowdhury (2004) in Zathila and Betaga villages in Gazipur, Bangladesh, observed that 69% of the respondents participated in social forestry because of anticipated environmental benefits. Farmers with soil erosion problems on their land are much more likely to plant trees as a conservation measure (Pattanayak *et al*. 2003; Mercer 2004). However, one of the major factors that affect farmers' decision for planting or not planting trees is the damage caused by animals and humans, especially during dry season when farmlands were left for grazing animals.

Conclusions

The results indicated that one single factor that significantly determined farmers' intention to plant trees is their recognition of environmental consequences of deforestation. Desertification was identified by most of the respondents as the major consequence of deforestation. Although respondents are ready to plant trees, one of the major factors that affecttheir decision for planting or not planting trees is the damage caused by animals and humans, especially during dry season when farmlands were left for grazing animals.

The research reported here suggests that unless problems related to marketing, lack of nurseries,

Recommendations

It is becoming almost certain that the era of forest reservation in Nigeria is almost gone. The next and only viable option for forestry development and afforestation is to encourage the communities to take active part in the prevention and control of deforestation. The cost of controlling deforestation is great, but that of ignoring it is greater.

This study recommends that government should ensure that factors which determine farmers' reasons for planting or not planting trees were addressed for sustainable farm forestry.

To encourage community participation in afforestation on their farmlands short term income generating tree species including those used traditionally by the communities for products that fulfill many of their domestic need should be encouraged and be Compatible with agricultural crops.

REFERENCES

Adedire, M.O. (2007). Tropical Deforestation; A. Threat to Sustainable Forest and Wildlife Management Convocation Lecture delivered to mark the 41st and 43rd Join Convocation Ceremony of Federal College of Wildlife Management New Bussa at the Federal College of Forestry, Ibadan. 2.p.

Adegbehin, J.O. Gbadegesin, R.A, Dauda, C.K., Uyobi Sere, E. Nasiru, M. Aribido, S.O. and Akpoko, J.G. (1998). A survey of Farmers Response to tree planting campaigns in Kaduna State. The Nigerian Journal of Agricultural Extension, 11 (1 & 2) 135.p.

Ananda, J. (2004). Implementing Participatory Approaches in Formulating Regional Forest Policy International Journal of Sustainable Development, p. 399 – 404.

Asian Productivity Organization (APO) (2002). Participatory Project Cycle Management (PPCM): A Planning Method for Community Development.

Bertus, H., Johan U.K. and Waters – Bayers A. (1991). Joining Farmers Experiments.Intermediate Technology Publications 6 – 29.p.

Blackman R (2003) Project Cycle Management. Tearfund. Teddington, England.

Cernea MM, Ayse K (1997). Social Assessment for Better Development: Case Studies in Runia and Central Asia. Washington DC. The International Bank for Reconstruction and Development. The World Bank.

FAO (1991). Plan of Action for People's Participation in Rural Development: Twenty-Sixth Session, FAO Conference. Rome, 9-28, Nov.

Ikojo, H.A. (2008). Deforestation and Its Consequences for the Nigerian Environment. In: Ezike, K.N.N, Osakwe, I.I, Ekwu I.G., Utobo, E and C.N. Mbah (eds). Agricultural Development in Nigeria: Issues and Challenges. Proceedings of the 42nd Annual Conference of the Agricultural Society of Nigeria (ASN) held at Faculty of Law Auditorium, CAS Campus, Ebonyi State University, Abakaliki, Nigeria October 19 – 23. 387 – 389.p.

James N. Maraga, Jacob K. Kibwage and Boniface O. Oindo (2010). Factors determining community participation in afforestation projects in River Nyando basin, Kenya. African Journal of Environmental Science and Technology Vol. 4(12), pp. 853-859, December 2010 ISSN 1991-637X ©2010 Academic Journals Available online at http://www.academicjournals.org/AJEST

Karki M (2001). Institutional and Socio-Economic Factors and Enabling Policies for Non-Timber Forest Products-Based Development in North East India. Paper presented in the Pre-Identification Workshop for NTFP-led development in NE India, organized in IFAD, Rome: Feb. 22-23.

Maskey V, Gebremedhin TG, Dalton TJ (2003). A Survey Analysis of Participation in a Community Forest Management in Nepal. Res. Paper 8.

Ogunmefun S.O. and Achike A.I., (2015). Socioeconomic Characteristics of Rural Farmers and Problems Associated with the Use of Informal Insurance Measures in Odogbolu Local Government Area, Ogun State, Nigeria RJOAS, 2(38), February 2015

Pattanayak SK, Evan Mercer DE, Sills EO, Yang J, Cassingham K. 2003. Taking stock of agroforestry adoption studies. Agrofor Syst. 57(3):173–186. doi:10.1023/A:1024809108210.

Ravallion, Martin and Shubham Chaudhuri (1996), "Risk and Insurance in Village India: Comment," Econometrica.

Van den Bau A.W. and Hawkin H.S. (1996). Agricultural Extension – Second Edition. lackwell Science Limited, p. 219 – 220.