

FORESTRY EXTENSION EDUCATION FOR SUSTAINABLE MANAGEMENT AND UTILIZATION OF FOREST RESOURCES IN SOUTH-SOUTH, NIGERIA.

BY

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Abstract

The study investigated forestry extension education for sustainable management and utilization of forest resources in Bayelsa State, Nigeria. Three research questions and three null hypotheses guided the study. The descriptive survey research design was adopted for the study. The population for the study comprised 348 respondents which were 48 foresters, 248 agric. educators and 62 extension agents; totaling 348 respondents. The instrument for data collection was a 26-item structured questionnaire on a 4-point rating scale. The instrument was face-validated by five experts while Cronbach Alpha reliability test of the instrument yielded a reliability coefficient of 0.77. Out of the 348 copies of the questionnaire administered, 327 copies were completely filled, retrieved and used for the analysis, representing 94 % rate of return. The data collected were analyzed using weighted mean while Analysis of Variance (ANOVA) was used to test the null hypotheses at 0.05 level of significance. The study identified six (6) roles of forestry extension education and twelve (12) measures for achieving the desired results in forestry extension education. There was no significant difference in the mean ratings of agric. educators, foresters and extension agents on the measures for achieving the desired results in forestry extension. Based on the findings the study conclude that its findings will guide users of the forest on sustainable management and utilization of forest resources for mankind. Hence, the study recommends among others, that forestry extension agents should intensify campaign through various mass media on sustainable utilization of forest resources.

Keywords: Education, Extension, Forest Resources, Forestry, Management, Sustainable, Utilization.

Introduction

Forest refers to large vegetation that is predominated with trees, shrubs (bushes) and climbers, wild animals and few grasses. In ecological term, it is considered as an ecosystem or community in which trees are dominant with other living organisms and non-living elements.

The living organisms consist of macro and micro species of plant (trees, shrubs, herbs, fungi e.t.c) and animals (insects, birds, nematodes, molluscs, reptiles, mammal etc.) and the non-living elements viz: soil, air, water etc. These living and non-living components of the forest ecosystem interact with one another in a dynamic and complex manner under

various biotic influences especially those exerted by man and his agencies.

Forestry, on the other hand, is the art of planting, tending and managing large area of land covered with trees, shrubs and wildlife, climbers either growing wild or cultivated for some purpose. Forestry can be defined as a scientific management of forest resources for the continuous production of goods and services as food, habitat for wildlife and also for recreation and therapeutic values to the surrounding population (Mama & Osinem, 2007). Therefore, forestry is the theory and practice of growing and managing forest resources and the utilization of forestry products (Suwari, 2017). Forest extension agents do educate the users of the forest on the best ways of forest utilization.

Extension involves the conscious use of communication and utilization of information to help people form sound opinions and make good decisions. The Australasia Pacific Extension Network (2010) expound that extension is the use of communication and adult education processes to help people and communities identify potential improvements on their practices, and then provide them with skills and resources to effect these improvements. Forestry extension education is the conscious use of communication of information regarding knowledge, skills and attitudes in forestry to help communities, the individual forester and other people that make up the

forestry clientele, improve on their chosen occupation (Ike & Jemimah, 2016). Therefore, in forestry extension education, there is planned dissemination of information concerning innovative techniques and practices in forestry technology and management to the forestry clientele. These innovative techniques and practices are developed in forestry research institutes (e.g. Forestry Research Institute of Nigeria, FRIN, located in Ibadan, Oyo State of Nigeria). Most of the forestry clientele are adult fellows; hence the extension education in forestry is synonymous with adult education. Forestry extension entails a genuine commitment to human resource development. Therefore, the scope of forestry extension includes the followings: forest management, plantation establishment afforestation, silviculture, timber markets, property rights, urban/wild land and forest fragmentation. Others include wildlife protection and enhancement capital gains and estate planning, forest health, timber supply and industry mergers and acquisitions, and forest land certification. In addition, sustainable forestry, animals and municipal waste options on forest land, conservation and youth education, forest-based economic development and alternative forest land enterprises and water quality (Osinem, 2005). Forestry education is the study of the forest and its natural resources, to have a better understanding of the ecosystem of living and non-living components, for purpose

of establishing a new forest (afforestation) and maintaining it well or offering best management practices to an identified pre-existing forest; for sustainable utilization of the resources for the target audience or clientele in forestry extension education (Osinem & Mama, 2008).

Target groups or clientele in forestry extension can be defined as individuals/groups or development agencies/institutions that may require formal and/or non-formal education and training services for the development of forestry sector. The principal target group therefore includes teachers, trainers, extensionists, politicians in government, farmers, community leader/youth, human resources development managers and civil society development partners. Today, majority of Nigerian youth live in the urban areas, thus extension mission of reaching the people with science-based education in particular should be encouraged. Extension's long history of forestry education is what makes it an ideal vehicle to reach inner-city youth with forest stewardship education.

This idea and approach can equally apply to the Nigerian forest extension programme. In addition, researchers have pointed out that, private landowners can as well be reached with forestry education. Since private landowners and the public possess similar attitudes about forest management, it makes sense that

urban residents could benefit from similar education efforts normally targeted at landowners. The forestry extension programme of the federal and state government

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leaders, school administrators, teachers, extensionists and human resources development managers to develop a comprehensive educational programme aimed at helping urban youth learn about forestry and forest management. Teaching forest stewardship to urban youth can be organized under three major settings/conditions: (1) classroom; (2) local urban setting; and (3) rural setting at a demonstration forest. Apart from directing forestry information to urban youth, individual landowners, community leaders and groups can benefit from such information. Most of the community/rural people depend on the forest to support their life. They depend on timber, lumbering, collect firewood, herbs for medicine and other forest products to be sold. However, their awareness and participation in sustainable forest management is not in an appropriate level, hence the need for them to serve as a clientele.

Sustainable forestry practices are those activities that meet the needs of the present without compromising the ability of the future generations to meet their own needs. It entails the use of forestry technology that is clear, more efficient and more sparing of natural resources in order to reduce pollution, help stabilize

climate and accommodate growth in populations and economic activities. Sustainable forestry, according to Abiola (2010), is the forestry practices that meets the needs of the present generation without compromising the ability of future generations to meet their own needs (Udo, 2020). It is the management and conservation of the natural resources base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations (FAO, 2012). In the context of the study, sustainable management and utilization refers to humanity's ability to survive by means of the rational or prudent use of renewable forest resources, by refraining from disrupting the ecosystem or other exploiting natural resources and by refraining from activities that destroy forest resources and instead allow them to reach their potential.

Bayelsa state is one of the lowland maritime area in the south southern Nigeria, characterized by tropical rainforest with tropical hardwood and softwood trees that are broad-leaved with several layers of vegetation. The top layer consists of the crown of trees while the lower layers are made up of the tops of shorter trees, shrubs and vines. The vegetation yield pulp, timber and cabinet woods like mahogany, iroko, ebony, teak with oil palms, rubber, vines, orchids and lilies (Suwari, 2017).

However, investigation in the study area revealed that users of the forest especially the youths, does not possess recent innovative

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knowledge in forestry technology, and management. They do not acquire modern competencies in wildlife protection, health and enhancement. Worse still, the youths are devoid of agripreneurial skills in marketing forest products for securing sustainable green employment. Consequently, the unskilled youths use the forest resources indiscriminately, culminating into the adverse effects of climate change on the environment. It is appalling to note that there is paucity of economic trees for productive uses (lumber, fuel, food, medicine). The study area is prone to wind and soil erosive agents coupled with extinction of endangered species. The dwindling forest resources are not judiciously utilized to generate green jobs in order to reduce youths' restiveness and criminality in the study area. In furtherance of the above ugly scenario, the green economy as exemplified by the tropical rainforest in the southern Nigeria is not only under serious threat but a mirage. It becomes imperative, thus, to examine measures for sustainable management and utilization of forest resources. Specifically, the study sought to:

1. identify the role of extension education in forest management and utilization;

2. determine the challenges of forestry extension education;
3. determine the measures for achieving the desired results in forestry extension.

Research Questions

Three research questions guided the study:

1. What is the role of forest extension education in forest management and utilization?
2. What are the challenges of forestry extension education?
3. What are the measures for achieving the desired results in forestry extension?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

H0₁: There is no significant difference in the mean ratings of the responses of agric. educators, foresters and extension agents on the role of forest extension education in forest management and utilization.

H0₂: There is no significant difference in the mean ratings of the responses of agric. educators, foresters and extension agents on the challenges of forestry extension education.

H0₃: There is no significant difference in the mean ratings of the responses of agric. educators, foresters and extension agents on the measures for achieving the desired results in forestry extension.

Methodology

Area of the Study

The study was carried out in Bayelsa State, Nigeria.

Design of the Study

The study adopted the descriptive survey, *Suwari, G.S, Osemene, E.S* research design. Three research questions guided the study while three null hypotheses were formulated and tested at 0.05 level of significance.

Population for the Study

The target population for the study comprised 48 foresters, 238 agric. educators and 62 extension agents; totaling 348 respondents. Due to the manageable size of the population, the entire 348 respondents were used for the study.

Sample and Sampling Technique

The census sampling technique was used.

Instrument for Data Collection

The instrument for data collection was a 26-item questionnaire, structured on a 4-point response options of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with corresponding numerical value of 4, 3, 2 and 1 respectively.

Validation of the Instrument

The instrument was face-validated by five experts.

Reliability of the Instrument

For purposes of determining the internal consistency of the instrument, the instrument was trial tested on similar 15 respondents in Rivers State and the data collected were analyzed using Cronbach alpha reliability coefficient of 0.88.

Method of Data Collection

To ensure quality data collection, seven (7) trained research assistants joined the researcher, totaling eight (8) enumerators in data collection from the respondents. Each of the research assistants covered one LGA in the eight (8) LGAs in Bayelsa state viz: Brass, Ekeremor, Kolokuma/Opokuma, Nembe, Ogbia, Sagbama, Southern Ijaw and Yenagoa. Out of the 348 copies of the questionnaire administered to the respondents, 327 copies were completely filled and returned which were used for the analysis; representing 93.9% rate of return.

Method of Data Analysis

The data collected were analysed, using weighted mean while Analysis of Variance (ANOVA) was used for testing the null hypotheses at 0.05 level of significance. A cut-off point value of 2.50

on 4-point rating scale was used to interpret the result as Agree or Disagree. Thus, this implied that any forestry management and utilization skill item with a mean value of 2.50 to 2.49 was regarded as

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management skill item with a mean value of 0.5 to 2.49 was considered as Disagree. Also, any forestry management/utilization item with a standard deviation between 0.00 and 1.96 revealed that the respondents were close to the mean and the opinion of one another, in which case, the forestry management item was adjudged valid. In testing the null hypotheses, the hypothesis of no significant difference was retained for forest management and utilization items whose p-values were greater than 0.05 level of significance. In contrast, the hypothesis of no significant difference was rejected for forestry skill items whose p-values were less than 0.05 level of significance with 148 degrees of freedom.

Results

The results for this study were obtained based on the research questions answered and hypotheses tested.

Research Question 1

What is the role of forestry extension education in forest management and utilization?

Table 1: Mean ratings of the responses of agric. educators, foresters and extension agents on the role of forestry education in forest management and utilization.

S/N	Role of forestry education in forest management and utilization.	$\bar{X}_{AG}$ (40)	$\bar{X}_E$ (61)	$\bar{X}_T$ (226)	$\bar{X}_G$ (327)	SD	Remark
1.	It equips forest users on the techniques of forest protection from fire, insects and diseases.	3.67	3.60	3.59	3.62	.50	A
2.	It inculcates innovative techniques in silviculture.	3.33	3.36				
3.	It enhances wise use of the land in various ways.	3.60	3.53				<i>Suwari, G.S, Osemene, E.S</i>
4.	It enhances forestry education in schools.	3.53	3.47	3.57	3.52	.55	A
5.	It enhances propagation and perpetuation of plants and animals' species to avoid extinction.	3.18	3.42	3.47	3.46	.60	A
6.	It fosters partnership between growers, processors, governments, private organisations, landlords and communities.	3.35	3.33	3.37	3.35	0.54	A

Key: $\bar{X}_{AG}$ = Mean of Agric. educators; $\bar{X}_T$ = Mean of foresters;

$\bar{X}_E$ = Mean of Ext. Agents; $\bar{X}_G$ = Grand Mean; SD = Standard Deviation; A = Agree N = No. of Respondents 327

From the data presented in Table 1, it was revealed that the six (6) items had their mean ($\bar{X}$) values ranged from 3.18 to 3.70 and were all above the cut-off point of 2.50. Thus, they were interpreted as agreed roles of forestry extension education in forest management and utilization. This implied that the respondents agreed that the six (6)

statements were roles of forestry extension education in forest management and utilization. The standard deviation values ranged between 0.50 and 0.63 which were below 1.96, indicating that the respondents were close to one another in their responses; meaning that the statements were valid.

Hypothesis 1

H0₁: There is no significant difference in the mean ratings of the responses of agric. educators, foresters and extension agents on the role of forestry extension education in forest management and utilization.

Table 2: Analysis of Variance (ANOVA) of the responses of agric. educators, foresters and extension agents on the role of forestry extension education in forest management and utilization.

Item No.	Role of forestry education in forest management and utilization	Total sum of squares	Mean square	P – values	Remark
1.	It equips forest users on the techniques of forest protection from fire, insects and diseases.	139.621	.80	.68	NS
2.	It inculcates innovative techniques in silviculture.	149.650	.51	.94	NS
3.	It enhances wise use of the land in various ways.	175.259	.33	.34	NS
4.	It enhances forestry education in schools.	129.172	.44	.31	NS
5.	It enhances propagation and perpetuation of plants and animal species to avoid extension.	232.688	.14	.60	NS
6.	It fosters partnership between growers, processors, governments, land owners and communities.	123.627	.17	.20	NS

Key: S* = Significant; NS = Not Significant; Level of Sig. = 0.05

The data presented in Table 2 on hypothesis 1 revealed that the P-values of the six (6) items ranged from 0.20 to 0.94, which are in each case greater than 0.05 level of significance. This implied that there were no significant differences in the mean ratings of agric. educators, foresters and extension agents on the role

of forestry education in forest management and utilization. Therefore, the null hypothesis of no significant difference in the mean ratings of the three groups of respondents was retained on the six (6) role of forestry education in forest management and utilization.

Research Question 2

What are the challenges of forestry extension education?

The data for answering research question 2 are presented in table 3.

Table 3: Mean ratings of the responses of agric. educators, foresters and extension agents on the challenges of forestry extension education.

Item No.	Challenges of Forestry Extension Education	$\bar{X}_{AG}$ (40)	$\bar{X}_E$ (61)	$\bar{X}_T$ (226)	$\bar{X}_G$ (327)	SD	Remark
1.	Inadequate knowledge and skill by the forestry extension workers.	3.57	3.55	3.56	3.56	.31	A
2.	Paucity of institutional framework and financing mechanisms.	3.76	3.32	3.71	3.41	.51	A
3.	Foresters' apathy to form association.	3.65	3.66	3.70	3.67	.50	A
4.	Insufficient training and courses to improve forestry extension workers' skills and abilities.	3.18	3.13	3.53	3.28	.51	A
5.	Management of polarized value and tensions.	3.54	3.53	3.55	3.54	.54	A
6.	Lack of awareness of forestry extension education.	3.76	3.73	3.70	3.73	.46	A
7.	Setting of the research agenda by the researchers in Nigeria with less input from the end-users.	3.65	3.66	3.70	3.67	.50	A
8.	Communication barriers between forestry extensionists and private owners.	3.76	3.73	3.70	3.73	.46	A

Key: $\bar{X}_{AG}$ = Mean of Agric. Educators; $\bar{X}_T$ = Mean of Foresters; $\bar{X}_E$ = Mean of Ext. Agents; $\bar{X}_G$ = Grand Mean; SD = Standard Deviation; A = Agree; D = Disagree; No. of Respondents = 327

The data presented in Table 3 indicates that the mean ratings of the respondents on the eight (8) items in the table ranged from 3.18 to 3.76 which are all greater than the cut-off point value of 2.50. Thus, they are interpreted as agree. This implied that the respondents agreed that the eight (8) statements were challenges of forestry

extension education. The standard deviation values of the eight (8) items ranged between 0.31 and 0.54 which were below 1.96, indicating that the respondents were close to one another in their responses; meaning that the items were valid.

Hypothesis 2

H0₂: There is no significant difference in the mean ratings of the responses of agric. educators, foresters and extension agents on the challenges of forestry extension education.

Table 4: Analysis of Variance (ANOVA) of the responses of agric. educators, foresters and extension agents on challenges of forestry extension education.

Item No.	Challenges of Forestry Extension Education	Total sum of squares	Mean square	P – values	Remark
1.	Inadequate knowledge and skill by the forestry extension workers.	169.172	.29	.83	NS
2.	Paucity of institutional framework and financing mechanisms.	140.484	.41	.91	NS
3.	Foresters' apathy to form association.	129.703	.39	.31	NS
4.	Insufficient training and courses to improve forestry extension workers' skills and abilities.	136.470	.49	.68	NS
5.	Management of polarized value and tensions.	180.484	.20	.44	NS
6.	Lack of awareness of forestry extension education.	169.421	1.07	.62	NS
7.	Setting of the research agenda by the researchers in Nigeria with less input from the end-users.	136.770	.49	.68	NS
8.	Communication barriers between forestry extensionists and private owners.	129.703	.39	.31	NS

Key: S* = Significant; NS = Not Significant; Level of Sig. = 0.05

The data presented in Table 4 on hypothesis 2 revealed that the P-values of all the eight (8) items ranged from 0.31 to 0.91, which are in each case greater than 0.05 level of significance. This implied that there were no significant differences in the mean ratings of agric. educators,

foresters and extension agents on the challenges of forestry extension education. Hence, the null hypothesis of no significant difference in the mean ratings of the three groups of respondents, is accepted on the eight challenges of forestry extension education.

Research Question 3

What are the measures for achieving the desired results in forestry extension?

The data for answering research question 3 are presented in table 5 below.

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Table 5: Mean ratings of the responses of agric. educators, foresters and extension agents on the challenges of forestry extension education.

Item No.	Measures for achieving the desired results in forestry extension	$\bar{X}_{AG}$ (40)	$\bar{X}_E$ (61)	$\bar{X}_T$ (226)	$\bar{X}_G$ (327)	SD	Remark
1.	Strong commitment by the government and all relevant institutions.	3.44	3.42	3.45	4.43	.46	A
2.	The existence of strong forestry extension institution.	3.11	3.24	3.67	3.34	.79	A
3.	Bottom-top planning in developing forest activities.	3.29	3.78	3.37	3.48	.52	A
4.	Strong cooperation among government private section.	3.50	3.49	3.54	3.51	.50	A
5.	Increasing in understanding behaviour and ability of community/private sector and bureaucracy in forestry development.	3.60	3.58	3.56	3.58	.80	A
6.	Development of independent forestry extension workers involving local teachers, farmer groups, nature lovers and non-governmental organization.	3.42	3.82	3.42	3.55	.60	A
7.	Improvement of forestry extension workers' competencies through education and training.	3.61	3.68	3.69	3.66	.47	A
8.	Use of high quality/qualified forestry extension worker.	3.65	3.60	3.61	3.62	.53	A
9.	Establishment of participatory forestry extension through community initiator and executors.	3.50	3.49	3.54	3.51	.50	A
10.	Improving the awareness and participation in forest management.	3.11	3.24	3.67	3.34	.79	A
11.	Improving community's ability to conserve forest resources and environment.	3.60	3.58	3.56	3.58	.80	A
12.	Empowering local communities through development of small and medium scale forestry enterprises to improve their living standard.	3.61	3.68	3.69	3.66	.47	A

Key: $\bar{X}_{AG}$ = Mean of Agric. Educators; $\bar{X}_T$ = Mean of Foresters; $\bar{X}_E$ = Mean of Ext. Agents; $\bar{X}_G$ = Grand Mean; SD = Standard Deviation; A = Agree; No. of Respondents = 327

It was revealed from the data presented in Table 5 that the twelve (12) statements had their mean values ranged from 3.11 to 3.82 and were all above the cut-off point of 2.50. Thus, they were interpreted as agreed. This implied that the respondents agreed that the twelve (12) statements

were measures for achieving the desired results in forestry extension. The standard deviation values ranged between 0.46 and 0.80 which were below 1.96, indicating that the respondents were close to one another in their responses; meaning that the items were valid.

Hypothesis 3

H0₃: There is no significant difference in the mean ratings of agric. educators, foresters and extension agents on the measures for achieving the desired results in forestry extension.

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Table 6: Analysis of Variance (ANOVA) of the responses of agric. educators, foresters and extension agents on the measures for achieving the desired results in forestry extension.

Item No.	Measures for achieving the desired results in forestry extension	Total sum of squares	Mean square	P – values	Remark
1.	Strong commitment by the government and all relevant institutions.	195.432	.51	.17	NS
2.	The existence of strong forestry extension institution.	202.488	.19	.59	NS
3.	Bottom-top planning in developing forest activities.	175.466	1.14	.26	NS
4.	Strong cooperation among government private section.	195.432	.51	.17	NS
5.	Increasing in understanding behaviour and ability of community/private sector and bureaucracy in forestry development.	172.172	1.14	.26	NS
6.	Development of independent forestry extension workers involving local teachers, farmer groups, nature lovers and non-governmental organization.	175.466	1.14	.26	NS
7.	Improvement of forestry extension workers' competencies through education and training.	202.488	.19	.59	NS
8.	Use of high quality/qualified forestry extension worker.	195.432	.51	.17	NS
9.	Establishment of participatory forestry extension through community initiator and executors.	195.432	.51	.17	NS
10.	Improving the awareness and participation in forestry management.	154.140	.98	.74	NS
11.	Improving community's ability to conserve forest resources and environment.	172.172	.55	.55	NS
12.	Empowering local communities through development of small and medium scale forestry enterprises.	202.488	.19	.59	NS

Key: S* = Significant; NS = Not Significant; Level of Sig. = 0.05

The data presented in Table 6 on hypothesis 3 revealed that the P-values of all the twelve (12) items ranged from 0.17 to 0.74, which are in each case greater than 0.05 level of significance. This implied that there were no significant differences in the mean ratings of agric.

educators, foresters and extension agents on the 12 measures for achieving the desired results in forestry extension. Therefore, the null hypothesis of no significant difference in the mean ratings of the three groups of respondents is

accepted on the 12 enhancement measures.

Discussion of Findings

The discussion of the findings of the study followed the order of the research questions. From the analysis of the data in Table 1, the study identified six (6) values of forestry extension education in forest management and utilization as contained in Table 1. The finding of this study is in line with the works of Osinem and Mama (2008) who outlined similar values of forestry extension education in forest management and utilization. Hence Suwari (2017) advocacy for the intensification of the forestry extension education services by forestry extension works to achieve her desired results optimally.

Furthermore, the study revealed that there was no significant difference in the mean ratings of agric. educators, foresters and extension agents on the role of forestry extension education in forest management and utilization. The findings of this study are in agreement with the works of FAO (2012) who affirmed that mean ratings of agric. educators, foresters and extension agents on the role of forestry extension education in forest management and utilization, are one and the same.

The findings of the study in Table 3 identified eight (8) challenges of forestry extension education that affects the achievement of the desired results, as

contained in table 3. The findings of this study is in tandem with the report of Australasia Pacific Extension Network (2010) who indicted the same eight (8) factors responsible for the inability of the forestry extension education workers to achieve predetermined aims and objectives. *Suwari, G.S, Osemene, E.S*

Analysis of Variance (ANOVA) in table 4 showed that there was no significant difference in the mean ratings of agric. educators, foresters and extension agents on the challenges of forestry extension education. The findings of this study are in harmony with the evidence given by Abiola (2010) who averred that there is no disparity in the mean responses of agric. educators, foresters and extension workers on the challenges of forestry extension education.

From the analysis of the data in Table 5, the study identified twelve (12) measures for achieving the desired results in forestry extension. The findings of this study are in congruent with the submission of Singh (2010) who opined that the religious implementation or adoption of the identified measures as contained in Table 5, would enhance the process of achieving the desired results in forestry extension. Hence, Ike and Jemimah (2016) advocacy for the adoption of the 12 measures (contained in Table 5) so as to achieve the desired results in forestry extension.

The result of the hypothesis 3 revealed that there was no significant difference in the mean responses of agric. educators, foresters and extension agents on the measures for achieving the desired results in forestry extension. The findings of this study are in consonance with the view of Mama and Osinem (2007) who opined that the opinion of agric. educators, foresters and extension agents, is synonymous. Hence, Osinem (2005) advocacy for the adoption of these measures to achieve the desired results in forestry extension. The findings of the researchers cited above corroborates the findings of this study and had further improved the validity and reliability of the results.

Conclusion

The tropical rainforest (green economy) in the south southern Nigeria is under serious threat and consequently a mirage, occasioned by indiscriminate use by the users of the forest. Therefore, the study identified six (6) roles of forestry extension education, eight (8) challenges of forestry extension education and twelve (12) measures for achieving the desired results in forestry extension education. There was no significant difference in the mean ratings of agric. educators, foresters and extension agents on the measures for achieving the desired results in forestry extension.

If the findings of this study are thus, developed into a training manual and

packaged for students, agric. educators, foresters, extension agents, forestry users, agribusiness tycoons and agripreneurs, it will guide users of the forest on sustainable management and utilization of forest resources for mankind.

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Recommendations

Based on its findings and conclusion, the study recommends:

1. Intensification of campaign through various mass media on sustainable utilization of forest resources by forestry extension agents.
2. Intensification of reforestation, afforestation, agro-forestry and silviculture programmes by forestry extension workers.
3. Re-enforcement of forestry rules and regulations by law enforcement agencies in collaboration with forest guards.

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