THE ROLE OF EXTENSION AGENTS ON FOREST DEVELOPMENT IN WUKARI, LOCAL GOVERNMENT AREA, TARABA STATE, NIGERIA

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Abstract: This project work was brought up to investigate the impact played by extension Agents on forest development in Wukari Local Government Area of Taraba State as a case study. Three research questions were raised to capture the impacts played by extension agents in ensuring forest development and questionnaires is used to elicit information from the respondents which are farmers in the study area. The questionnaire was divided into three parts, A, B and C. The part A was set up to ask questions on the social characteristics of the respondents, part B was set to ask questions that will elicit the roles of the extension agents, while part C is set to answer questions on the challenges encountered by the extension agents and the farmers. Multistage random sampling was used to select the respondents in just one local government (Wukari) by diving the study area into five different Wards. Sixty (60) Respondents are randomly selected and used for the study. Structured questionnaire was used to obtain the necessary information, Data were analyzed using Descriptive Statistics and were Presented using Frequency Tables, Percentages, Pie charts and Bar charts. From the results obtained, 65% of the respondents are residents in wukari been the study Area, the study found out that 56.7% felt reluctant to carry out tree planting because the benefits has not been made known to them as at this time, 45% of the farmers embarked on planting of Gmelina arborea seedlings, it also revealed that at 53.3% of the farmers got their seedlings from the forest nursery. I recommended that, More extension agents should be employed under our forestry sector to enhance effective passing of information to the rural community that are lacking behind on what forest development and conservation is all about, government should provide the necessary support needed by the extension agents in carrying out their duties, Farmers should be encouraged on daily basis on the need to practice afforestation to save the present and future generation from natural disaster like global warming, erosion, soil degradation, forestry development programes should be set up to serve as a reminder to Farmers in the community on the need and benefits of conserving forest resources and also need for women participation in extension Work.

Keywords: Extension Agents, Forest Development, Tree Planting, Conservation Improvement, Farmers Participation.

Introduction

1.1 Background of the Study

Extension is the dissemination of relevant information and advice to farmers and a mechanism for delivering information and advice as an input in modern farming. According to *Onumadu et al.* (2001), extension education is regarded as one of such wide educational inputs designed for farmers to help themselves. Williams *et al.* (1984) as cited by Onumadu *et al.* (2001) maintained that extension education is a voluntary out-of-school educational program for adults comprising relevant content derived from research in the physical, agricultural, biological, and social sciences and synthesized into a body of concepts, principles and procedures. Forestry extension programs are designed to meet the needs of small- scale farmers through agro-forestry technology, conservation of small-size log and wood processing technology, scientific information about biodiversity and new concepts in conservation. This can only be achieved with aggressive forestry extension.

Improved information, analysis and research are required to enable forest managers to meet the current challenge. Even official forest data are suspected by those knowledgeable about the field and the manner in which data are collected or submitted is debatable (Salim and Ullsten, 1999; Agbogidi and Ofuoku, 2005). For example, the forestry department of the ministry of environment gave unreliable data to the students of forestry who were doing a survey study. This happens in a situation where the number of trees harvested cannot be accounted for as a result of illegal felling by forest raiders. The implications of forestry research and extension include to; foster clear awareness of and concern about economic, social, political, and ecological interdependence in urban and rural areas. It also provides every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment and create new patterns of behavior in individuals, groups, and society as a whole towards the environment, Forest regeneration and conservation.

Forestry extension program involve training activities for communities through short–term courses, field visits and practical demonstration in specific areas and disciplines including tree tending techniques, maintenance of hand tools, sustainable harvesting practices, interrelationships of the forest components etc (Roger,1971; Oladele, 1996; FAO, 1997; Eke, 2001).

In-service training for professionals and managerial staff are necessary to keep pace with technical and methodological developments. Refresher training is also advocated because of its inherent benefits. In the area of technical and vocational education, existing facilities in forestry schools, forestry institutes etc, need to be improved to keep up with developmental and technological changes. The acceptance of information by farmers to a larger extent depends on the use of appropriate links for messages relevant to their needs. There is a growing need for more

social science research into the interactions between demands from society, policy development and implementation and forest functions and management. Education in forestry has to shift from forests in isolation to the relationship between forests and society, with attention to other land users and diverse user groups as obtainable in the Netherlands (Bartelink *et al.,* 1996). Training could be regarded as an extension tip, which could be greatly explored as a communication method where agricultural development project (ADP) collaborates with other institutes to organize such training. The role of an extension agent is very crucial to the farmers. They serve as link between research and farmers bringing information of new improved technologies from researchers (Oladele, 1991). Research and extension efforts should be devoted to be complex, diverse and risk proved areas where many of the poor live. Effective and detailed forestry research and extension are required for technical communications for forest technology.

Our forests cannot be protected and conserved unless extensionists can demonstrate to the local people that they can make a reasonable livelihood from the forests on a sustainable basis. The best way to protect the forest and its vast diversity is to create awareness among local inhabitants of their value and involve the people in protective measures through extension. Aggressive forestry extension is a must if sustainable forest management (SFM), which has always been the goal of foresters, is achievable (Agbogidi *et al.,* 2005). Agbogidi *et al.* (2005) further maintained that now that forestry as a profession has many more concerns including biodiversity conservation, community participation etc and the need for forestry extension at all levels cannot be over emphasized. In the same vein, given the changing nature of the challenges facing SFM in the tropics including Nigeria.

Forestry extension will enable the populace to know that forests will be better enjoyed by sharing their benefits if sustainably managed (Ogunwale *et al.,* 2006). Loss of genetic diversity and tropical deforestation according to Kola-Olusanya (2000) and Agbogidi and Dolor (2002) can better be solved through aggressive environmental extension. Kola-Olusanya (2000) posited that earth habitat destruction and poaching have become major threats to the continued existence of many plant and animal species. Climatic changes are fall outs by our environmental mismanagement by man (Onumadu *et al.,* 2001). Onumadu *et al.* (2001) and Adeodun *et al.* (2005) stressed that environmental forestry coupled with an aggressive extension education stands out as the best option for combating environmental degradation.

Material and Methods

3.1 Research Design

Wukari Local Government has a Population of 241,546 (Census 2006). And made up of 15 Wards.

Consideration of 10% of this Population which is 24,154.6 as Sample Size to be Distributed was considered as too Cumbasome and Costly for this Research, Therefore, 60 Questionnaires was Randomly Distributed among five selected Wards in Wukari as Sample size.

According to Clark and Hosking (1986) while recognizing that Certain Statistical Test Require a Reasonable Sample Size, Stated that Low Maximum Can be Stated But in most Situations, a Sample size of 30 is Reasonable.

3.2 The Study Area

Wukari Local Government Area is one of the 16 local government in Taraba State created in 1976 and its divided into 15 traditional administrative district which include; Wukari, Rafin Kada, Chonku, Kente, Marta fada, Avyi, Gidan Idi, Nwokyo, Chinka, Tsokundi, Jibu, arufu, Bantaje, Assa, and Akwana. Its headquater is sited in the town of Wukari on the A4 highway. Donga river flows through the area and river benue form a boundary with Nasarawa State to the Northwest. It occupies an area of 4,308km2 and the population of 241,546 (Census 2006).

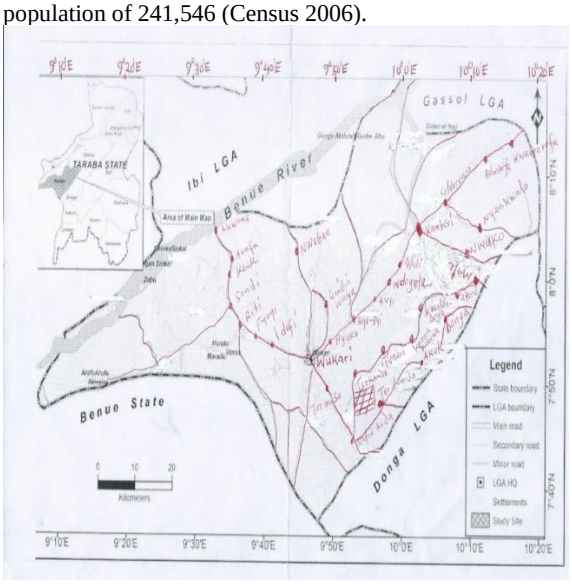

Figure 1. Map of Wukari Local Government Area.
Source: ministry of land and survey Taraba State.

3.3 Sources of Data

The data for this study was collected through primary sources. The Data was collected by the use of structured questionnaires and also through oral Interview.

3.4 Method of Data Collection

The method that was employed in data collection was structured questionnaire to the respondents.

The questionnaire was divided into three sections:

(1) Social economic characteristics of the respondents.

(2) The role of extension agents.

(3) The problems encountered by extension agents and Farmers.

3.5 Data Analysis

Data generated was analysed using descriptive statistics, such as, Frequency tables, Histograms, Means and Percentages.

3.6 Sampling technique and Sampling Size

Multistage Random Sampling was used to select the number of Wards in the Study area for the onward administration of the questionnaires.

The number of questionnaires administered in each Ward was based on the population using method of proportional allocations techniques (Cochran, 1977). The model is stated as follows:

$nh = Nh \times n/N$

Where nh = Number of questionnaires administered in each Sampling ward

Nh = Estimated population of people in the ward
n = Total number of questionnaires administered
N = Total number of people in all Sampling ward

3.7 Sampling Tool

Sixty (60) Structured questionnaires were administered by Randomly selecting respondents from five Ward.

Results and Discussion

4.1 Socio-Economic Characteristic of the Respondents

The table below show the sex, age, marital status and level of education of the respondents in the study Area.

Table 4.1 Socio-Economic Characteristics of Respondents

Variables	Frequency	Percentage (%)
Sex		
Male	40	66.7
Female	20	33.3
Total	**60**	**100**
Age		
10 – 20	-	-
21 – 30	20	33.3
31 – 40	31	51.7
40 above	9	15
Total	**60**	**100**
Marital status		
Married	23	38.3
Single	20	33.3
Separated	8	13.3
Widower	8	13.3
Widow	1	1.8
Total	**60**	**100**
Level of education	-	-
Primary	21	35
Secondary	38	63.3
Tertiary	1	1.7
Others	**60**	**100**
Total		

Source: Field Survey (2021).

Sex

The survey result in Table 4.1 above indicates that, 66.7% of the total respondents are male while 33.3% are female. This implies that extension work is dominated by males. The domination of extension work by males could be as a result of some practical aspects of extension work which may involve trekking long distance into the forest in search of wildlings for planting to display practical examples for the farmers. Therefore, the energy, time and effort required to collect wildling from the forest or raise seedlings in the nursery are considered and most women cannot be actively involved in the practice. the number of female extension agents is lacking; this research is in line with the results of the study by Hernanda *et al* (2015). Female extension agents need to be increased in number because females are very instrumental in helping family farming. That women have an important role in extension activities. Its role lies in the communication skills and different approaches of farmers and women farmers Van & Ban (1998). The work of extension agents was still dominated by males, whereas the presence of female extension agents was very important. This is due to the contribution of female agents in the implementation of extension activities, Viantimala and Gitosaputro (2012).

Age

The result in table 4.1 above revealed that, the age group of 31-40 has the highest number of respondents with 51.7% of the total respondents followed by the age group of 21-30 with 33.3%, and the age group of 40 above with 15% while 10-20 is 0. all respondents are in the productive age in accordance with BKKBN (2013) which states that the productive age is between 15-64 years. The overall age range of extension agents is dominated by ages 31-41 years (51.7%) [7years

Marital Status

From the table 4.1, the result on marital status of the respondents shown that, 38.3% of the total respondents were married, 33.3% were single, 13.3% were married but separated while 13.3% of the total respondents are widower and 1.8% were widows. This indicate that majority of the extension agents in the study area were married with 38.3%.

Level of Education

From table 4.1 above, the result revealed that, tertiary education had the highest number of respondents with 63.3% of the total respondents followed by secondary education which constitute 35% of the total respondents while others constitute 1.7% and no primary education was found. This implies that, there is Improvement in educational qualification of the extension agents in the study area. The study disagrees with the study of Oluwale and Onwubuya (2017) who revealed literate with only few (5.8%) with higher degree in the study Area, this implies that most of the extension workers do not improve their educational qualification and this is not encouraging because education is an agent of social change. The delay in upgrading of their knowledge and skills could also result in a lack of innovative ideas which could also indirectly encourages the use of obsolete approaches that are neither relevant nor beneficial to the clientele

4.2 Extension agent

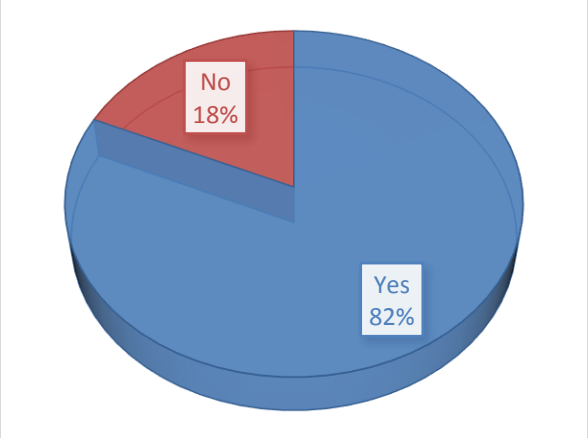

Fig. 1: Pie chart showing the percentage of Extension agents in the study area.

The result above indicates that 82% of the total respondents are extension agent while 18% of the total respondents disagreed that, they are not an extension agent. This implies that, majority (82%) are extension agent in the study area.

4.3 Location of the respondents

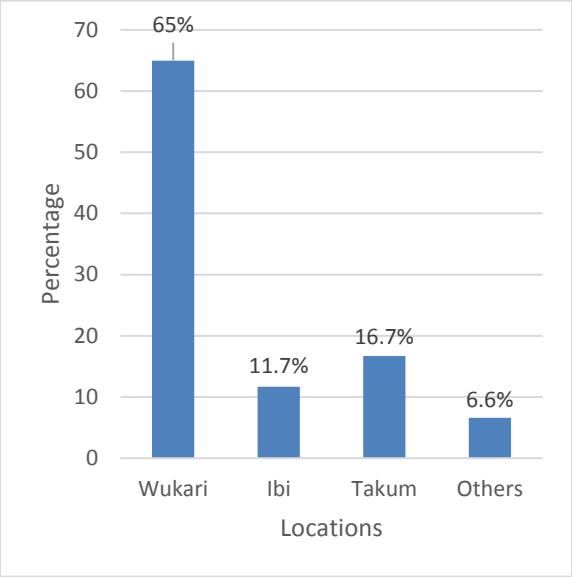

Fig. 2: Bar chart showing location percentage of the Extension agents

The result in Fig.2 above revealed that, 65% of the total respondents were in Wukari, 11.7% are from Ibi, 16.7% of the total respondents are from Takum while 6.6% constitute others from different location. This implies that, most of the extension agent are in Wukari.

4.4 Response of the Farmers to Trees Planting

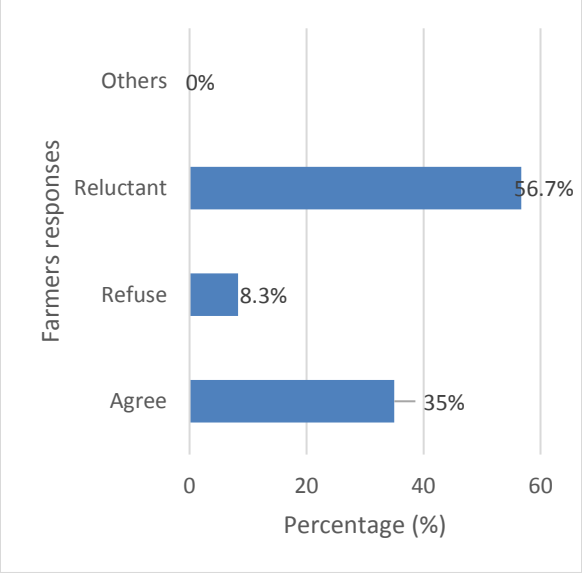

Fig. 3: Bar chart showing percentage response of farmers to planting of trees.

The result in Fig.3, shows that, 56.7% of the total respondents reported that farmers are reluctant in trees planting as advised by the extension agent, 8.3% of the total respondents reported that, the farmers refused to plant trees while 35% of the respondents revealed that farmers agree to plant trees species. This indicates that most farmers in the study area felt so reluctant in tree planting.

The respondents in the study Area felt so reluctant in carrying out tree planting because as at this time the benefits of tree planting has not been made known to them and they felt is a waste of time considering the life span of the tree before reaching it's maturity.

4.5 Types of Trees Species Planted by the Farmers

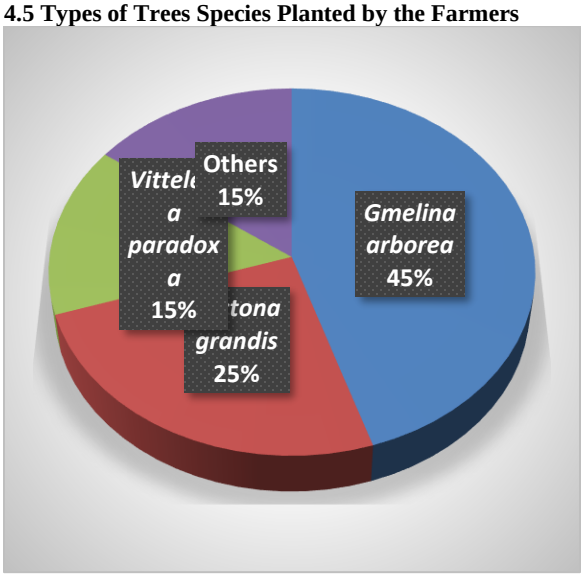

Fig. 4: Pie chart showing trees species planted by the farmers.

The result in the pie chart above (Fig. 4) indicates that,45% of the total respondents revealed that, farmers plant *Gmelina arborea*, 25% of the respondents reported that, the farmers plant *Tectona grandis* while 15% of the total respondents revealed that, farmers plants *Vitteleria paradoxa* tree species and 15% also reported that, farmers plants other trees species. This implies that, farmers in Wukari plant *Gmelina arborea* than other tree species. This species is found most common to grow and strive better in the study area compared to other species and is the most common to be grown with lots of benefits derived from it and it's maturity and time of growth is more shorter and faster, so the farmers in the study Area prefer growing *Gmelina arborea* to other species.

Table 4.2 Sources of Farmer's Trees Species

Variables	Frequency	Percentage (%)
Forest nursery	32	53.3
Open market	15	25
Personal	13	21.7
Total	**60**	**100**

Source: Field Survey (2021)

From the table above, the result revealed that, 53.3% of the total respondents reported that farmers got their plant from the forest nursery, 25% revealed that farmers obtained their seedlings from the open market while 21.7% of the respondents reported that farmers raised the seedlings personally for planting. This shown that most of the tree seedlings used for planting by the farmers are gotten from the forest nursery, its also shown that the farmers are influence by the work of the extension agent of which

some of the farmers were able to key into the work and raised seedlings for planting or source for the tree species to be planted themselves.

Table 4.3 Methods Used to ensure there was no Destruction

Methods	Frequency	**Percentage (%)**
Continuous visit	22	36.7
Enlightment	14	23.3
Seminar	21	35
All above	3	5
Total	**60**	**100**

Source: Field Survey (2021)

The result in Table 4.3 shows that, 36.7% of the total respondents ensured that there was no Destruction of the trees planted by the farmers through continuous visit, 23.3% enlighting the farmers on how to monitored and nutured the plant to its merchantable size or maturity to ensured there was no exploitation while 35% of the respondents organized seminar paper presentations to educate the farmers on how to raised trees or plant to its maturity and to ensure that the plant was not exploited while 5% used all the above methods to ensured there was no exploitation. This implies that, the extension agents performed their role through continuous visit to ensure that the farmers arouse to recognize and take an interest in their problems, to overcome the problems, to teach them how to do so, to persuade them to act on his/her teaching, so that they ultimately achieve a sense of satisfaction and pride in their achievements this study is in line with the study of Benor and Harrison (1984) the extension workers used training and visit (T & V) extension approach in reaching rural women. The training and visit extension management system and ensures that extension agents receive training and visit farmers regularly to transmit messages that are relevant to farmers' production, processing, storage, as well as home management. In this approach the extension worker visits the farmers fortnightly (every two weeks). Brown and Warning (2006) who states the role of extension agents is to improve work practices in the field, at home, in the community and society. Rahim (2008) stated in his study that, the success of extension services depends on the role of extension officers to transfer technology and technical competence in developing farmers to increase their productivity. FAO (2016) also revealed that, Agro Ecosystem Analysis (AESA) is a tool that helps farmers to examine their farm from the aspects of ecology and economics, as well as wider socio-political issues. The analysis is conducted by visiting the farm plots, observing and taking measurements, recording observation, and then comparing and analyzing the information before deciding what to do. AESA and DBL are also used within FFS. They may be used separately, depending on the purpose of learning and development.

4.6 Benefits of Trees planted by the Farmers in their Farm?

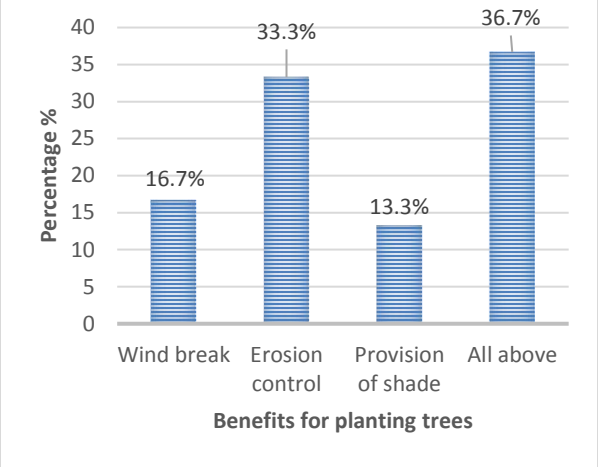

Fig.5 Bar chart showing the percentage Benefits of planting Trees.(Agroforestry practice).

The bar chart (Fig. 5) above revealed that 16.7% of the total respondents indicates that trees served as wind breaker which help in reducing wind speed in the farm, 33.3% shown that trees in the farm control erosion, and 13.3% revealed that trees provide shade for the farmers in their farm while 36.7% also revealed that the benefit all the above mentioned function of trees in their farm. This revealed the acheivement by the farmer through the work of the extension agents in the study area. In similar view, based on studies conducted in Iran by Karbasioun, Biemas and Mulder (2007) claims that agriculture extension services have help extension agents reach a certain level in the field of animal husbandry and veterinary, agricultural inputs and increased fertility and farm size.

4.7 Benefits from Extension Work

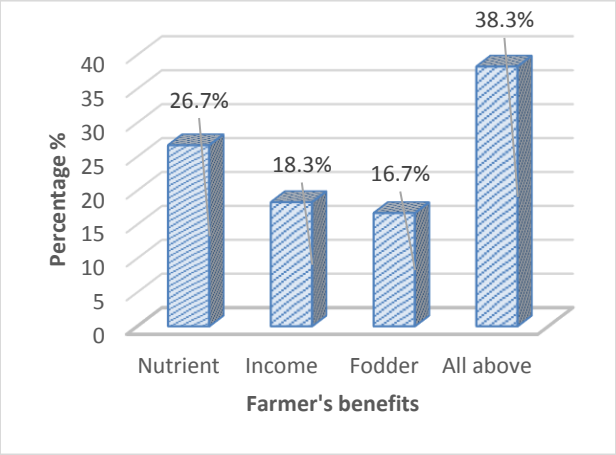

Fig. 6: Bar chart showing the percentage of farmers benefits on extension work

The result as presented in the fig 6 above revealed that 26.7% of the total respondents reported that the farmers revealed that increased in soil nutrient is the benefit of planting trees as educated by the extension agent through extension work, 18.3% of the respondent said farmers also

reported that they generate income in from planting and also the products of the trees, 16.7% also reported that trees serve as a sources of fodder for livestocks while 38.3% revealed that all of above are the benefits of planting trees. This indicates that planting trees is very beneficial that is the extension agents play a vital role in educating the farmers on tree planting in the study area. In similar view, Davis *et al*, (2012), Cost benefit evaluations in Kenya, Uganda and Tanzania reported that FFS positively impacted yields by 60 percent, and improved income and participation by women and low-literacy farmers. The role of extension in training and dissemination of knowledge and innovation is critical to minimizing the problems of poverty, hunger and improving livelihoods (Chikaire, Nnadi, Nwakwasi & Ejiogu-Okereke, 2011).

4.8 Techniques used by Extension Agents for Effective Communication with Farmers

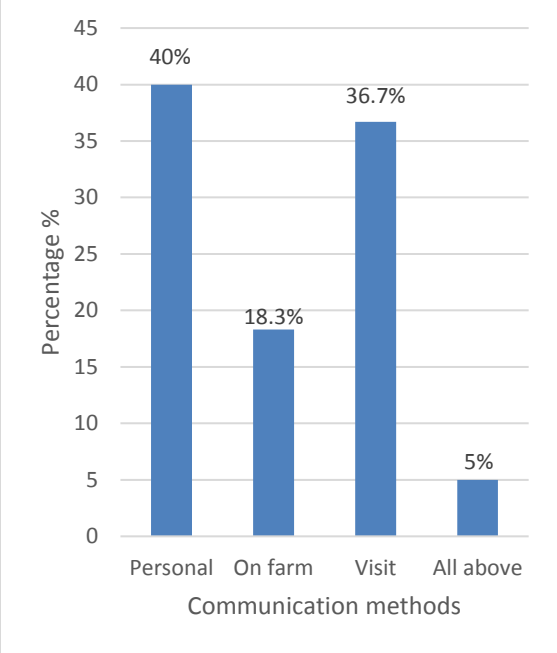

Fig. 7: Bar chart showing percentage of communication methods used by extension agents

The survey result in the bar chart above shown that 40% of the total respondents revealed that one on one communication method (personal) was adopted to educate the farmers on tree planting, 18.3% said they followed the farmers to their farms to educate them on tree planting while 36.7% of the total respondents said they meet with the farmers at their various home to educate them on tree planting and 5% of the respondents reported that all of the above methods were adopted to educate the farmers on tree planting. This implies that personal communication is more effective in educating the farmers on tree plantimg in the study area. This result agree with the study of Okunade (2007) who indicated that face to face meetings were determined the most important individual teaching method in enhancing capacity innovation. The individual contact method is considered to be important tool to help farmers to adopt a new technology. This may be as a result of the nature of the methods of giving information and deeper understanding of the innovation concerned

The study is not in line with the study of Spence (2010), it is also stated that the Ministry's staff are often engaged in many administrative activities, which result in agents spending less time on actual advisory duties, rendering them unable to assist farmers in solving problems. These factors have resulted in unsatisfactory growth and development of the agricultural sector and as such its contribution to GDP remains low (Qamar, 2013). To overcome these deficits in Trinidad and Tobago, new tools and techniques are being applied. The ensuing impact is the evolution of a system that employs group and mass methods using multiple communication techniques and adult education practices.

4.9 Challenges encountered by the extension agents

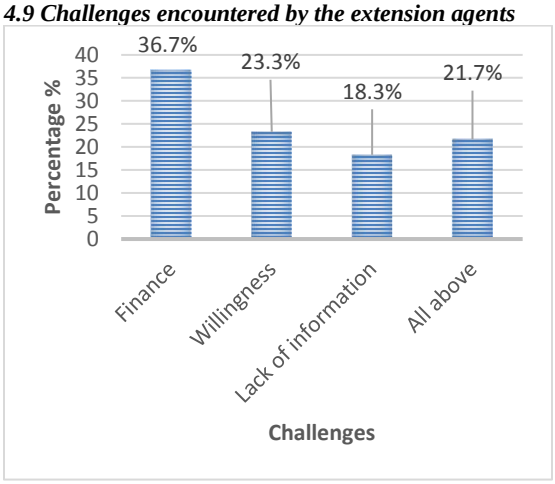

Fig. 8: Bar chart showing the percentage of the challenges encountered by the extension agents.

From the bar chart above, the result of this finding revealed that, finance is the major challenge of the extension agents in the study area with 36.7% of the total respondents, 23.3% revealed that willingness of the farmers to partispate in the extension work is a major challenge of the extension agent while 18.3% said, lack of information is the challenge of the extension agents and 21.7% said all of the above are the major challenges of the extension agemts. In similar view Oluwale and Onwubuya (2017) reported that, Motivation is a very important tool for extension services. These extension workers can be motivated by paying them promptly, for nobody is expected to work hard when he is not paid well. This motivation can also be done by providing a favourable working condition for them, like regular promotion, or by provision of mobility. Extension workers' commitment to their work could dependent on motivation whether intrinsic or extrinsic motivation. So when the extension workers are not properly motivated, they will lack the enthusiasm to carry out their work effectively, hence making it difficult for them to reach the rural women farmers in such situation.

4.10 How did you cope with the extention work?

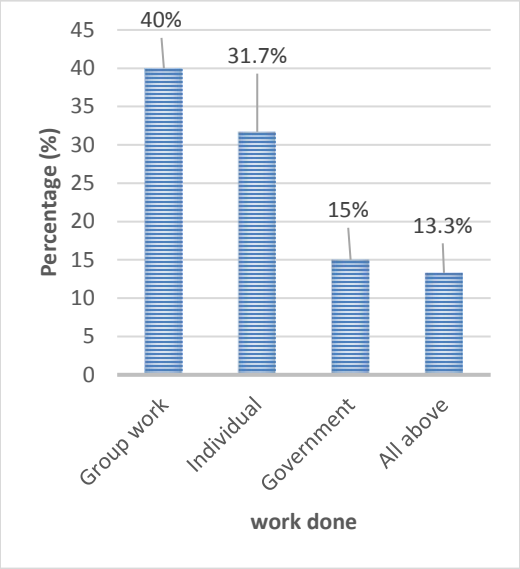

Figure 9: Bar chart showing the percentage of how the extension work is acomplished

The result of this finding revealed that majority of the respondengts with 40% indicated that the extentsion work was carried out through group work, 31.7% indicated that the extension work was carried out individually, 15% revealed that government sponsored the extension work and 13.3% of the total respondents indicated that, the extension work was carried out through all of the allbove ways. This indicates that extension agents in the study area collabrate to carried out extension work in the study area.

Conclusion And Reccomendation

Conclusion

The study sought to access the Role (importance) of extension agents on forest development in wukari Local government Area of Taraba state.

The research findings revealed that most of the extension agents reside in Wukari local government which is the study area and majority of them are males. It was observed that quite a number of the respondent planted different species of tress, but *Gmelina arborea* was the Highest species planted followed by *Tectona grandis* which is very common in wukari local government Area of Taraba state.

The extension agents were able to convince the farmers on the benefits of tree Planting and how it can benefit them and the community in general.

The research also revealed that the extension agents had difficulty in carrying out their duties effectively due to financial constraints, but they still managed to carryout their duties and reached out to the farmers.

The farmers were able to review their opinions regarding the benefits they derived when they embarked on tree planting on their various lands, it is however widely known that the duties of the extension agents can also help develop and improve the forest resources in a sustainable way which will then reduce the problems of deforestation of our forest by man.

From the research the extension agents were able to improve and enhance the community and farmers knowledge on the main reasons why tree planting should be a priority to them in the area, Not just to them but also for the future generation as well.

The study was able to review the challenges likely faced by the extension agents in the community, state and world at large and how it can be resolved for the better.

It is also identified that with the creation of public awareness, our forest resources will be highly improved and conserved without fear of been threatened or destroyed because the benefits of conserving it will be made known to the people.

Finally, the study assessed how vital the role of the extension agents contributes to the communit and the world at large.

Recommendation

Based on the findings of the study the following recommendations are made:

(1) More of the Extension agents or workers should be employed under forestry and agricultural sectors to enhance effective information to the rural communities that are lacking behind on what forest development and conservation is all about.

(2) Government should also do their own parts by providing the neccessary moral and financial supports that will encourage the Extension Agents in carrying out their duties effectively.

(3) Farmers should be encouraged to go into afforestation to save the present and future generation from Natural disaster like Global warming, depletion of ozone layers, erosion, soil degradation e.t.c.

(4) Forest development programes should also be set up in every community to serve as a reminder to the people in the community on the benefits that can be achieved from conserving the forest resources continuously.

And also the need of planting different tree species that is gradually going into extinction should be done for future purpose.

(5) Women should also join the team of extension agents or workers because is not a gender thing, is for the benefits of all, women participation is highly advisable.

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