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PROSPECT AND CHALLENGES OF FOREST CONSERVATION EXTENSION FOR SUSTAINABLE RURAL DEVELOPMENT: THE EXPERIENCE OF PUBLIC EXTENSION SERVICES IN SOUTHWESTERN NIGERIA

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Abstract

Implementing sustainable development and meeting the food needs of world's increasing population demand national and international investment in research and extension. Before fruitful investment can be guaranteed, inventory of the present status of the object of investment is imperative. This study examined the present status of public extension network in southwestern Nigeria with a view to ascertain its readiness as a learning organization for forest conservation information. Purposive and multistage random sampling (MRS) techniques were used to select three study sites – Oyo, Osun and Ondo States. Thirty management staff of protected areas and the extension staff of state's MANR in each of the three study sites earlier selected were randomly interviewed using structured questionnaire. Data generated were analyzed using descriptive and inferential statistics. The study revealed that an average of 60.26% of the extension personnel had a degree with the number of degree holders highest among respondents from Osun State, but less than half (41.99%) of the extension personnel in Southwestern Nigeria has over 10 years experience. Also, the capacity of government change institutions in the study area is inadequate to meet the demands of information dissemination on forest conservation; some (not all) of the government change agents in the study area are capable communicators although imbued with persuasion theories; and the conditions of service of the personnel of government change institutions is not conducive for optimum service. Thus, the need for a complete overhauling of the entire public learning institutions in the study area is imperative, most especially by re- training the personnel.

INTRODUCTION

A major challenge of the 21st century is that of implementing sustainable development and meeting the food needs of an increasing world population. The overriding problem is how to improve yields, especially of basic food crops, without further deterioration of the natural resource base. This calls for focusing research effort at development innovations relevant to

the needs of the disadvantaged with a view to bridging the gap between the landuse technical specialists, the subject matter specialist and the users who are in need of such knowledge.

To achieve the aforementioned, FAO suggested national and international investment in research and extension (Van Crowder, 1996). Extension is crucial in facilitating access of rural communities to information and markets. It enables access to knowledge and information, rather than only training in specific technologies.

Historically, extension has normally promoted blanket recommendations for most technologies - agricultural, agroforestry, forestry etc (King, 2000). However, the farmers' environment is highly diverse with patches of high and low fertility, different soil types, microclimate, social, cultural, psychological and institutional variables which influence the performance of technologies. The optimal management of such spatial, social, cultural, psychological and institutional diversities can only be achieved if farmers themselves are knowledgeable about appropriate technologies and are capable of adapting them to their conditions. FAO (1999) observed extension as closely linked to natural resource knowledge system.

According to Melkote (1991), a major external constraint to development is the paucity of adequate, reliable, relevant and timely information to overcome lack of knowledge and skills about recommended innovations among potential peasant adopters. But, transferring blueprints does not help in managing environmental and social complexity. In its stead, farmer to farmer advice and learning by doing will be most appropriate (AGRITEX, 1998). Thus, Participatory Extension Approach (PEA), which is a strong tool in social forestry, is imperative for sustainable rural development.

Forest resources conservation is a specific strategy with diverse methodologies and tools directed at achieving sustainable rural development and owing to the complexity of forestry and its resources (Dada, 1986); it requires a virile and realistic extension approach and institution. Extension was observed by Okali and Rao (1989) to play a major role in enabling land users to acquire new skills, change old attitudes and increase productivity for maximum impact of social forestry.

In Nigeria, extension system has evolved over the years from the colonial initiated export crop focused to a professional status. Today, forestry extension is nil in the country save for the World Bank Financed Projects, which run agroforestry extension services using the extension personnel of the Agricultural Development Programmes (ADPs). However, extension managers are not just government officials but head of farmers' organizations, local NGOs and private sector organizations. Thus the growing field reality acknowledges pluralistic institutional arrangements for effective extension (Zijp, 1996; Contado, 1997).

However, no holistic institutional arrangement for forestry extension has been made so far in Nigeria. With a view to meeting FAO suggestion for alleviating food shortage (Van Crowder, 1996), this paper examined the extension system in southwestern Nigeria. This is expected to serve as baseline information for the required investment in the sub-sector for its improvement.

Objectives of Study

The overall objective of is to determine the institutional capacity of government extension network for effective forest conservation support extension service delivery. Specifically, the study will:

- a. identify and compare the learning experience of the public extension personnel in the study area;
- b. evaluate and compare the public learning institutions capability for effective forestry extension work; and
- c. identify constraints limiting respondents performance as change agents.

The Study Area

The study area is southwestern Nigeria which, lies between longitude 2° 30' and 6° 00'E and latitude 6° 20'N and 8° 37'N (Agboola, 1979). It has a moist tropical climate. The two major air masses that influence the climatic conditions in the study area are the southwestern air masses and the northeast air masses. At any time, it is the dominating influence of one of these two air masses that determines the climatic condition of the study area (Briggs, 1985).

Most part of Southwestern Nigeria lie within the lowland rainforest zone and can be subdivided into the "dry forest" zone for the area 1600mm of the Isohyets and the "rain forest" for wetter zones (NEST, 1991). The floristic richness and structural diversity are very important characteristics of the lowland rainforest. The structure of the forest depends on the relative humidity and the influence of man. The area is covered by mixed forests (rainforest of the moist type mainly) in which *Miliacaea* and *Leguminacaea* are present.

The study area is bounded in the east by Rivers and Anambra states; in the north by Kwara and Kogi states; in the west by Benin Republic; and in the south by the shoreline of the eastern part of the Gulf of Guinea (Fig. 1). It is one of the most densely populated areas in the country. The Yoruba people inhabit the land. The average Yoruba man is a farmer, a trader, an artisan or a professional. The total population of the people in the study area is projected at 30,871,042 in the year 2005 (NPC, 1991). The bulk of this population resides in the rural area with farming being their main occupation.

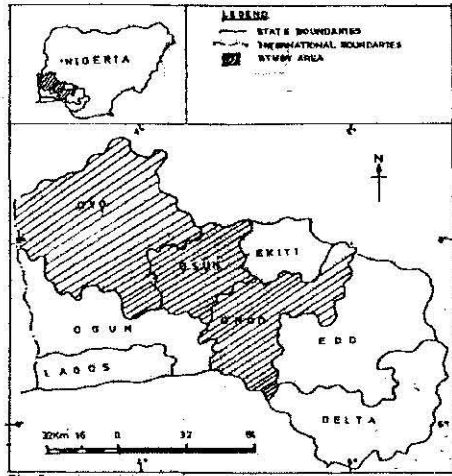


Fig. 1: Map of Southwestern Nigeria showing the Study Area.

The Study Population and Sampling

The target population for the study was the management staff of the forest reserves/national park and the extension staff of the region's MANR. Purposive and multistage random sampling (MRS) techniques were used for the study to ensure equal selection of each member of the target population. This reduced bias due to sampling. Apart from this, MRS technique also provided a more precise estimate of the population mean than the simple random technique. It also provides separate estimates for each population especially for administrative or ecological sub-units and it is administratively more efficient to sample by sub-population (Warren and Brown, 1992).

By virtue of the only National Park in the southwestern part of Nigeria being in Oyo state as of the time the study was carried out, selection of the state was purposive. Hence, in the first stage of selection, approximately 30% (2 states: Osun and Ondo) of the remaining seven states were randomly selected using the statistical table of random numbers.

At the second stage, a forest reserve was purposively selected in each of the states randomly selected in the first stage, based on the type of the reserve (natural or plantation); the rurality of the reserve; the importance of the reserve to the economy of the state concerned; and the activity going on in the reserve at the time of study. Here, Shasha and Oluwa forest reserves were also randomly selected using the statistical table of random numbers. Thirty sets of questionnaires were randomly administered to forest management staff in each of the three study sites and the extension staff of state's MANR.

Results

Work Experience of Extension and Forestry Personnel in the Study Area

Educational status of Extension Personnel

The study revealed that an average of 60.26% of the extension personnel had a degree with the number of degree holders highest among respondents from Osun State (Table 1). This deviates from Honduras where less than 20% of NGO staff working on agricultural projects has university training (Kainmowitz, 1993). In Oyo State 4.38% of the respondents are holders of National Diplomas and National Certificate of Education or their equivalents. In Ondo state almost half of the respondents had no degree among which 25.93% are holders of the secondary school leaving certificate or its equivalent. Low level of formal training can limit capability of assisting farmers put research result into practice (Van Crowder, 1996).

Length of Personnel Experience in Extension

The study (Table 2) found that Osun State has the highest percentage (40.91%) of experienced (>15 years) personnel. The state also has the highest record (54.55%) of personnel with few years of experience (2 – 5 years), which accounts for more than half of the extension personnel interviewed there. Ondo state extension and forestry service employed more personnel within the last five years (40.74%) than it employed earlier. In Oyo State, more than half (51.72%) of the extension personnel has over ten years experience. Generally, less than half (41.99%) of the extension personnel in Southwestern Nigeria has over 10 years experience.

Job Description of Respondents in Extension and Forestry Services

None of the extension personnel interviewed are forestry extension staff in Oyo State although 10.34% of them were field staff of the Old Oyo National Park (Table 3). Majority (62.07%) are village extension workers (VEWs) under the ADP. In Osun State major (37.82%) response was from the administrative staff: both in the state's Ministry of Agriculture and Natural Resources, and the Agricultural Development Programme. In Ondo State 66.67% of those interviewed were forestry staff while 22.22% were administrative officers. Generally, though about 40.0% of the respondents were forestry staff, only 2.75% have bias for forestry extension. The remaining are general extension practitioners with bias in agricultural extension (arable crop production and animal husbandry). Thus forestry extension is not taken serious in the study area.

Change Agents' Number of Contact with Farmers/Month and Contact Methods Used

The study found that contacting farmers is not a popular activity among extension personnel in the study area. More than half of the respondents (56.75%) did not respond to the poser on farmers contact (Table 4). Response on the poser indicates that the most popular contact was with between 20 and 100 farmers/month among 15.15% of the respondents. This is at

variance with the Training and Visit extension system (that should be in operation in the study area), which demands that extension agents should visit farmers weekly.

In the same vein, the most popular method of contact used by change agents' in the study area is "farm visits" and small group meetings, while the mass media (electronic / print) is least used (Table 5). Only some of the Osun state change agents' (8.33%) consented to using the modern mass media in reaching their clientele. The use of small group meetings was however more common among agents (62.5%) in the same site. The most popular method of contact among EAs in Oyo State (56.76%) is farm visits, while small group meetings was equally more favoured (29.63%) in Ondo State.

Identified Methods of Forests Conservation among Change Agents

An average of 63.57% of the respondents favoured agroforestry as a solution to sustainable exploitation of forests in the study area with the highest subscription (80.65%) from Ondo State. Interestingly, agrisilviculture was more favoured (24%) compared to the traditional farming systems (Crop rotation and shifting cultivation) among the change agents' of Shasha Forest Reserve enclave. Thus, although agroforestry was least favoured as a sustainable land use practice in Shasha Forest Reserve enclave compared to the other two sites, change agents' confidence in agrisilviculture nevertheless emphasize the need to incorporate tree husbandry into arable farming in the study area (Fig. 2).

Mass Media used for Extension Activities in the Study Area

Majority of the change agents' interviewed (63.32%), reached out to their clientele through community leaders (Fig. 3). The use of radio was also favoured by an average of 10.28% of the change agents while television was not used at all by change agents for learning about forest conservation in southwestern Nigeria.

↓ Capabilities of Extension Agencies for Effective Forest Conservation Support Communication (FCSC)

Change Agents Perception of their Organization's capability

On the capability of government change institution at effecting forest conservation support communication (Table 6), 48.27%, 27.27% and 18.52% of the change agents in Oyo, Osun and Ondo states respectively reposed confidence in their organization's capabilities. However, such confidence was observed to be highest among Oyo State change agents compared to their other counterparts. Generally, 52.40% of the change agents in the study area rated their organizations as quite capable of enlightening their clientele on the importance of sustainable land use. Also worthy of note is the fact that an average of 6.34% of them perceives their organization as incapable of executing the task. This percent is a little bit high to be ignored most especially when airing of such perception questions the respondent's job security.

Organization's Strength of Extension Agencies in the Study Area

Seven questions were put forward to access the capability of extension agencies in the study area to meet the challenge of effective forest conservation support communication (Table 7). It was found that except for just 3.7%, majority of the respondents' submitted that staff remuneration in the sampled agencies were not good enough. Unavailability of fund (80.79%) and inadequacy of staff training (85.75%) were also identified as limiting the performance of extension organizations' in the study area. This puts a big doubt on the readiness of the agencies for the forest conservation challenge.

Communication Capability of Change Agents

Communication demands some basics upon which experience will be built. This basic knowledge was tested among the change agents using five statements (Table 8). Findings show that almost all the agents (98.95%) agreed to providing simplified background information on forest conservation and explaining the concept of conservation in clear terms to clientele (96.97). Similarly, an average of 93.8% (Oyo – 96.6%; Osun – 85.8%; Ondo – 100.0%) of the EAs in the study area was of the opinion that interpretation reduces ambiguity and hence boosts adoptions. Also, only 1.2% of the EAs did not perceive self expression as important in communication while another 6.1% of them were not sure. It should be noted that self expression is the backbone of creating a learning environment and hence encouraging participation. However, it was found that persuasion rather than conviction was the extension tool mostly used by EAs (80.23% - statement 3) in the study area. This calls to question the capability of the public EAs in modern extension technique. Their capabilities was further queried by 14.2% of them disagreeing with the danger portend in not enlightening forest users.

Discussion

The reliability of government change agencies in forest conservation was queried by findings from this study. As earlier submitted, the weakness in forestry extension was linked to lack of suitable organizational framework for extension in the state forestry department (Bagaruwa, 1990; Cary and Wilkinson, 1995). This weakness was also due to the attitude of forestry administrators to forestry extension and the lack of highly motivated and suitably trained staff to handle the affairs of forestry extension unit. Data generated from this study revealed the capacity of government change institutions in the study area as inadequate at meeting the demands of information dissemination on forest conservation (Table 7); and some (not all) of the government change agents in the study area are capable "learning environment" creators although imbued with persuasion theories (Table 8).

Also the conditions of service of the personnel of government change institutions is not conducive for optimum service (Table 7) as evident in the availability of facilities; information flow; staff development; the decision-making process; and appropriate tools and

equipment, which are inadequate. Interestingly probably owing to years of experience (Table 2), most personnel of these change institutions are good extensionists, although with rusty knowledge: responses to the skill appraisal statements exposed their top-bottom approach to extension background. However, years of experience have forced the participatory approach on them. Although informing rural illiterates about development initiatives will require persuasion, but persuaders should not assume a least resistant receiver (Rollof, 1980). Such assumption may query their credibility among target beneficiaries when further queried or asked for clarification.

On problems limiting government change institutions, staff inadequacy, funding and training (Table 7) were mostly identified. Also, despite recommendation that every State Forestry Department should develop extension capabilities (FMANR, 1992), most states in the study area do not have an extension unit, and if they do, it is rarely fully functional. Unlike in the northern part of Nigeria, where both the federal and state governments were pursuing afforestation extension work (Anderson, 1987), there was no evidence of such move in any of the study area's forestry department.

The relevance of change agencies in the dissemination of forest conservation information in southwestern Nigeria cannot be overemphasized (Azeez, 2004). But, such institutions need to be adequately funded and staffed with trained personnel so that in the long run, regulation or wise utilization of available forest resources can be assured. This submission was supported by WWF (1992) that, putting underpaid and understaffed Forestry Departments in charge of timber harvesting regulation is deregulating utilization of forest resources. So also, regulating forest resource utilization by legislation gives rise not only to perpetual conflicts but also to a great deal of corruption, most especially when the enforcing staff is underpaid (Ghimire, 1991). The alternative is to strengthen the participatory approach and empower the natives to look over their land for a stake (Meka and Adetchessi, 2002). Therefore, just as force will not work on inhabitants, the change agents' and their agencies must also be adequately motivated for meaningful conservation of forest resources in the study area.

Also worthy of note is that the efficiency of using the change agents alone, for effective interpersonal dissemination of forest conservation support information, is doubtful. Even in Australia where face to face public extension delivery system is turning farmers to more active and selective consumers of extension information, the cost of its provision is giving the government a re-think (Cary and Wilkinson, 1995). The ratio of change agents to beneficiaries in Nigeria is 1:3,500 – 4,000 while FAO recommends 1:500 (Yahaya, 2000). Even at that, the message of the change is basically agricultural. Thus, the study revealed that the impact of change agents (Agricultural) is felt in only one of the study sites (Old Oyo National Park area) and their emphasis is on arable crop production. The other two sites unfortunately are forest plantations (Shasha – natural and artificial, Oluwa – artificial). Thus,

revealing nil forestry extension service in the study area. The need to fashion out a multimedia strategy involving the use of modern mass media, as well as interpersonal communication will therefore assist forest conservation support at economic cost.

Conclusion

Forestry extension is not seen as a serious means to achieving sustainable use of forest resources in southwestern Nigeria. There is no separate forestry extension units in the study area and under the Unified Agricultural Extension Service, forestry SMSs are few if there are at all (Azeez, *et al.*, 2000). Unfortunately, this is where most of the relics of natural forest resources in Nigeria are located and extension is imperative to its wise utilization. Thus, it is important that extension agencies in the study area be organizationally adapted to promote environmental and sustainable development themes. Though most of the extension personnel interviewed are educated, their communication skill is rusty. Provision of staff motivation, which greatly boost performance, is lacking and the basic extension tools are inadequate. Thus, judging from the need to balance ecological with economic principles in the study area viz extension education and training, overhauling of the extension organizations in the study area cannot be overemphasized.

Recommendations

1. In view of the complexity of forest management and as an appendix of sustainable rural development, which is equally complex, government extension agencies will have to strengthen linkages and coordination with research organizations, environmental agencies, educational institutions, NGOs, farmers groups and others who recognize that agriculture is sustainable only when it is ecologically sound and economically viable.
2. Funding is imperative to establishing a formidable learning organization. Government will have to make substantial investment in the area of providing enabling environment for a sound and separate forest conservation learning organization.
3. Forest management is imperative to environmental amelioration. Thus, forest and sustainable development themes can be incorporated into existing extension programmes and staff can be trained in forestry matters as part of regular training since most of the change agents already have formal training.
4. There is need for a complete re-orientation of the field staff in the present day extension approach of assisting resource owners in the harnessing and use of their resources within their whims.

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Table 1: Educational Status of Extension Personnel in the Study Area

Identified Educational Attainment	Oyo State		Osun State		Ondo State		Mean (%)
	Frequency	%	Frequency	%	Frequency	%	
Secondary School Cert.	03	10.35	-	-	07	25.93	12.70
OND/NCE	12	41.38	03	13.64	06	22.22	26.07
First Degree/HND or Equivalent	14	48.27	19	86.36	14	51.85	60.00
Others	-	-	-	-	-	-	-
	29	100.00	22	100.00	27	100.00	100.00

Source: Field Survey, 2001.

Table 2: Experience of Change Personnel in their Ministry / Programme

Experience (Years)	Oyo State		Osun State		Ondo State		Mean (%)
	Frequency	%	Frequency	%	Frequency	%	
2 – 5	02	06.90	12	54.55	11	40.74	34.06
>5 – 10	12	41.38	01	04.55	07	25.93	23.95
>10 – 15	06	20.69	-	-	02	07.41	09.37
>15	09	31.03	09	40.91	07	25.93	32.62
Total	29	100.00	22	100.00	27	100.00	

Source: Field Survey, 2001.

Table 3: Job Description of Respondents' in Extension and Forestry Services

Job Description	Oyo State		Osun State		Ondo state	
	Frequency	%	Frequency	%	Frequency	%
Forestry Extension Worker	-	-	01	04.55	01	03.70
Village Extension Worker	18	62.07	06	27.27	01	03.70
Block Extension Supervisor	01	03.45	-	-	01	03.70
Admin. Officer	01	03.45	07	31.82	06	22.22
Forestry staff	06	20.69	06	27.27	18	66.67
Others	03	-	-	-	-	-
No response	-	-	02	09.09	-	-
Total	29	100.00	22	100.00	27	100.00

Source: Field Survey, 2001.

Table 4: Number of Farmers that Change Agents' Contact per Month in the Study Area

Number of Farmers	Oyo State		Osun State		Ondo state		Mean (%)
	Frequency	%	Frequency	%	Frequency	%	
<20	02	06.90	04	18.18	02	07.41	10.83
20 – 100	06	20.69	03	13.64	03	11.11	15.15
>100 – 500	05	17.24	-	-	-	-	05.75
>500 – 1000	05	17.24	-	-	-	-	05.75
>1000	05	17.24	-	-	-	-	05.75
No response	06	20.69	15	68.18	22	81.48	56.75
Total	28	100.00	22	100.00	27	100.00	

Source: Field Survey, 2001.

Table 5: Methods Used by Extension and Forestry Personnel to Contact Farmers in the Study Area

Identified Contact methods	Oyo State		Osun State		Ondo State		Mean (%)
	Frequency	%	Frequency	%	Frequency	%	
Small group Meetings	11	29.73	15	62.50	08	29.63	40.62
Mass Media	-	-	02	08.33	-	-	02.78
Home Visit	05	13.51	-	-	01	03.70	05.74
Farm Visit	21	56.67	06	25.00	07	25.93	35.90
No Response	-	-	01	04.17	11	40.74	14.97
Total	37	100.00	22	100.00	27	100.00	

Source: Field Survey, 2001.

Table 6: Change Agents' Ranking of their Organization's Capability

Agency Capability Ranking	Oyo State		Osun State		Ondo State		Mean (%)
	Frequency	%	Frequency	%	Frequency	%	
Highly capable	14	48.27	06	27.27	05	18.52	31.53
Capable	12	41.38	10	45.46	19	70.37	52.40
Can't Say	01	03.45	04	18.18	-	-	07.21
Less Capable	-	-	-	-	-	-	-
Not capable	01	03.45	01	04.45	03	11.11	06.34
No Response	01	03.45	01	04.45	-	-	02.63
Total	29	100.00	22	100.00	27	100.00	

Source: Field Survey, 2001.

Table 7: Change Agents' Perception of Their Organization's Performance Based on Some Identified Institutional Capability Indices

Organization strength indices	Old Oyo NP			Shasha FR			Oluwa FR			Mean		
	A	UN	D	A	UN	D	A	UN	D	A	UN	D
Inadequate staff strength	92.8	-	6.9	90.9	9.1	-	77.8	-	22.2	87.2	3.0	7.7
Inadequate remuneration	51.7	6.9	24.1	72.7	27.3	-	49.2	18.8	22.2	57.8	17.7	15.4
Ineffective operational strategy	27.6	13.8	58.6	45.5	36.4	18.2	33.3	18.5	48.1	35.5	22.9	41.6
Organization strategy can not meet development challenges	62.1	6.9	31.0	45.5	27.3	27.3	55.6	14.8	29.6	54.4	16.3	29.3
Fund unavailability	82.7	6.9	10.3	81.8	4.5	13.6	77.8	7.4	14.8	80.7	6.3	12.9
Staff training is nil	58.6	3.5	37.9	63.7	18.2	18.2	66.7	14.8	18.5	63.0	12.2	24.8
Staff training is inadequate	93.1	-	6.9	86.4	-	13.6	77.8	11.1	11.1	85.8	3.7	10.5

* A= agree; UN= undecided; & D= disagree

Source: Field Survey, 2001.

Table 8: Change Agents' View of some Learning Environment Creation Basics

Communication Skill Testing Statement	Old Oyo NP			Shasha FR			Oluwa FR			Mean		
	A	UN	D	A	UN	D	A	UN	D	A	UN	D
Interpretation boost s adoption	96.6	3.4	-	85.8	-	-	100.0	-	-	94.1	1.1	0
Explanation helps beneficiaries grasp contents	100.0	-	-	91.0	-	9.1	100.0	-	-	97.0	-	3.0
Persuasion spurs confidence among rural people	79.3	6.9	13.8	82.0	4.6	4.6	70.0	22.2	7.4	73.7	11.2	9.3
Self expression is most important to a communicator	100.0	-	-	81.8	18.2	-	92.7	3.7	3.7	91.5	7.3	1.2
Failure to enlighten forest users endangers the forest.	82.7	10.4	6.9	63.7	22.7	13.6	66.7	11.1	22.2	71.0	14.7	14.2

* A= agree; UN= undecided; & D= disagree

Source: Field Survey, 2001.

Table 9: Change Agents' Views about some Communication Basics

Some Communication Basics	Perception of Change agents				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
A. Communication is the mutual sharing of ideas and feelings	51.45	42.47	03.62	01.23	01.3
B. Communication is not needed to activate people for development activities.	02.47	14.14	06.65	25.35	51.39
C. Communication changes both the sender and receiver	61.85	29.59	03.62	02.47	02.47
D. Success is elusive without effective communication.	22.75	51.70	11.33	07.29	06.93
E. Needs of beneficiaries are not important in communication	07.88	06.29	09.32	43.96	32.57
F. Clarity of message is not important to a communicator who understands his message	03.70	10.18	09.03	48.72	28.36
G. Understanding of an innovation is basic for its effective diffusion	22.87	49.96	22.91	01.23	3.03
H. Success in communication hinges on proper message analysis and media use.	46.62	38.85	06.73	06.56	1.23
I. Content of message need not necessarily meet the recipient knowledge	10.35	18.06	06.73	42.06	21.99

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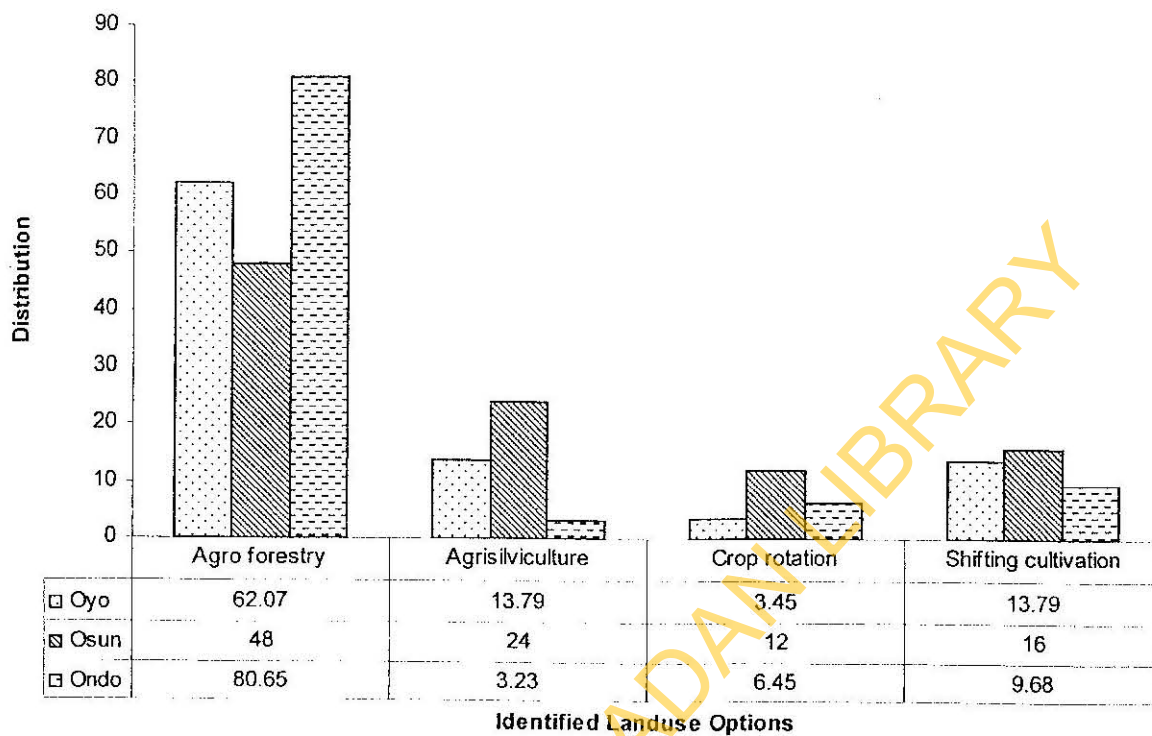


Fig. 2: Percentage Distribution of Identified Landuse as Sustainable Option among Extension Personnel

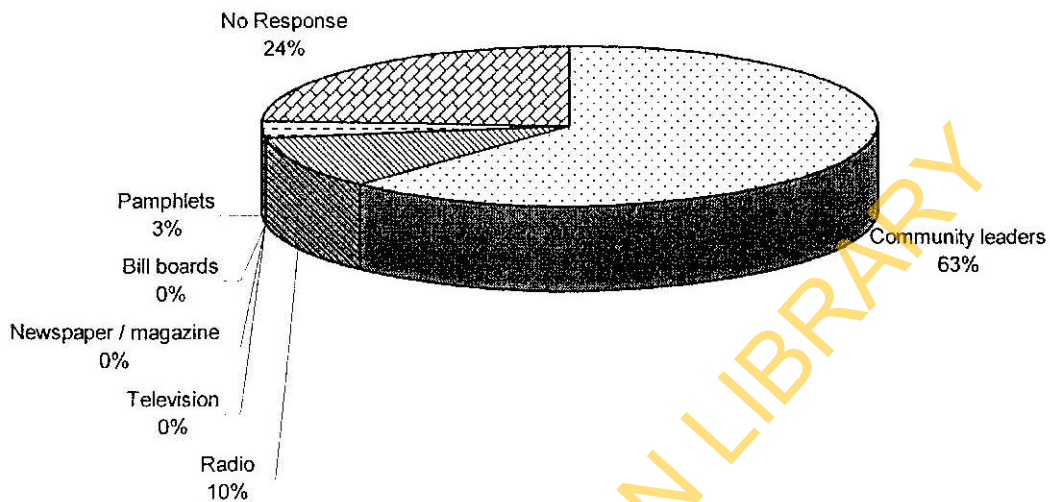


Fig. 3: Percentage Distribution of Mass Media Employed by Extension Personnel in the Study Area

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