Original Research Article

Assessment of Forestry Extension Service Delivery among Rural Farmers in Plateau State, Nigeria

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ABSTRACT

This study assessed forestry extension service delivery among forest farm communities in Plateau State, Nigeria with the aim to identify the forestry extension services available to rural farmers; examine the level of farmers' satisfaction with forestry extension service delivery and identify the perceived constraints to forestry extension service delivery in the study area. The population for this study consists of all the rural forest farm families in Plateau State. Due to the enormity of the population, a sample size of 214 respondents was selected. Multi stage sampling technique was used in the selection of sample for the study. Primary data were generated through the use of structured questionnaire and interview techniques. Data collected were analysed using descriptive statistics as well aslikert scale.Results revealed the mean age of the farmers to be 39 years. Majority (61.0%) of the respondents were males with most (85.0%) of them married. Majority (53%) of the respondents had primary education with an average farm size of 2.5 hectares. mean household size 9 persons with majority of them (87.0%) deriving their income from agriculture. A greater percentage (93.0%) of the respondents acquired their farmlands through inheritance. The mean annual income of the farmers was ₦82,742. Forestry extension services available to farmers in the study area include; information on forestry laws, awareness campaign against bush burning, distribution of horticultural seedlings, audio-visual shows, method/result demonstration, information on improved forest management practices, training on raising of seedlings, etc. Farmers expressed dissatisfaction with the level of forestry extension service delivery in the study area. The perceived constraints to forestry extension service delivery in Plateau State includes; lack of funding of extension services and inadequate number of extension agents. The study recommends increase in funding of the Agricultural Development Programmes to alleviate the problems of inadequate staff and insufficient training.

Key Words: Assessment, Forestry extension, Service delivery, Farmers, Plateau state, Nigeria.

1.0INTRODUCTION

All over the world, forests are an inevitable part of every man's life. Forests have provided and continue to provide numerous benefits to humanity including a wide range of important resources required for sustainable development (1).The importance of forests for the survival and well-being of humans cannot be over emphasized. About 1 billion extremely poor people in developing countries depend on forests for part of their livelihoods and security (2). Forests play an important role in economic growth, food

security, livelihoods, rural development and in climate amelioration to sustain our lives.They play an important role in the water cycle, carbon sequestering, as a genetic bank and source of food. Forests stimulate rainfall, protect soils from erosion and regulate the flow of water (3). In spite of the various beneficial functions of forests, it is been threatened with deforestation, forest degradation and fragmentation (4).Deforestation is simply the conversion of forest areas to non-forest areas while degradation is the reduction in the density or structure of forest. Forest fragmentation entails the conversion of a continuous forest area into patches of forest separated by non-forest lands.The area under forest cover has decreased steadily over the years. Forests are increasingly been converted to agricultural land, for industry, housing, and other development activities like the construction of roads, railways, and hydroelectric plants.Forests are also being converted to permanent settlements as a result of increase in human population. Communities living in and around forests depend entirely on fuelwood from forests. Animals usually graze in forests but if their number is large, they hamper regeneration when they trample on the young shoots and seedlings or eat them. In the past when the population was low, the forest could meet the demand and yet remain healthy but the increasing population has severely depleted the forest (5).

Nigeria had formulated and reviewed forest policies from time to time but the measure of success of the policy statements has not been achieved most especially in the area of compliance with forestry laws. Given the changing nature of the challenges facing sustainable forest management in the tropics including Nigeria, forestry education at all levels is recommended. According to (6), 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. Extension is generally viewed as a non-formal educational process aimed at creating desired changes in the knowledge, attitude, skills and behavior of relevant clienteles. (7) defines extension as a professional communication intervention deployed by an institution to induce change in voluntary behaviors with a presumed public or collective utility. Forestry extension could be defined as a system of non-formal education designed to develop among forestry public favorable attitudes toward, and desired capabilities for, forest conservation (8). It is an important tool to expand forest resources in a resources poor country, to protect its dwindling forest resources, and to ensure optimum use of forest resources. Forestry extension should stem primarily from the need to maintain both efficiency and equity in forestry development. Forestry extension (transferring technologies) is the "means" to achieve the "ends" i.e. the adoption of forestry technologies by the villagers for their socio-economic uplift/improvement. Agricultural and forestry extension are always considered parallel activities wherein different institutions are working. In agricultural sector, provision of

services to the farming community in order to improve its agricultural productivity and to improve livelihood on a sustainable basis is the prime responsibility of agricultural extension (9). It promotes the transfer of agricultural technology and innovations in order to improve the livelihood of the end users i.e. the farming community (10). Similarly, forestry extension programmes are designed to meet the needs of small scale producers in forested areas through agroforestry techniques. There are many who question whether forestry extension could or even should be subsumed within agricultural extension. Forestry extension has much in common with agricultural extension and is based on a number of similar principles(11). However, forestry presents different challenges and different emphases from agriculture. The sure way to protect the forest and its resources is to create awareness among local inhabitants of the importance and value of forest and the need to protect it. This would be achieved by way of educating the people of the protective measures through extension.Forestry extension programmes 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 concept in forest conservation and protection (12). This can only be achieved with aggressive forestry extension (13).Forestry extension aims at providing the necessary education, skill and technical information to enable stakeholders put in place friendly practices that engender forestry development at whatever operational level they are involved in. It will enable the populace to know that forests will be better enjoyed by sharing their benefits if sustainably managed (14). Forestry extension has great implications for forest protection and conservation as the importance of the environment and forest ecosystem to human survival can never be underestimated. Therefore, existing and emerging scientific knowledge about sustainable forest management practices need to be communicated to all forestry stakeholders if the present heightened loss of forests and forest resources must be curtailed.

1.1 Statement of the Problem

Nigeria has been trying to address the issue of unregulated exploitation of forest resources and desertification on a multi-dimensional approach. Factors such as deforestation, infrastructural development, fuel-wood harvesting and uncontrolled forest fires as well as overgrazing are generally identified as responsible for the decline in forest settlements. (15) reported that global deforestation is threatening environmental sustainability and that the very high rate of deforestation in Nigeria has detrimental effects. Deforestation puts at risk all aspects of the environment, economy and citizens of the country. Africa has the second highest rate of tropical deforestation in the World(16).(16)alsoopined that the only answer to the problem of reduction in stand quality and quantity is to educate the forest users about the effects of forest degradation and encourage everyone to plant trees. The rapid rate of deforestation in Nigeria is a key driving force in the yearly increase of flood disasters, global warming, ozone layer depletion, land degradation and soil erosion (17, 18).Generally there exist a link between

rural agricultural communities and forest use. Farmers often use a diverse variety of forest products; despite being farmers, they often may know a number of forest species and extract goods from a variety of categories, such as timber, fuelwood, fruits, medicines, etc. Poaching and illegal timber harvesting is still rampant within and around forest reserves. Traders still have their supplies of timber and wildlife resources from the communities. The community people believe that the much that they are able to harvest will translate to more money for them. The danger which this belief is posing is that the sustainability of the resource base is being threatened on a daily basis because the harvesting rate is greater than the rate of natural regeneration of the resource base. The situation in Plateau State, Nigeria is not different from other parts of the country. Habitat destruction, hunting and felling of trees are occurring at such a rapid rate that is fundamentally altering the ecological balance of the area. Human activities have depleted the few existing forests through uncontrolled lumbering, bush burning, charcoal production and so

Government has made several attempts at putting in place programmes that would ensure the efficient management of her forest resources (19). These include the reservation policy pioneered by the colonial administration in the nineteenth century, the establishment of industrial plantations from 1978, and land use and vegetation (LUV) survey between 1975 and 1978. Others include; rural forestry development in Nigeria formulated in 1981, production of perspective plan for the period 1990 to 2005 and formulation of a Nigerian forest action programme (NFAP) in 1997 which was called tropical forests action programme (TFEAP). Most importantly, after the Nigerian civil war, there arose the need to boost agricultural production to meet the rising demand for food. To meet this need, the World Bank assisted Agricultural Development Programme (ADP) was introduced into Nigeria agriculture in 1975. In a joint Federal and State government collaborative effort, the nationwide unified and all inclusive extension delivery systems under the Agricultural Development Programme (ADP) was instituted. The responsibility of transferring agricultural information and innovations to farmers is usually coordinated by government own agricultural extension outfits. Today, each of the 36 States including the Federal Capital Territory in Nigeria has an ADP. In Plateau State, the institution that is central to bringing about the dissemination agricultural information and innovations to farmers is the Plateau Agriculture and Development Agency (PADP). The ADPs operates the Unified Agricultural Extension System (UAES) using the principle of the training and visit (T&V) extension system. The main concept of the system is to have competent, well-informed village extension workers who will visit farmers frequently and regularly with relevant technical messages and bring farmers‟ problems to research.

In spite of all these policies and programmes by the government, there is still high level of indiscriminate felling of trees mostly by farmers through poor agronomic practices leading to high level of deforestation,

desertification, land degradation, emission of green- house gases, climate change and loss of biodiversity. Lack of effective forestry extension service delivery is one factor identified to be responsible for this declining state of our forest resources. According to (20), achieving sustainable forest management will only be possible when sensible rules and regulations are enforced and adhered to. (21) stated that, many people indulge in illegal forest acts due to ignorance, lack of alternative sources of livelihood, the seemingly lucrative nature of illegal acts as a result of the profits made on illegally obtained forest produce without adverse consequences, low ethical standards in the society, and inadequate penalties on offenders. Most of the policies and programmes initiated by government have had limited impact in turning around the precarious state of the forest estates partly because they failed to incorporate effective extension service delivery as a policy objective. The implementation of these efforts rests partly on effective extension service delivery and the farmers who are responsible for adoption of these policies. Preliminary investigation shows that effective forestry extension service delivery which is key to educating and sensitizing the local people on sustainable forest management practices as well as government policies concerning forest use seems to be lacking. In order to halt this negative trend, forestry extension must be recognized and given priority. Effective forestry extension has the capacity to enlighten the forest communities on the inherent dangers their activities pose to the environment thereby stimulating compliance with existing forestry laws and regulations. It would therefore, be vital to strengthen research and education in forest and environmental protection to equip the public and the rural inhabitants adequately for survival. Forestry extension has great implications for forest protection and conservation as the importance of the environment and forest ecosystem to human survival can never be underestimated. Research in extension service delivery especially with respect to forestry extension service in Plateau state, Nigeria is limited and do not seem to have the desired attention as most of the studies conducted focused on agricultural extension.It has therefore become pertinent to bridge this research gap. In view of the above, this study seeks to assess the level of forestry extension service delivery amongst rural farmers' in Plateau State, Nigeria. The specific objectives of this study are to:

1. describe the socio-economic characteristics of the farmers' in the study area;
2. identify the forestry extension services available to rural farmers in the study area;
3. examine the level of farmers satisfaction with forestry extension service delivery in the study area and
4. identify the perceived constraints to forestry extension service delivery in the study area.

2.0 METHODOLOGY

2.1 The Study Area

The study was carried out in Plateau State of Nigeria. Plateau State was created in February 1976 when it was carved out of Benue-Plateau State. It is located in the North Central region of the country referred to

as the Middle Belt. The state lies between latitudes 8° N and 10°N and longitude 7°E and 11°E of the prime meridian (22). The state has a population of 3,206,531 based on the 2006census (23). The projected population by 2019 stands at 4614434 people going by a population growth rate of 2.8% per annum.

It shares common boundaries with Kaduna and Bauchi States to the North, Benue State to the South, Taraba State to the East and Nasarawa State to the West. The State has 17 Local Government Areas and three senatorial Zones. The altitude ranges from around 1,200 meters (about 4000 feet) to a peak of 1,829 metres above sea level in the Shere Hills range near Jos. Years of tin mining have also left the area strewn with deep gorges and lakes. Though situated in the tropical zone, a higher altitude means that Plateau State has a near temperate climate with an average temperature of between 18 and 22°C. Harmattan winds cause the coldest weather between December and February. The warmest temperature usually occurs in the dry season months of March and April. The highest rainfall is recorded during the wet season months of July and August. With 70% of the population being rural dwellers, it is not surprising that 68% of the workforce is involved in agriculture. Apart from cereal crops such as maize, shorgum, accha, millet, etc., the climate of the Plateau allows for the production of vegetables crops such as potatoes, carrot, cowpea, pea and tomatoes.Livestock types found in the state include cattle, sheep, goats, pigs, poultryetc. The state has more than 50 ethnic groups. Each ethnic group has its own distinct language, but as with the rest of the country, English is the official language in Plateau State; Hausa is also a common medium of communication and commerce as is the case in most parts of the North and Middle Belt of Nigeria.

2.2 Population and Sample Size Selection

The population of this study consists of all the rural forest farm families in Plateau State. Due to the enormity of the population, a sample size of 216 respondents was selected. A multi stage sampling technique was used in the selection of sample size for this study. In the first stage, the State was stratified into three (3) agricultural zones namely: Plateau North agricultural zone, Plateau Central agricultural zone and Plateau South agricultural zone. The second stage involved a purposive selection of two (2) Local Governments Areas from each of the agricultural zones for the study. Thus, from Plateau North agricultural zone, Jos East and Bassa L.G.As were selected, Bokkos and Pankshin LGAs were selected from Plateau Central agricultural zone while Shendam and Quanpan L.G.As were selected from Plateau South agricultural zone. These Local Government Areas were selected due to their high concentration of natural forests and plantations. The third stage involved a random selection of two districts from each of the local government giving a total of twelve (12) districts for the study. Thus from Bassa LGA, Miango and Amoh districts were selected. From Jos East LGA, Fursum and Pedere districts were selected. From Bokkos LGA, Mushere and Daffo districts were selected. In Pankshin LGA, Pankshin and Wokkos districts were selected. In Qua'pan LGA, Kwande and Namu districts were selected while in Shendam LGA, Derteng and Dorok districts were selected. Finally, a sampling frame was developed for each of the

selected districts and using proportional allocation, 10 % of the sample frame from each of the districts was drawn to obtain 214 respondents for the study.

2.3 Methods of Data collection and Analysis

Data for this study were generated from primary sources. Primary data were generated from the farm families in Jos East, Bassa, Bokkos, Mikang, Shendam and Quanpan Local Goverments Areas of Plateau State using structured questionnaire and interview techniques. Data collected were analysed using descriptive statistics and five point likert type rating scale. Descriptive statistics such as frequencies, percentages and mean were used to analyze the socio-economic characteristics of the respondents, examine rural farmers access to forestry extension services and identify the forestry extension services delivered to rural farmers in the study area while five point likert scale was used to examine the perception of farmers on the effectiveness of forestry extension service delivery in the study area and the perceived constraints to forestry extension service delivery in the study area.

2.3.1 Likert Scale

The level of satisfaction with forestry extension service delivery in the study area and the perceived constraints to forestry extension service delivery in the study area were analysed using the 5- point likert scale and 5- point likert scale respectively. That is very satisfied, satisfied, neutral, dissatisfied and very dissatisfied. Very satisfied and satisfied were treated as positive perception towards the delivery of forestry extension services by the forestry extension agents, and very dissatisfied or dissatisfied were treated as negative perception towards the delivery of forestry extension services while neutral items showed that farmers knew nothing.A mean of 3.0 was used as cut-off point to determine satisfaction or dissatisfaction of the farmers with respect to each of the satisfaction indicators. Thus, a 5-point graphic rating scale of 1, 2, 3, 4 and 5 add up to 15, which gives 3 as mean, when divided by 5 was usedi.e. 5+ 4+3+2+1=15/5 =3.0. Based on the mid score decision rule, any mean score equal or greater than 3.0 is graded as satisfied. Any mean score less than 3.0 is graded as Dissatisfied.Similarly, farmers perception of the constraint to extension service delivery was measured using a 4-point rating scale of: Strongly Agree (SD) = 4; Agree = 3; Disagree = 2; and Strongly Disagree = 1. Based on the 4-point scale, a mid-point of 2.50 was established thus: 4+3+2+1 ÷ 4. Decision rule was therefore made that any mean score greater than or equal to 2.50 suggests a constraint for forestry extension service delivery, while any mean score less than 2.50 suggests otherwise.

3.0 RESULTS AND DISCUSSION

3.1 Socio-economic characteristics of the respondents

Result in Table 1 revealed that, the mean age of the farmers in the study area is 39 years.This shows that the respondents were young and energetic. Reliance on youth and young people will guarantee the sustainability of any adopted interventions.Age group is very important in the formulation of rural development projects where certain tasks are assigned to certain age group with the consideration of their physical fitness and potentiality.(24) reported that young people are more likely to be better agents for technology adoption and transfer as they may have higher aspiration to accept new technologies compared to older farmers who are skeptical and critical of innovations.

Sex of the respondents reveals that majority (61.0%) were males while only 39.0% were females. Thus, male headed households engage in farming more than female headed households. This could be due to the socio-cultural milieu of the area which gives males the access to production resources like land more than females.

Majority (85.0%) of farmers were married while 15.0% were single. This shows that married people dominates agricultural production in the area. This may be as a result of high labor requirement in agricultural production in which they use members of their family as labor force and partly due to the expected benefits derived in feeding members of their family from what they produced. This result agrees with (25) and (26) who revealed in their separate studies that majority of agroforestry farmers in Nigeria were married.

Educational level is considered as a monitor to detect the easiness of creating changes in attitudes and creating of awareness regarding restoration of the ecological balance in the study area. Result from Table 1 reveals that majority (53%) of the respondents had primary education, 24% had non-formal education, 17% had education while 6% had tertiary education. It could be deduced from this result that most of the respondents had at least one form of education. Education is an important factor influencing farmers' innovation uptake. From this finding, it is apparent that there is a possibility of adopting innovations when an effective extension unit is available to disseminate information and raise the awareness of the people which lead alleviation of poverty. According to (27) the level of education of a person not only increases his farm productivity but also enhances his ability to understand and evaluate new production technologies.

The average farm size of the respondents was 2.5 hectares. This implies that farmers in the study area are mainly smallholder farmers operating on little plots of farmland. This could be as a result of the fact that farm lands in most traditional societies are not communally owned and this leads to fragmentation, leaving farmers with small farm land.

The majority of the respondents (60%) stated that they retain at least 1-10 trees on their farms, 31% of the respondents retained 11-20 trees on their farmlands. The average stocking density of trees in the study area is 11 trees. This stocking density is low considering the important roles trees play. Farmers attempt

to retain trees for sake of provision of round timber for themaintenance of their traditional houses which is almost built completely from forestproducts. Farm trees, if managed properly, have the potential to offer many benefits to farmers. Therefore, expansion of tree cultivation should be recognized as a promising pathway to achieve increased income and food production by policy makers and extensionists alike.

Results from the study showed that 47.0% of the respondents had 6-10 members per family, 26% had 11-15 members. The mean household size of the respondents was found to be 11 persons. This implies that significant component of the labour force comes from the family. Family labour is an important component of labour for small scale farmers. This is mainly because the subsistence farm households are resources poor and they may have to depend on family labour for agricultural activities which in most cases are labour intensive. Thisagrees with the findings of (26) who inferred that large household isadvantageous in farming as labour may be derived from the members.

Higher proportion (87.0%) of the respondents got their income from agriculture, 6.0% got their income from salary and 5.0% got their income from business/trading while 2.0 % of the respondents got their income from other non-farm businesses. This implies that agricultural production was a major means of livelihood in the study area. Source of income is an indicator of the main occupation of the respondents and expresses the contribution of the activities to the livelihood and welfare of the household. In general, rural areas of Sudan, farming is the main source of income. Forestry extension can enhance the resilience of local communities through focusing on agro forestry to guarantee the sustainability of the gum gardens and increasing crop productivity of agricultural crops.

A greater percentage (93.0%) of the respondents said they acquire their farmlands through inheritance while the remaining 7.0% of the respondents acquired their farmlands through rent. Land tenure is one of the most sensitive issues concerning forestry activities. The dominant form of land tenure in the study area is through inheritance. It seems that land acquisition is easy in the study area where only 7%possess land through rents. From these findings it is apparent that there is noproblem of land (no landless farmers) and this is considered as the main key for successof communal forests if an effective extension unit is available.

The result from Table 1 also indicated that, the mean annual income of the farmers was ₦82742. This result indicates that farmers in the study area have high annual incomes showing that they have a good financial base for any agricultural venture.

Table 1: Distribution of Respondents Based on their Socio-economic Characteristics (N=214)

Variable	Frequency	Percentage	Mean
Age (years)			
21- 30	25	12.0	

31- 40	107	50.0	
41 – 50	58	27.0	
50 above	24	11.0	39
Sex			
Male	130	61.0	
Female	84	39.0	
Marital status			
Single	31	15.0	
Married	183	85.0	
Educational level			
Primary	113	53.0	
Secondary	37	17.0	
Tertiary	13	6.0	
Non formal education	51	24.0	
Household size (number)			
1-5	39	18.0	
6-10	101	47.0	
11-15	55	26.0	
16-20	19	9.0	9
Size of farm land (hectares)			
1.0-2.0	123	57.0	
3.0-4.0	79	37.0	
Above 4.0	12	6.0	2.5
Number of trees on farmland			
1-10	129	60.0	
11-20	66	31.0	
21-30	15	7.0	
>30	4	2.0	11
Sources of Household income			
Salary	12	6.0	
Agriculture	186	87.0	
Business/trading	11	5.0	
Others (specify)	5	2.0	
Land tenure			

Rent	16	7.0	
Inheritance	198	93.0	
Annual income (Naira)			
1000-50000	76	36.0	
51000-100000	69	32.0	
101000-150000	42	20.0	
151000-200000	16	7.0	
>200000	11	5.0	82742

3.2 Contacts with Forestry Extension Agent

Extension services have a significant role to play in agriculture as it serves as pivotal linkage between farmers and researchers in acquiring agricultural technologies (28). Respondents were asked if they had access to forestry extension services during the last one year. The result in Table 2 shows that greater proportion (55%) of the farmers affirmed that they do not have contact with forestry extension agents. The remaining 45% affirmed that they had contact with forestry extension agents during the last one year. Subjective evidence from most of the respondents shows that many rural farmers in the study area do not know about forestry extension. Many of them affirmed to have known of agricultural extension which according to them addresses crop farming related issues. Forestry extension essentially has the same objectives and uses many of the same methods as agriculture. However, forestry extension poses two special problems not commonly found in agricultural extension. The first is the long period that must elapse before improved forestry practices produce benefits. Whereas agricultural crop calendars can be measured in a few months, it takes years or decades for trees to reach a productive age.

Second, communal forest custody and management succeed only if there is a consensus among and a concerted effort by entire communities. In agriculture, an extension programme can be successful by convincing and then assisting only a handful of farmers to try new farming practices. In community forestry, such small trials are unreliable. It is not enough for a handful of dedicated villagers to plant tree seedlings in a communal forest if these are going to be trampled the next day by cattle being grazed by other villagers.

Table 2. Distribution of Respondents According to Contacts with Forestry Extension Agents

Contact with FAE	**Frequency**	**Percentage**
Yes	97	45.0
No	117	55.0
Total	**214**	**100**

3.3 Frequency of Extension Visits

The results in Table 3 shows that during last years' growing season respondents accessed forestry extension services at the following intervals; 91% of them had contact with extension agent between 1 to 3 times and the remaining 9% had contact with extension agents 4 to 6 times in the last one year. The mean number of extension visits was 2 times in a year. This is considered low. The implication is that farmers may not be properly informed about new and improved farming practices well as sustainable forest practices. (26) noted that regular contact with extension agents motivates and exposes the farmers to innovations and gives them information on how to use the technologies. The frequency of visits by an extension officer to farmers may be connected to the availability of resources, staff and the nature of agricultural activity.

Table 3: Distribution of Respondents according to Number of Extension Visit (N=97)

Extension visit	**Frequency**	**Percentage**
1-3 times	88	91.0
4-6 times	9	9.0
7-9 times	0	0.0
Total	**97**	**100**
Mean	**2.0**	

3.4 Forestry Extension Services Available to Farmers

Data in Table 4 show the distribution of respondents according to types of forestry extension services available to them. The result in Table 4 below shows that 42% of respondents received information on forestry laws. 28% of the respondents received awareness campaign on dangers of bush burning, 17.5% received horticultural seedlings from extension agents, 27% had audio-visual shows, 18.3% were given practical teachings on method/result demonstration, 14.2% were given information on improved forest management practices while 12.2% received training on raising of seedlings.

Table 4: Distribution of Respondents According to Forestry Extension Services Available to them (N=97)

Variable	***Frequency**	**Percentage**
Information on forestry laws	41	42.0
Information on improved forest management practices	7	7.2	7.4
Information/training on agroforestry	11	11.3
Training on raising of seedlings	6	6.1
Campaign on dangers of bush burning	27	28.0
Training on budding/grafting	0	0.0
Distribution of horticultural seedlings	17	17.5

Organization of method/result demonstration	9	9.2
Organization of audio-visual shows	13	13.4

***Multiple responses**

3.5 Farmers Level of Satisfaction with Forestry Extension Service Delivery

Respondents were requested to indicate whether they were very satisfied, satisfied, were neutral, dissatisfied or very dissatisfied with each statement. Very satisfied and satisfied were treated as positive perception towards the delivery of forestry extension services by the forestry extension agents, and very dissatisfied or dissatisfied were treated as negative perception towards the delivery of forestry extension services while neutral items showed that farmers knew nothing.A mean of 3.00 was used as cut-off point to determine satisfaction or dissatisfaction of the farmers with respect to each of the satisfaction indicators. Thus, a 5-point graphic rating scale of 1, 2, 3, 4 and 5 add up to 15, which gives 3 as mean, when divided by 5. Result in Table 5 below indicates that farmers had positive perception and satisfaction with the delivery of only four of the forestry extension services namely; Campaign against felling of trees (3.20), campaign against clearing of forest plantation for farming (3.18), campaign against setting fire in the forest plantation (3.15) and prohibiting of hunting in the forest reserve (3.08). These were the only forestry extension services that were adjudged as satisfactory by the respondent with all of them having a mean rating above 3.0. Although extension performance in these four areas was not bad, there is need for improvement. Farmers however did not receive satisfaction in the delivery of services like distribution of horticultural seedlings (2.24), training on agroforestry (1.78), training on raising of seedlings (1.75), training on forest management practices (1.60), organizing of audio visual shows (1.60), training on budding and grafting (1.54) and method/result demonstration (1.46). This could be attributed to poor funding with the withdrawal of World Bank funding as well as inadequate research personnel. Subjective evidence from most of the respondents shows that extension officers visit farms less frequently than they should. As a standard practice, an extension officer should visit farmers at least once every week. Extension service providers should be saddled with the responsibility of ensuring that farmers are continually satisfied with services being delivered.

Table 5 Mean Rating of Farmers Satisfaction with Forestry Extension Service Delivery (N=79)

Forestry extension service	VS (5)	S (4)	Undecided (3)	VD (2)	D (1)	Sum	Mean
Campaign against felling of trees	19	21	9	17	13	253	3.20*
Forest management practices	0	3	4	31	41	127	1.60
Training on agroforestry	4	7	0	23	47	141	1.78
Campaign against forest fire	21	24	0	14	20	249	3.15*
Training on raising of seedlings	0	0	12	36	31	139	1.75

Training on budding and grafting	0	0	6	31	42	122	1.54
Distribution of horticultural seedlings	7	13	2	27	30	177	2.24
Method/result demonstration	0	0	3	31	45	116	1.46
Audio visual shows	0	0	7	34	38	127	1.60
Prohibiting hunting in the forest Reserve	19	25	1	12	22	244	3.08*
Prohibiting clearing of forest Plantation for farming	21	23	0	20	15	252	3.18*

VS= Very satisfied, S= Satisfied, U=Undecided, VD= Very Dissatisfied & D= Dissatisfied
Note: (*= Satisfied)

3.6 Constraints Limiting Extension Services Provided to Respondents:

Farmers perception of the constraint to extension service delivery was measured using a 4-point rating scale of: Strongly Agree (SD) = 4; Agree = 3; Disagree = 2; and Strongly Disagree = 1. Based on the 4-point scale, a mid-point of 2.50 was established thus: 4+3+2+1 ÷ 4. Decision rule was therefore made that any mean score greater than or equal to 2.50 suggests a constraint for forestry extension service delivery, while any mean score less than 2.50 suggests otherwise. Based on result in Table 6, the most important constraints perceived to limit effective forestry extension service delivery in Plateau State includes; lack of funding of extension services (3.59), inadequate number of extension agents (3.15), lack of transport facilities (2.59) and lack of in-service training of personnel (2.51). The above items all had mean scores greater than the criterion mean score of 2.50 and are therefore considered as strong constraints faced by extension personnel in effectively delivering extension services to the rural people.

Inadequate funding ranked first as a perceived constraint to extension service delivery in the study area. The most difficult and challenging policy issue facing the agricultural extension service today is how to secure a stable source of funding (29).This agrees with (30) who observed that Nigeria extension service is bedeviled by several problems which include inadequacy and instability of funding and poor logistic support for field staff.

Inadequate number of extension agents ranked second among the perceived constraints to extension service delivery. This implies that the respondents were not satisfied with the number of extension agents in the area. Extension agents are key to the success of any extension service delivery organization because they have direct contact with end-users of any farming technology. Based on their importance as strong actors in transforming agriculture, it's recommended by FAO that one extension agent should serve a maximum of one thousand (1000) farm families in developing countries. Inadequacy of extension personnel is a serious issue that inhibits effective dissemination of new and useful information of

agricultural technologies. Authorities of extension organisation should urgently find means of recruiting adequate and qualified EAs.

Agricultural Extension personnel play an important role in the diffusion and dissemination of new agricultural technologies and thus, should be given priority for training. According to (31), the training of agricultural extension workers is an integral part of the overall agricultural production process. It is the duty of agricultural extension agents to reach farmers scattered around the country with useful and practical information for increased agricultural production.

Table 6 Mean Rating of Perceived Constraints to Forestry Extension Service Delivery (N=79)

Perceive constraints	SA (4)	A (3)	SD (2)	D (1)	Sum	Mean
Inadequate number of extension agents	31	35	7	6	249	3.15*
Lack of in-service training of personnel	19	21	21	18	199	2.51*
Lack of funding of some extension activities	27	31	11	10	284	3.59*
Lack of subject matter specialist	11	15	25	28	167	2.11
Lack of commitment of field agents	9	11	23	36	175	2.21
Inadequate supervision of field agents	14	15	27	23	178	2.25
Lack of transport facilities	21	23	17	18	205	2.59*
Lack of incentives/motivation	17	13	28	21	184	2.32

SA=Strongly Agree, **A**=Agree, **SD**=Strongly Disagree, **D**=Disagree

Note: *= Agree

4 Conclusion

This study assessed forestry extension service delivery among forest farm communities in Plateau State with the aim to identify the forestry extension services available to rural farmers;examine the level of farmers' satisfaction with forestry extension service delivery andidentify the perceived constraints to forestry extension service delivery in the study area. Out of the 214 sampled farmers, only 79 had received forestry extension services from extension agents as most of the farmers interviewed only knew of agricultural extension service which addresses mostly crop production matters. Extension services were mostly focused on crop production as the main occupation of the famers is agriculture. Forestry extension services available to farmers in the study area include; information on forestry laws, awareness campaign against bush burning, distribution of horticultural seedlings, audio-visual shows, method/result demonstration, information on improved forest management practices, training on raising of seedlings etc. Farmers' had positive perception and satisfaction with the delivery of only four of the forestry extension services namely; Campaign against felling of trees, campaign against clearing of forest plantation for farming , campaign against setting fire in the forest plantation and prohibiting of hunting in the forest reserve . Farmers however did not satisfaction in the delivery of services like distribution of horticultural seedlings, training on agroforestry, training on raising of seedlings, training on forest

management practices, organizing of audio visual shows, training on budding and grafting and method/result demonstration. The constraints perceived to limit effective forestry extension service delivery in Plateau State includes; lack of funding of extension services, inadequate number of extension agents, lack of transport facilities and lack of in-service training of personnel.

5 Recommendations

1. There is the need to recruit more extension agents to achieve optimal extension agent: Farm Family ratio for a more effective coverage
2. ADPs need to acquire the internal capacity to assess own trainings and development on a regular basis by adopting the training/ development analysis and planning as part of organizational design. This may facilitate the employees' learning through training so that their modified behaviour contributes to the attainment of the organization's goals and objectives.
3. Government should increase its funding of the ADPs to alleviate the problems of inadequate staff and insufficient training. Also, ADPs need to explore alternative sources and methods of sourcing funds for their operational services through partial commercialization of some of their services and encouragement of the private sectors to invest in agricultural information dissemination. There should adequate provision for good transport system for extension agents.

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