

**MEDIA ACCESS AND RELIABILITY FOR FOREST CONSERVATION SUPPORT COMMUNICATION
IN ANAMBRA STATE, SOUTHEASTERN NIGERIA**

***Azeez, I. O. and C. C. Okafor**

Department of Forest Resources Management, University of Ibadan, Nigeria

*corresponding Author: ismail.azeez@mail.ui.edu.ng

ABSTRACT

The need for conservation of forests resources, which are presently under continuous depletion, is topical to sustainable development in Nigeria. Despite this, the annual rate of forest depletion in Anambra State is alarming. One of the adduced reasons for this had been inadequate access of residents who rely on forest resources for their livelihood to environmental amelioration information. This study therefore reports the media in use or that could be employed to effectively keep Anambra State residents' abreast on environmental amelioration issues. The study employed multistage stratified random sampling technique where the state was stratified into three senatorial districts. One local government area with urban, peri-urban and rural settlements were then purposively selected in each district to account for the socio economic background of the people in the study area. Two wards each were picked from each settlement and Thirty questionnaires were administered in each ward, giving a total of 540 respondents for the study. Data generated were analysed using descriptive (Tables, frequency counts, percentages and pie chart) and inferential (Pearson's correlation coefficient, Chi-square and one way Analysis of variance) test statistics at $p = 0.05$. The study revealed that more people (40.9%) had access to radio followed by television (24.5%) and radio was favored as the most appropriate and reliable medium for dissemination of forest conservation information (FCI) in the study area. Further, majority of respondents listened to radio and television programs in the evening (57.7%). However majority (63.3%) of the respondents could not compare extension agents and mass media messages because they do not have access to extension agents. The study also observed a significant difference in the effectiveness of the different modes of receiving information in the three senatorial districts and a strong positive relationship between the information sources in the study area and access of the sources to the people for FCI. Also, even though a strong positive relationship existed between the respondents' access to media and the reliability of the media for FCI in Anambra North ($r = 0.92$), Central ($r = 0.86$) and South ($r = 0.91$) senatorial districts, the reliability of media for FCI does not have a relationship with respondents' access to media among in Anambra North, ($\chi^2 = 59.13$), Central ($\chi^2 = 88.0$) and South ($\chi^2 = 60.5$). In general, environmental outreach goals in the study area will continue to rely on effective communication to the local people who share their rural frontier with the earth's biological wealth.

Keywords: Forest conservation information, media access, media reliability, radio, Anambra State

INTRODUCTION

Forest management and conservation in Africa are faced with a variety of environmental issues, including habitat fragmentation and loss of ecological integrity through conversion to urban or ex-urban uses. Despite the various research works on the roles the forests play, the need to protect and the consequences of destroying them, they had continued to disappear. Among the factors responsible for the high rate of deforestation on the African continent is inadequate communication of environmental amelioration information to the people who have continued to mount pressure on the forests for their livelihoods (Azeez, 2008). The lack of environmental literacy, which is necessary to make informed decisions and address the myriad of environmental problems, coupled with a widening gap between people and the natural world, especially in urban areas are fundamental barriers to public support for forest management and biodiversity conservation (Miller, 2005; Jordan *et al.*, 2009).

Communication about the environment can be an effective strategy in shaping the society's attention, awareness and response to various environmental issues, including deforestation and climate change. The overall impact of environmental literacy, however, can vary substantially based on the type of information being delivered, the method of communication, the geographic location of the recipients, and the general regard for the organization providing the information (Ferranto *et al.*, 2012). The method of communication has been shown to be a particularly important factor influencing the impact of environmental literacy. Several studies examining the effectiveness and/or "trustworthiness" of different media sources have found significant differences between media types (Toman *et al.*, 2006; Ryan, 2009; Shindler *et al.*, 2009).

Toman *et al.* (2006) distinguished between unidirectional information sources (those that provide a one-way flow of communication) and interactive information sources (personal contact

or on-the-ground learning experiences) and found that people are significantly more likely to be familiar with unidirectional methods, but interactive methods were rated as more helpful. Measures of perceived trustworthiness, however, were similar for both methods, though individual media sources within each method were rated differently. Most notably, public meetings and the Internet consistently received low ratings for trustworthiness (Toman *et al.*, 2006).

A number of studies that have looked at the perceived trustworthiness of environmental information provider have also found it to be an important factor influencing outreach effectiveness. Wright and Shindler (2001) looked at information sources in watershed management in Oregon and found that the majority of landowners in their study felt that environmental groups were untrustworthy and of little use as an informational source, whereas the state forestry and wildlife departments, and university representatives were trusted by most respondents. Shindler *et al.* (2009) similarly found that university representatives, public agencies, and personal contacts were considered trustworthy by a majority of landowners in regards to information on fire management. Forest industry groups were only considered trustworthy by about half of the respondents, and very few respondents rated environmental groups as trustworthy. However, trust in agencies, general knowledge, and attitudes can vary substantially across study areas, indicating that a “one-size-fits all” approach to management, outreach, or relationship building will be less successful than an approach which integrates local contextual factors (Brunson and Shindler, 2004; Olsen and Shindler, 2010). The major issue is therefore not that of recognizing the various communication media, but identifying how reliable and accessible they are in disseminating forest conservation information to the target population especially those living in enclaves around the forest reserves.

Anambra state, Nigeria has been documented to hold an unenviable record of environmental problems, especially gully erosion (NEST, 1991). This is as a result of a combination of weak sandy soil and kaolinitic clay that do not support intensive agriculture (being practiced in the state), widespread deforestation and high rainfall. Gully can however be stabilized by natural vegetation (NEST, 1991). Also, the annual rate of forest depletion in the state is alarming due to the drive to meet short term needs for farmland, fuelwood, timber, grazing, hunting and gathering of natural products (NEST, 1991). Other identified drivers of deforestation in the state were the quest for development: urbanization, road construction and industrialization particularly oil exploration and production. To mitigate these, Olajide *et al.* (2008) suggested the practice of multiple land use system

such as agroforestry at the local level. Etuk and Akpan-Ebe (2008) also suggested afforestation/reforestation as well as the carrying out of proper environmental impact assessment before the execution of any development project.

From Aju's perspective (2008), the first step is the creation of environmental consciousness through education, information and awareness creation among the people. An un-informed population on the environment as submitted by UNEP (2003) is neither having the incentive to act nor the power to give impetus to sustainable development action. Thus, the communication of forest conservation information to the target population through the appropriate media is equally of great importance. The means to be adopted will however depend on the reliability of accessible media to the target population (Azeez, 2002). Knowing where people look for information is only half of the battle for communicators; but knowing where people find information is the other half (Pounds, 1985). This study therefore views communication of environmental amelioration information as essential for sustainable management of forest resources and therefore investigated the media in use or that could be employed in getting this environmental amelioration information to the target population.

In the light of the foregoing, it is clear that reaching out on environmental ameliorating issues remain an effective strategy to influence people's attitudes towards the environment. However, the ultimate success of the outreach depends on the method of communication, the agent of delivery, and the geographical context. In Nigeria, there is a dearth of information on media access and reliability for forest conservation support communication in the southeastern part of the country. There is little research work on the current distribution of environmental outreach and whether information is effectively reaching all people or just targeted subgroups. To fill this gap, and to help inform future outreach on environmental amelioration, this study was carried out in Anambra State - one of the major southeastern states in Nigeria.

METHODOLOGY

The Study Area

The study was carried out in Anambra State (Fig. 1), located in the rainforest vegetation belt of southeastern Nigeria. Anambra State has 21 Local Government Areas and is located on longitude 6° 20'N and latitude 7° 00'E. It shares boundaries with Delta and Imo States in the west and south, Enugu State in the east and Kogi State in the north. The name Anambra is derived from the Omambala River and the state is an highly populated state in Nigeria with a total population of 4,182,032 people as at 2006 census (mostly - 90% of Igbo indigenes).

Although most of the population is overwhelmingly rural, over the last two decades, the rural/urban exodus has caused a shift in that balance. Anambra is rich in natural gas, crude oil, bauxite, ceramics with arable soil covering most of the land area. It is well known for its richness in floral biodiversity. Most of its natural resources remain largely untapped. The major environmental concern in the state is soil erosion (NEST, 1991).

Anambra state has over 500 active erosion sites (Anande-Kur, 1989; FDALR, Kaduna 1990; NEST, 1991). The soil erosion in this area is usually initiated by land clearing for agricultural practices, urban development and road construction. Erosion caused by the aforementioned anthropogenic activities usually starts as sheet or rill types, which later develop into deep gullies with time due to high annual rainfall of over 2000mm.

Data sources

The primary data for this study was collected through field survey with the use of a set of open-

ended and structured questionnaire and Focus group Discussions (FGD). One-on-one interview series were however conducted where respondents were either too busy or unable to read the questionnaires themselves. The questionnaire bothered on the socio-economic background of the respondents, information media, deforestation and environmental problems in the study area. Secondary information were sourced from government and international organisation publications, journals and books bordering on forest conservation and communication.

Sampling procedure

Anambra like all other states in Nigeria has three senatorial districts: Anambra North, Anambra Central and Anambra South (Fig. 1). Each district in Anambra has seven Local Government Areas (LGAs) and one LGA was purposively selected from each senatorial district making a total of 3 LGAs out of the 21 LGAs (15% sampling intensity).

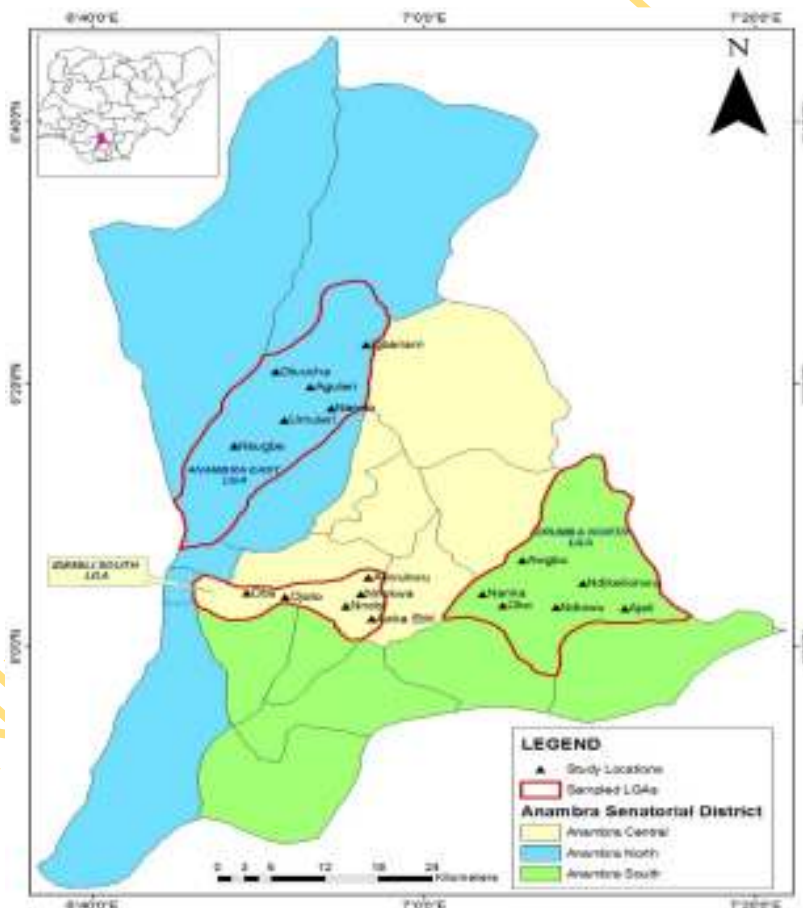


Fig.1: Map of Anambra State (Inset Nigeria) analyzing the sampling procedure

This procedure was directed at covering all the geographic locations in the state and collecting information from Local Government Areas with urban, peri-urban and rural settlements. Collection of information across these settlements was to include respondents from different socio economic

background in the study area. Two wards each were selected from the urban, peri-urban and rural settlements in each of the selected LGAs, making a total of 6 wards in each LGA and 18 wards in the entire study area (Table 1 and Fig. 1).

Table 1: Analyses of the sampling site selection

Senatorial District	Local Government Area	Urban	Peri-urban	Rural
Anambra North	Anambra East	Otuocha, Aguleri	Umuleri Asugbe	Igbariam, Nando
Anambra Central	Idemili South	Ojota, Oba	Nntobi, Awka-Etiti	Akwukwu, Nnoka
Anambra South	Orumba North	Ajali, Oko	Awgbu, Nanka	Ndikelionwu, Ndiowu

A set of questionnaire each was administered to 30 respondents in each of the 18 wards giving a total of 540 respondents in the state of which 457 were recovered.

Data analysis

The data generated were analysed using descriptive (Percentages and frequency count tables as well as pie chart) and inferential test

statistics (Pearson's correlation coefficient, chi-square and ANOVA). Pearson's correlation coefficient was used to ascertain relationships between some of the variables, chi-square was used to test the dependence of some variables on the others and one way Analysis of variance (Completely Randomised Design) was also employed to test for the presence of significant differences in some variables.

RESULTS AND DISCUSSION

Table 2: Demographic characteristics of the respondents' in the study area

Characteristics	North		Central		South		Mean		Mode
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Age (Years)									
20 – 30	60	37.5	29	18.5	49	35.0	46	30.3	> 20 - 30
> 30 – 40	37	23.1	51	32.5	41	29.3	43	28.3	
>40 – 50	37	23.1	50	31.8	27	19.3	38	24.7	
> 50	26	16.3	27	17.2	23	16.4	25	16.7	
Total	160	100	157	100	140	100	152	100	
Gender									
Male	80	50.0	74	47.1	71	50.7	75	49.2	Female
Female	80	50.0	83	52.9	69	49.3	77	50.8	
Total	160	100	157	100	140	100	152	100	
Marital Status									
Married	87	54.4	106	67.5	79	56.4	90	59.4	Married
Single	55	34.4	42	26.8	55	39.3	51	33.5	
Widowed	14	8.8	6	3.8	6	4.3	9	5.7	
Divorced	2	1.2	2	1.3			1	0.8	
No Response	2	1.2	1	0.6			1	0.6	
Total	160	100	157	100	140	100	152	100	
Family Size									
3 – 5	71	44.4	66	42.0	56	40.0	64	42.1	6 - 8
6 – 8	63	39.4	72	45.9	62	44.3	66	43.2	
9 – 12	19	11.9	15	9.6	17	12.1	17	11.2	
> 12	7	4.3	4	2.5	5	3.6	5	3.5	
Total	160	100	157	100	140	100	152	100	

Analysis of the respondents' age (Table 2) indicated while modal age group in Anambra north and south was 20 -30 years, that of the central was between 30 - 40 years. Also, most of the respondents for the study (83.3%) were between 20 and 50 years. This means that the state has a large number of able bodied men and women and hence a promising labour force. Also, decisions arrived at by these group about the forest and the environment would to a large extent, determine the trend of sustainable management in the state. Thus, access of this age bracket to needed and relevant information is expected to impact sustainable development in the state.

Observed also from Table 2 is the overall differences in gender (male - 49.2%: female - 50.8%) and marital status (Married - 59.4%: Singles - 33.3%) distributions of respondents. The singles identified in the study are mainly the youth who are still schooling or learning trade. Apart from these, household size distribution in the study area was mostly monogamous and nucleated with the mode being 6 - 8 members per family (Table 2).

Table 3: Frequency distribution of the educational background of the respondents

Educational qualification	North		Central		South		Mean		Mode
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
No formal education	13	8.1	4	2.5	2	1.4	6	4.1	Secondary education
Primary education	27	16.8	22	14.0	20	14.3	23	15.0	
Secondary education	58	36.3	60	38.2	58	41.4	59	38.6	
Adult literacy classes	4	2.5	6	3.9	7	5.0	5	3.8	
University/polytechnic	58	36.3	65	41.4	53	37.9	59	38.5	
Total	160	100	157	100	140	100	152	100	

Distribution of respondents' educational status (Table 3) reveals a similar trend in the three senatorial districts. Majority of the respondents (95.9 %) had formal education, 3.8 % attended the adult literacy classes, 15.0% had primary education, 38.6% had secondary education and 38.5% had tertiary education (Table 3). Most of the

respondents (38.6%) were observed to stop formal education after obtaining secondary school certificate and proceeded to learn one trade or the other due to financial limitation. Also, deduced from focus group discussions was that access to education in the study area is not gender biased.

Table 4: Frequency distribution of the occupation of the respondents

Occupation	North		Central		South		Mean		Mode
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Farming	65	40.6	63	40.1	54	38.6	60	39.8	Farming
Petty trading	16	10.0	29	18.5	26	18.6	23	15.7	
Artisan	10	6.3	9	5.7	14	10.0	11	7.3	
Civil service	41	25.6	45	28.7	30	21.4	39	25.2	
Student	18	11.2	3	1.9	8	5.7	10	6.3	
Others	10	6.3	8	5.1	8	5.7	9	5.7	
Total	160	100	157	100	140	100	152	100	

On respondents' occupation, Table 4 shows that majority of the respondents were farmers (39.8%). Others are civil servants (25.2), traders (15.7%) and artisans (7.3%). The remaining

respondents are students (6.3%) and those engaged in barbing, clergy services, hairdressing, commercial motored cycle (okada) riding and full-time housewives (5.7%).

Table 5: Frequency distribution of farmers' scale of operation and type of crop produced

Characteristics	North		Central		South		Mean		Mode
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Scale of operation									
Subsistence	49	75.4	52	82.5	48	88.9	50	82.3	Subsistence
Commercial	16	24.6	11	17.5	6	11.1	11	17.7	
Total	65	100	63	100	54	100	61	100	
Type of crop produced									
Food crops	64	98.5	61	96.8	52	96.3	59	97.2	Food crops
Forest trees	1	1.5	2	3.2	2	3.7	2	2.8	
Total	65	100	63	100	54	100	61	100	

Findings on the types of crops produced and production level (Table 5) shows that the majority of the respondents' (82.3%) were producing at subsistence level. This suggests that most of the farmers that were operating on subsistence level would probably be involved in some minor income generating activities. This subsistence farming practiced could be responsible for the major environmental problems facing the state which include soil erosion and gully erosion as there is continuous cultivation on the same small piece of land (Nnadi and Balasubramajion, 1980). However, commercial farming practice was

observed to be highest (24.6%) among respondents' in Anambra north.

Table 5 also shows that 97.2% of the farmers were producing food crops such as maize, yam, cocoyam, leafy vegetables, fruits, rice, tomatoes and cassava while a few of them (2.8%) planted trees. None of the respondents claimed to have planted tropical hardwood species for sawn timber production. This indicates that there is inadequate information on forest tree planting and the roles of trees in the environment, especially soil conservation and the prevention of gully erosion.

Table 6: Frequency distribution of the respondents' language

Language	North		Central		South		Mean		Mode
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Yoruba	6	3.7	4	2.6	4	2.9	5	3.1	Igbo
Hausa	6	3.7	4	2.6	5	3.6	5	3.3	
Igbo	88	55.0	84	53.5	72	51.4	81	53.3	
English	36	22.5	39	24.8	37	26.4	37	24.6	
Pidgin	21	13.1	23	14.6	20	14.3	21	14.0	
Others	3	1.9	3	1.9	2	1.4	3	1.7	
Total	160	100	157	100	140	100	152	100	

It was observed that 3.1% of the respondents were speaking Yoruba language, 3.3% Hausa, 53.4% Igbo, 24.5% English, 14% Pidgin and 1.7% were speakers of other languages such as Efik, Esan, Idoma, Igala, Ika, Italian, Tiv (Table 6). From the results, it is evident that Anambra state is dominated by Igbo speaking people (53.3%). This percentage include both the educated and the non educated ones. Apart from traders that use Pidgin language for communication in their business, residents that speak English language are mainly civil servants and students. The few others that speak Yoruba, Hausa and other languages are

non-indigenes and some Igbos that have lived outside the state. Thus, forest conservation information that will cut across most residents in the study area must be delivered mainly in Igbo language or in combination with English and Pidgin. Extension agents are expected to understand the language of their target population so that the fidelity of information would not be lost in course of communicating in a language different from that of the target population. Language was reported by Tengas (1993) as an essential element of any extension programme.

Table 7: Distribution of respondents' access to media in the study area

Access to media	North		Central		South		Mean		Mode
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Television	40	25.0	44	28.0	35	25.0	40	26.0	Radio
Radio	55	34.4	47	30.0	43	30.7	48	31.7	
Newspaper/magazine	6	3.8	21	13.4	14	10.0	14	9.1	
Forestry workers	2	1.2	-	-	1	0.7	1	0.6	
Pamphlets	4	2.5	7	4.5	6	4.3	6	3.8	
ADP agents	12	7.5	5	3.2	7	5.0	8	5.2	
Community/religious leaders	11	6.9	7	4.5	7	5.0	8	5.5	
Billboards	3	1.9	4	2.5	4	2.9	4	2.4	
Village meetings	9	5.6	6	3.8	7	5.0	7	4.8	
Friends and neighbours	16	10	15	9.6	15	10.7	15	10.1	
Town criers	2	1.2	1	0.6	1	0.7	1	0.8	
Total	160	100	157	100	140	100	152	100	

Table 7 shows the distribution of the respondents' access to media. It shows that the highest percentage (31.7%) of the respondents have access to radio, followed by television (mean = 26.0%) and other media while town criers (mean = 0.8%) and forestry workers (mean = 0.6%) are the least subscribed. The large subscription for radio was ascribed to its portable size, compatibility with cheap alternative energy source

(battery) and relative low cost. Television was subscribed to because of its audio-visual advantage, which further impress information in the mind of viewers. Access to newspaper in the study area is limited to civil servants, students and those that like reading sports news. Access to ADP extension agents and forestry workers in Anambra state is relatively nil (Table 7).

Table 8: Distribution of Respondents' Most Favoured Sources of Information on Farming System

Identified sources	North		Central		South		Mean		Mode
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Television	23	17.2	27	17.2	21	15.0	24	15.5	Radio
Radio	63	39.4	61	38.9	58	41.4	61	39.9	
Newspaper/magazine	4	2.5	16	10.2	9	6.4	10	6.4	
Forestry workers	5	3.1	4	2.5	1	0.7	3	2.1	
Pamphlets	3	1.9	6	3.8	4	2.9	4	2.9	
ADP agents	20	12.5	11	7.0	14	10.0	15	9.8	
Community/religious leaders	6	3.8	7	4.5	5	3.6	6	4.0	
Billboards	2	1.2	4	2.5	5	3.6	4	2.4	
Village meetings	12	7.5	6	3.8	3	2.1	7	4.5	
Friends and neighbours	21	13.1	15	9.6	20	14.3	19	12.3	
Town criers	1	0.6						0.2	
Total	160	100	157	100	140	100	153	100	

On media access for information on farming system in Anambra state (Table 8), modal response (39.9%) was in favour of radio, followed by television (15.5%) as well as friends and neighbours (12.3%). ADP agents were also recognized by few farmers (9.8%). Just few of the respondents subscribed for other media such as

forestry workers, pamphlet and town criers. This findings deviated from the observation made in southwestern Nigeria (Azeez, 2008) where ADP extension agents' interpersonal communication and trade-media were the most preferred means of getting farming system information by farmers.

Table 9: Respondents' access to media on forest conservation

Media	North		Central		South		Mean		Mode
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Television	39	24.4	39	24.8	34	24.3	37	24.5	Radio
Radio	63	39.4	67	42.7	57	40.7	62	40.9	
Newspaper/magazine	4	2.5	9	5.7	8	5.7	7	4.6	
Forestry workers	4	2.5	4	2.5	1	0.7	3	1.9	
Pamphlets	7	4.4	6	3.8	5	3.6	6	3.9	
ADP agents	25	15.6	19	12.1	16	11.5	20	13.1	
Community/religious leaders	5	3.1	3	2.0	3	2.1	4	2.4	
Billboards	3	1.9	6	3.8	8	5.7	6	3.8	
Village meetings	2	1.2	1	0.7	-	-	1	0.6	
Friends and neighbours	8	5.0	3	2.0	8	5.7	6	4.2	
Total	160	100	157	100	140	100	152	100	

Investigation on respondents' access to media for forest conservation information (Table 9) shows that most of them favoured radio followed by television and ADP agents. By implication, forest conservation information can be successfully

disseminated through radio, television and ADP agents or a combination of the three. This exposed the weak fabric of forestry extension in this part of Nigeria although the experience is similar in other parts of Nigeria (Azeez, 2006).

Table 10: Distribution of respondents' perception on the most appropriate/reliable medium for dissemination of forest conservation information

Identified Medium	North		Central		South		Mean		Mode
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Television	31	19.5	39	24.8	38	27.1	36	23.8	Radio
Radio	97	60.6	72	46.0	70	50.0	80	52.2	
Newspaper/magazine	5	3.1	4	2.5	3	2.1	4	2.5	
Forestry workers	2	1.2	1	0.6	0	0.0	1	0.6	
Pamphlets	2	1.2	2	1.3	1	0.7	2	1.1	
ADP agents	13	8.2	22	14.0	18	12.9	18	11.7	
Comm./relig. leaders	3	1.9	2	1.3	6	4.3	4	2.5	
Billboards	2	1.2	4	2.5	4	2.9	3	2.2	
Village meetings	3	1.9	5	3.2	0	0.0	2	1.7	
Friends and neighbours	2	1.2	6	3.8	0	0.0	2	1.7	
Total	160	100	157	100	140	100	152	100	

As shown on Table 10, radio (52.2%) followed by television (23.8%) were favored as appropriate and reliable medium for disseminating forest conservation and environmental amelioration information in the study area. Moemeka (1990) and FAO (1993) had earlier submitted radio as the only medium of mass communication with which rural population is very familiar because it is cheap to obtain. Azeez (2004) also reported that 39.0% of

respondents in a study favoured radio as an appropriate medium for sourcing information in southwestern Nigeria, but this was followed by reliance on community/religious leaders. The reliance on community/religious leaders for FCI is however low (2.5%) in this study area. So forest related information is expected to be disseminated through the radio because it has the ability to cover a greater proportion of the targeted audience.

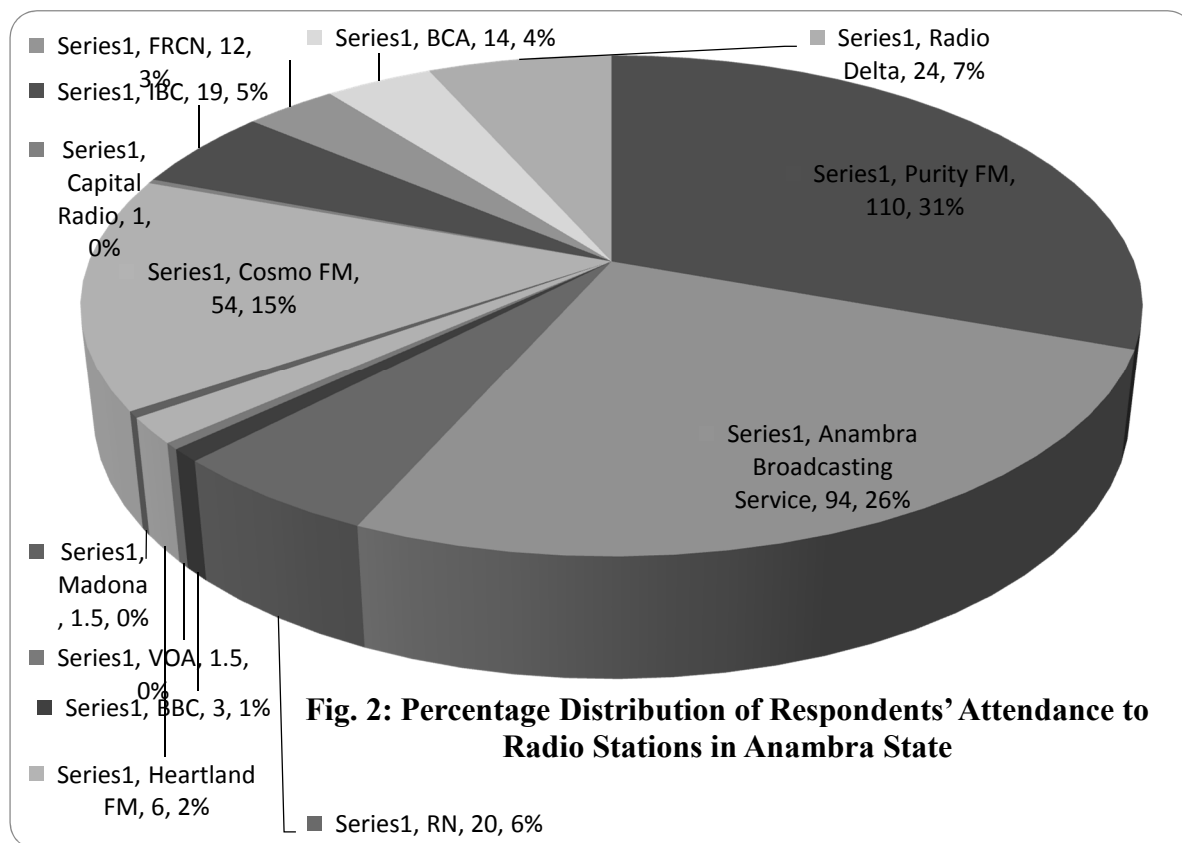


Fig. 2: Percentage Distribution of Respondents' Attendance to Radio Stations in Anambra State

Table 11: Frequency Distribution of respondents' preferred time of listening to radio

Identified Time of the day	North		Central		South		Mean		Mode
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Morning	27	16.9	18	11.5	18	12.9	21	13.8	Radio
Afternoon	7	4.4	5	3.2	10	7.1	7	4.9	
Evening	80	50.0	97	61.8	86	61.4	88	57.7	
Anytime	42	26.3	37	23.5	26	18.6	35	22.8	
Don't listen to radio	4	2.4	-	-	-	-	1	0.8	
Total	160	100	157	100	140	100	152	100	

On the time of attendance to media for information dissemination, results (Table 11) shows that the majority of the respondents listened to radio programs in the evening (57.7%), 13.8% in the morning, 4.9% in the afternoon, 22.8% anytime while 0.9% don't listen to radio programs at all. Evening attendees could be attributed time available to respondents, which is when they would have returned from their farms and other daily activities. Those that indicated mornings claimed

to usually listen to morning news before they set out for their farms or working place. In the afternoon, most people are busy with their daily activities that they don't have time for radio programmes: this is the reason for the small number of respondents who indicated this period of time. Thus, disseminated forest conservation information could be guaranteed to reach maximum number of audience in the evening.

Table 12: Comparison of media content and extension agents' messages in the study area

Comparison	North		Central		South		Mean	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Highly similar	5	3.1	8	5.1	3	2.1	5	3.4
Most similar	8	5.0	13	8.3	6	4.3	9	5.9
Similar	25	14.4	30	19.1	22	15.7	25	16.4
Less similar	9	5.6	7	4.5	12	8.6	9	6.2
Not similar	7	4.4	11	7.0	4	2.9	8	4.8
Can't say	108	67.5	88	56.0	93	66.4	96	63.3
Total	160	100	157	100	140	100	152	100

Comparing the perception of respondents on the contents of mass media and extension agents messages, the study (Table 12) revealed that some (16.4%) of the respondents perceived the contents of both to be similar. Although, the

perception of few (4.8%) was that the contents were not similar, majority (63.3%) of the respondents cannot comment on this issue. This could be adduced to most respondents not having access to extension agents.

Table 13: Respondents' perception of constraints to information dissemination in the study area

Identified Constraints	NORTH					CENTRAL					SOUTH				
	SA	A	D	SD	UN	SA	A	D	SD	UN	SA	A	D	SD	UN
Low level of education	58	52	19	9	1	64	55	15	14	-	55	41	9	20	-
Remoteness of information service	31	56	25	1	24	45	53	30	7	13	44	47	25	25	-
Bad roads	80	46	7	6	1	95	40	4	6	-	92	35	1	2	-
Poor electricity	52	47	20	10	10	59	39	37	10	3	47	32	32	6	-
Inadequate time	31	37	46	14	10	24	53	42	15	11	22	51	31	16	5
Lack of appropriate extension training material	48	44	15	11	20	91	29	4	4	17	59	28	9	8	21

SA = strongly agree; A = Agree; D = Disagree; SD = Strongly disagree; UN = Undecided

Operationalizing identified constrains to information dissemination in the study area (Table 13), majority of the respondents perceived the low level of education, remoteness of information service, poor electricity supply, lack of good road, inadequate time and lack of appropriate extension

training materials as some of the constraints. It should also be pointed out the most potent force against information dissemination in the three senatorial districts of the study area is bad roads. This is followed by level of education and poor electricity (Table 13).

Inferential Test Statistics

Table 14: Summary of Pearson's correlation results

	Anambra North	Anambra Central	Anambra South
Access to Media and Sources of Forest Conservation Support Information (FCSI)			
Pearson Correlation coefficient	0.949	0.879	0.936
Sig. (2-tailed)	0.000	0.002	0.000
Sources of Information and their Reliability for FCSI			
Pearson Correlation coefficient	0.943	0.991	.988
Sig. (2-tailed)	0.000	0.000	0.000
Media Access and their Reliability			
Pearson Correlation coefficient	0.917	0.860	0.907
Sig. (2-tailed)	0.000	0.001	0.000

Access to media and sources of FCI

Analysis of Pearson correlation coefficient (Table 14) shows that there was a significant relationship ($p < 0.05$) between sources of information and access to media in the study area.

The test was significant in Anambra North ($P < 0.001$), Central ($P < 0.003$) and South ($P < 0.001$) respectively indicating a strong positive relationship between access to media and sources of FCSI in Anambra North (0.949), Central (0.879)

and South (0.936). The relationship was however, highest in Anambra North and lowest in South.

Sources of information and their reliability for FCSI

There were significant relationships between the sources of information and their reliability FCSI in Anambra North ($P < 0.001$), Central ($P < 0.001$) and South ($P < 0.001$). Invariably, strong positive correlations exist between information sources and their reliability for FCSI in Anambra North (0.943), Central (0.991) and South (0.988). Interestingly, the relationship is strongest in Anambra central and weakest in Anambra North senatorial district.

Media access and their reliability for FCSI

Significant relationships were observed between access to media and their reliability for

forest conservation support information in Anambra North, Central and South ($P < 0.05$), indicating a strong positive relationships between the respondents' access to media and the reliability of the media for harnessing forest conservation support information. This result did not defile logic since harnessing disseminated information is a function of accessing the medium of such dissemination.

Media effectiveness for FCSI dissemination

Significant differences ($P > 0.05$) were observed in the effectiveness of the identified media in the three senatorial districts of Anambra state (Table 15). Invariably, some of the identified media in the study area were more effective than the others.

Table 15: Summary of ANOVA on the effectiveness of media for dissemination of FCSI

	Source of Variation	Sum of Squares	Degree of freedom	Mean square	F value	Significance
Anambra North	Effectiveness of media	450.628	9	50.070	60.009	0.000
	Error	1326.650	1590	.834		
	Total	1777.278	1599			
Anambra Central	Effectiveness of media	489.162	9	54.351	66.902	0.000
	Error	1267.338	1560	.812		
	Total	1756.499	1569			
Anambra South	Effectiveness of media	393.944	9	43.772	49.223	0.000
	Error	1236.050	1390	.889		
	Total	1629.994	1399			

Dependence of media reliability for FCSI on media access

The Chi-square test of association (Table 16) reveals that the reliability of media as forest conservation support information sources does not depend on the access of respondents' to such media in Anambra state (Table 16). The tests were not significant in the three senatorial districts except for the linear-by-linear association, which merely corroborated the Pearson's correlation

coefficient result in Table 14. This means that although a positive relationship exist between media access and their reliability, the relationship does not translate to dependency of media reliability for FCSI on access to media among respondents. In otherwords mere possession of television or radio as well as having access to newspapers does not make them reliable as sources of FCSI.

Table 16: Summary of Result on the Dependence of Media Reliability for FCSI on Access to Media

Test statistics	Values			Degrees of freedom			Significance		
	North	Central	South	North	Central	South	North	Central	South
Pearson's χ^2	59.125	88.000	60.500	54	72	49	.294	.097	.126
Likelihood Ratio	36.118	47.209	35.072	54	72	49	.971	.990	.933
Linear-by-Linear Association	8.408	7.463	8.219	1	1	1	.004	.006	.004

CONCLUSION

The role of the forests in environmental protection cannot be over estimated. The study revealed the different information sources

available to the people out of which radio was the most accessible, appropriate and reliable medium for forest conservation support information dissemination. This was followed by television.

However, access to a medium does not automatically translate to its reliability as a forest conservation support information source. Thus consideration should also be given to other premises for determining reliability apart from access such as media content, language and time of information dissemination. Agricultural development programme agents and forestry workers and most print media were not effective information sources to the people of Anambra state possibly owing to the unpopular nature of these media among residents. The identified constraints to information dissemination in the area were lack of good road, low level of education, poor electricity supply, remoteness of information service, inadequate time and lack of appropriate extension training materials. Thus the social and economic background of the people is an important ingredient necessary for packaging of FCSI. Television and radio programmes were preferred by the audience and this could be a platform for disseminating FCSI. Communication skills are also necessary for a successful extension activity and forest conservation support information should be delivered at the convenience of media attendant by the people for which the information is intended.

RECOMMENDATION

There is need need to arouse and maintain public awareness on the danger of various environmental abuse. This would be more successful if local communities, individuals and organisation were involved in afforestation programme, right from planning stage. It is therefore recommended that forest conservation information should be disseminated through the radio and television and in the evening time in other to involve more people. Such information should also be packaged and delivered at intervals when popular and preferred programmes are being presented on the television or radio. In packaging FCSI, the social and economic background of the target audience should also be put into consideration since if any extension activity is to be fruitful, the interest of the people should be adequately addressed.

More extension staff should be provided for (most especially those with thrust in forestry) in Anambra State and they are expected to be able to educate the rural people on the alternative land use practices such as agroforestry that are more ecologically friendly than continuous cropping or peasant farming. Provision should equally be made for free tree seedlings and other incentives, which if made available could encourage the farmers to incorporate trees on their land holdings. Also, school curricula should be made to reflect issues on forest conservation as well as the techniques of pursuing, achieving and sustaining it while the media and non-formal schools should be employed in the same direction. Most importantly,

the constraints to information dissemination should be addressed by the government and other institution concerned in the study area.

REFERENCES

Aju, P. C. (2008): Climate Change – Causes, Consequencies and Remedial Actions. In: L. Popoola (Ed.) Climate Change and Sustatinable Renewable natural Resources Management, Proceedings of the 32nd Annual Conference of Forestry Association of Nigeria. pp. 128 - 134.

Anande-Kur, S. (1989): Review of Afforestation and Environmental Programmes - Soil Erosion. Invited Paper Presented at the Workshop on Strategies for Environmental Forestry Management in Nigeria, organized by FORMECU, 13-15 June, 1989 in Kano. 13p.

Azeez, I. O. (2002): Evaluation of Media Mix for Disseminating Forest Resources Conservation Information in Southwestern Nigeria. Unpublished Ph.D thesis, submitted to the Faculty of Agriculture and Forestry, University of Ibadan, Nigeria. 230p.

_____ (2004): Socio-economic Determinants of Media Attendance for Forest Conservation Support Information in Protected Areas of Southwestern Nigeria. *Nigeria Journal of Forestry*, Vol 34, Forestry Association of Nigeria. Pp 142-154

_____ (2006): Prospect and Challenges of Forest Conservation Extension for Sustainable Rural Development: The Experience of Public Extension Services in Southwestern Nigeria. *Journal of Tropical Forest Resources*, Vol. 22(1), Dept. of Forest resources Management, University of Ibadan, Nigeria. Pp. 95.

_____ (2008): Media Access and Reliability for Forest Conservation Support Communication (FCSC) in Rural Southwestern Nigeria. *Journal of Tropical Forest Resources*, Vol. 24(1), Dept. of Forest resources Management, University of Ibadan, Nigeria. Pp. 57 - 70.

Nnadi, L. A. and V. Balasubramajion (1980): Crop residue management and soil productivity in savannah areas of Nigeria. Food and Agriculture Organization Soils Bulletin 43: 106-120.

Brunson, M., B. Shindler (2004): Geographic variation in social acceptability of wildland fuels management in the western United States. *Society and Natural Resources* 17, 661-678.

Etuk, I. M. and I. N. Akpan-Ebe (2008): Climate Change – Causes, Effects and Mitigation. In: L. Popoola (Ed.) Climate Change and Sustatinable Renewable natural Resources Management, Proceedings of the 32nd Annual Conference of Forestry Association of Nigeria. pp. 183 - 188.

- FAO (1993): Development Communication. Food and Agricultural Organisation, Rome Italy.
- FDALR, Kaduna (1990): Land Use And Erosion Problem In Southeast Nigeria; An Information Paper Presented At A Seminar on Erosion Ravages In Southeast Nigeria; Quest for Solution, FUT, Owerri. 29th – 31st May 1990.
- Ferranto, S., L. Huntsinger, W. Stewart, C. Getz, G. Nakamura, and M. Kelly (2012): Consider the source: The impact of media and authority in outreach to private forest and rangeland owners. *Journal of Environmental Management* 97, 131-140.
- Jordan, R., F. Singer, J. Vaughan and A. Berkowitz (2009): What should every citizen know about ecology? *Frontiers in Ecology and Environment* 7, 495–500.
- Miller, J. R. (2005): Biodiversity conservation and the extinction of experience. *Trends in Ecology and Evolution* 20, 430–434.
- Moemeka, A. (1990): "The Mass Media, Communication and Rural Dwellers – Towards the Effectiveness of Development Messages". In: Lai Oso and A. Lanre (Eds.) *Communication for Rural Development in Nigeria*, pp 52 – 73.
- NEST (1991): Nigeria Threatened Environment, A National Profile. Pp. 53-54.
- Olajide, O., S. I. Udofia and E. B. Etigale (2008): Consequences of Tropical Rainforest Destruction on the Climate and Physical Environment. In: L. Popoola (Ed.) *Climate Change and Sustainable Renewable natural Resources Management*, Proceedings of the 32nd Annual Conference of Forestry Association of Nigeria. pp. 75 - 79.
- Olsen, C. S. and B. A. Shindler (2010): Trust, acceptance, and citizen-agency interactions after large fires: influences on planning processes. *International Journal of Wildland Fire* 19, 137-147.
- Pounds, D. (1985): Putting Extension information where people will find it. *Journal of Extension* 23(4). Available at: <http://www.joe.org/joe/1985winter/a6.html>
- Ryan, C. M. (2009): Managing Nonpoint source Pollution in western Washington: landowner learning methods and motivations. *Environmental Management* 43, 1122-1130.
- Shindler, B. A., E. Toman, and S. M. McCaffrey (2009): Public perspectives of fire, fuels and the Forest Service in the Great Lakes Region: a survey of citizen-agency communication and trust. *International Journal of Wildland Fire* 18, 157-164.
- Tengas, B. O. (1993): Guildlines On Agroforestry Extension Planning in Kenya (Regional Soil Conservation Unit , Swedish International Development Authority Nairobi) Pp1-33
- Toman, E., B. Shindler and M. Brunson (2006): Fire and fuel management communication strategies: citizen Evaluations of agency outreach Activities. *Society and Natural Resources* 19, 321-336.
- UNEP (2003): Environment for Development, United Nations Environment Programme, Nairobi Kenya, 64p.
- Wright, A. S. and B. Shindler (2001): The role of information sources in watershed management. *Fisheries* 26, 16-23.