

# Influence of Socio-Economic Characteristics on The Use of Information Communication Technologies (Icts) in Income Generation Among Small Ruminants' Farmers in Kaduna State

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## ABSTRACT

*The study was carried out to determine income generation among small ruminant farmers in Kaduna State. The data for the study was obtained through use of structured questionnaires administered to 141 small ruminant farmers in Kudan, Ikara and Giwa local government areas of Kaduna State. The Local Government Areas were purposively selected due to their involvement in small ruminants' production. Socio-economic characteristics of the small ruminants farmers were analyzed using descriptive statistics and the result showed that about 68% of the farmers were male with a mean age of 41 years and mean income of ₦33,534. Radio, television and mobile phone were the ICTs mostly used by farmers to source information. Regression analysis reveals that the factors which contributed significantly to income were household size and years of keeping small ruminants, while radio contributed negatively to the farmers' income. It is recommended that extension workers should intensify information dissemination on rabbit's production techniques to encourage farmers into production and marketing of rabbits. Funds should be provided for extension agencies to enable them air more radio and television programmes. Collaboration between agricultural extension agencies and education extension services should be established to promote adult education and computer education.*

**Keywords:** ICT, Small ruminant farmers, Income

## INTRODUCTION

Effective information delivery makes any extension organization achieve its objectives of reaching its clients with adequate information that can stimulate an increase in their productivity thereby leading to economic development through an increase in the nation's Gross Domestic Product (GDP). Information and Communication Technologies are technologies which facilitate communication and thus, the processing and transmission of information electronically (Technical Centre for Agricultural and Rural Cooperation (CTA), 2003). The Information and Communication Technology (ICT) has been evolving over time with new technologies of communicating information to the receiver. Different kinds of ICT technologies have been

used to reach out to people e.g. megaphone, radio, television, telephone (land and mobile), projector, internet and satellite. The development process in the world today heavily relies on the use of the ICTs by all sectors of the economy. In agriculture, Information and Communication Technology (ICT) constitutes part of the medium through which information is delivered to farmers.

According to Lawal-Adebawale (2008), integration of the telephony system, particularly the mobile phone, is of high value for effecting prompt exchange of agricultural information and feedback on accessed information between the extension workers, farmers, and researchers. Arokoyo (2003) also observed that no matter how much extension is done by the Village Extension Agent, it is neither efficient nor cheaper for a

developing country like Nigeria having a population of about 150 million with 70-80% who are involved in agriculture and are illiterate to operate without the use of ICTs. The extension services therefore must be appropriately supported with the use of ICTs.

Small Ruminant farmers are those farmers who keep and produce any number of sheep, goats and rabbits. Small ruminant production as practiced in Nigeria is mostly on a small scale in both urban and rural areas where farmers engage in production for economic and meat purposes. Researchers and extension workers therefore have to rely on the use of ICTs in the process of disseminating information to small ruminant farmers. Most Nigeria farmers engaged in livestock farming keep a greater percentage of small ruminants as compared to large ruminant. Adesehinwa *et al.* (2004) stated in their study on socio-economic characteristics of ruminant livestock farmers and their production constraints in some parts of South-western Nigeriathat 40% of the farmers reared both sheep and goats while 29% reared only goats, 19% reared cattle, 7% only sheep but 3% reared cattle and goats while 2% had both cattle and sheep on their farm. Ajala (2004) also forwarded that small ruminants have been reported to form an integral part of the cultural life and farming system of Nigeria's peasantry. Nigeria has a high percentage of its population as farmers living in rural areas, yet farmers find it difficult to obtain information on agricultural development with the decreasing ratio between extension agent and farmers. The need to direct research to areas where information can be shared easily, cheaper and faster electronically in today's world being a global village through the use of ICTs has become acceptable. This study ascertained influence of socio-economic characteristics on the use of ICTs among small ruminant farmers in Kaduna state with the following objectives:

- i. describe the socio-economic characteristics of small ruminant farmers in the study area;
- ii. identify different ICT sources of information used by small ruminant farmers in the study area
- iii. determine the socio-economic characteristics influencing the use of ICTs among small ruminant farmers in the study area.

#### **METHODOLOGY**

This study was conducted in Kaduna State A multi-stage sampling procedure was employed for this study. In the first stage, Maigana Zone, one of

four Agricultural Development Project Zones in Kaduna State, was purposively selected for the study, the selection was based on its prominent position in small ruminant production. In the second stage, three Local Government Areas: Kudan, Ikara and Giwa were randomly selected from the seven Local Government Areas that make up Maigana zone of the ADP. In the third stage, three villages were purposively selected from each of the Local Government Areas based on their high involvement in small ruminants production. In Kudan, Kada-Kada, Kyaudai and Likoro villages were selected. In Ikara, Pala, Kurmi-Kogi and Gimbawa were the villages selected; while the villages selected in Giwa were Karau-karau, Shika and Mararaba-guga. The estimated population of farm families in the three selected villages in Giwa, Ikara and Kudan local government areas is 1413, (KADP, 2001). In all, a total of 141 small ruminant farmers were randomly selected for this study, representing 10% of the population size. In carrying out this study, primary and secondary data were used. The primary data were obtained by interview schedule method. Data were collected on the socio-economic characteristics of the small ruminant farmers such as age, marital status, sex, educational level, small ruminants keeping experience, number of extension contacts, access to credit and number of small ruminants kept. Data were also collected on which of the ICTs used and the number of times the ICTs are used in a week. The ICTs measured are radio, television, landline phone, mobile phone, computer, projector, video, television satellite and megaphone. Descriptive statistics such as frequency and mean were used to achieve objectives one and two while regression analysis was used to achieve objective three.

#### **RESULT AND DISCUSSION**

##### **Small ruminant farmers' socioeconomic characteristics**

The finding in table 1 indicates that 68.1% of the small ruminant farmers were males and about 32% of them were females. By implication therefore, there are more male involved in small ruminant keeping in the study area with a mean age of about 42 years. Information on table 1 also reveals that about 90.8% of the respondents were married while 63.1% of them were heads of households with majority (about 72%) of them having a household size of more than 6 persons. The small ruminant farmers had annual mean income of ₦33, 534

with 54.6% earning ₦25, 000.00 and below while 26.2% of the farmers earned between ₦25,001- ₦50,000. The value of the mode income of the farmers is ₦20, 000. The result of the analysis shows that 35% of the farmers indicated that small ruminant farming is their major source of income. Analysis on table 1 indicates that 36.2% of the small ruminant farmers kept only sheep, 33.3% kept only goats, 29.8% keep mixed flock while 0.7% kept rabbit.

**TABLE 1**  
**Socio-economic characteristics of small ruminant farmers (n = 141)**

Variable	Freq.	Percent	Mean
<b>Sex</b>			
Male	96	68.1	
Female	45	31.9	
<b>Ages (Years)</b>			
0 – 2	9	6.4	
21 – 40	53	37.6	
41 – 60	75	53.2	41.60
61 and above	4	2.8	
<b>Size of Household</b>			
1 – 5	39	27.7	
6 – 10	61	43.2	9.22
11 – 15	21	14.9	
16 – 20	16	11.4	
21 and above	4	2.8	
<b>Income from Small Ruminant Farming in Naira</b>			
0 – 25,000	77	54.6	
25,001 – 50,000	39	26.2	33,534
50,001 – 75,000	11	7.8	
75,001 – 100,000	11	7.8	
100,001 – 150,000	5	3.5	
<b>Head of Household</b>			
Yes	89	63.1	
No	52	36.9	
<b>Small Ruminant Kept</b>			
Sheep	51	36.2	
Goat	47	33.3	
Sheep and Goat	42	29.8	
Rabbit	1	0.7	

**Ownership of ICTs by small ruminant farmers**

The finding on table 2 reveals that radio was the ICT mostly owned (61.3%) by the small ruminant farmers. Radio showed a very high rate of ownership among the small ruminant farmers. This is followed by mobile phone(17.2%), television(16.1%) and video (4.4%). The finding agree with Mwakaje (2010) that out of 200 farmers, 84.5% owned radio as the major ICT, whereas 36% and 1.5% of the farmers owned phone and television respectively.

**TABLE 2**  
**Distribution of small ruminant farmers by ownership of ICTs**

Variable	Frequency*	Percent
Radio	125	61.3
Television	33	16.1
Landline	0	0
Mobile phone	35	17.2
Computer	1	0.5
Projector	1	0.5
Video	9	4.4
Satellite	0	0
Megaphone	0	0

\* Multiple responses. n> 141

**Small ruminant farmers’ usage of ICTs to acquire agricultural information**

According to the information in table 3 about 32% of the small ruminant farmers used radio once a week, 33.3% of them used radio twice a week and 25.5% used radio thrice a week, while 5% of the farmers reported that they used their radio to listen to agricultural programmes four times a week. This finding agrees with the World Bank (2004) report which indicated that radio ranked most used information technology in Nigeria. Table 3 also reveals that about 24% of the small ruminant farmers used television to watch agricultural programmes while 22.0% used television once a week and 2.1% of the farmers used television two times in a week. This may be due to the cost of purchase of a television set and the unavailability of electricity in the study area to power the television sets. The table further revealed that about 11% of the small ruminant farmers use mobile phone once a week, 0.7% of them use the mobile phone twice a week, 0.7% of them use the mobile phone thrice a week while 1.4% of the small ruminant farmers use the mobile phone four times a week to obtain information from the extension workers, fellow farmers on issues affecting production, health or marketing of small ruminants. A cursory look at the table shows that 0.7% farmers used video once a week and another 0.7% of the farmers used video twice a week. Analysis also showed that less than 1% the small ruminant farmers used computer and projector once a week. The small ruminant farmers do not use any of landline phone, television satellite and megaphone. This might be due to total lack of ownership of these ICTs by the small ruminant farmers as shown in Table 3. In a study of three agricultural zones in Benue State, Odiaka (2010) stated that 83.3% of the farmers in zone “A” use radio, about 81% in zone “B”, 80% in zone “C”. About 21.4% of the

farmers in zone “A” use television, 33.0% of the farmers in zone “B” and 39.7% in zone “C” and also mobile phone usage in zone “A” are used by 76.2%, in zone “B” 47.7% and 55.1% in zone “C” of the farmers use mobile telephone. The largest increase in the use of ICT has been in mobile telephone where subscriptions in developing countries increased from about 30% of the world total in 2000 to more than 50% in 2004 and to almost 70% in 2007 (Cieslikowski *et al.*, 2009). Kefela (2010) argued that 80% of the households in Africa use the mobile phones. Information on table 3 also shows that about 14% of the farmers use mobile phone to access information on small ruminants. This incidence of low level of use among small ruminant farmers does not agree with Odiaka (2010) that farmers’ usage of mobile phone in Benue state Zone “A” was 76.2%, in Zone “B” 47.7% and 55.1% in Zone “C” who indicated that farmers have a good percent of usage.

**TABLE 3**  
**Distribution of small ruminant farmers according to usage of ICTs to acquire agricultural information (n = 141)**

Weekly	Frequency	Percent
<b>Radio</b>		
Once	45	31.9
Twice	47	33.3
Thrice	36	25.5
Four	7	5.0
Don’t use	6	4.3
<b>Television</b>		
Once	31	22.0
Twice	3	2.1
Don’t use	107	75.9
<b>Landline</b>		
Don’t use	141	100.0
<b>Mobile phone</b>		
Once	16	11.3
Twice	1	0.7
Thrice	1	0.7
Four	2	1.4
Don’t use	121	85.9
<b>Computer</b>		
Once	1	0.7
Don’t use	140	99.3
<b>Projector</b>		
Once	1	0.7
Don’t use	140	99.3
<b>Video</b>		
Once	1	0.7
Twice	1	0.7
Don’t use	139	98.6
<b>Satellite</b>		
Don’t use	141	100.0
<b>Megaphone</b>		
Don’t use	141	100.0

**Socio-economic characteristics influencing the use of ICTs among small ruminant farmers**

The third objective was to determine the socio-economic characteristics influencing the use of ICTs among small ruminant farmers. The regression result as shown in table 4 reveals that R value is 0.68 with the R<sup>2</sup> value at 0.462 and adjusted R<sup>2</sup> of 0.42 indicating that all the independent variables considered for regression are significantly related to the dependent variable. R value indicates that 68% relationship existed between the dependent variable (income of small ruminant) and independent variables. The adjusted R<sup>2</sup> indicates that 42% of the independent variable contributes to the dependent variable (income of small ruminant). The semi log regression model:

$$Y = \text{Log } Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \dots + \beta_8X_8 + U$$

which gave the best result was used for analysis. The result shown in table 4 indicates the eight independent variables used in the regression analysis as household size, small ruminant farmers years of keeping experience, age of small ruminant farmers, educational level of farmers, number of access to extension workers, number of use of radio in year, number of use of television in a year and number of yearly access to satellite. However, three variables (household size, years of keeping experience and number of use of radio) contribute significantly to income of the small ruminant farmers.

**Household Size**

The household size contributes significantly towards income of small ruminant farmers as shown in table 4 with 0.007 level of significance which is within the 0.01 (1%) level of significance with a positive coefficient of 0.250. This indicates that as household size increases the income increases as well. The socio-religious background of the indigenous people in the study area who are predominantly farmers allows one man to marry as many as four wives without limitation in the number of children he is expected to have. This desire for many children might be a factor that leads these farmers into keeping small ruminants as they require to sell these animals whenever the need arises.

Some farmers keep small ruminants for meat purpose or for use during festive period like Sallah or Christmas while others might be for income generation to supplement family income whenever there are emergencies within the family such as paying for medical bills when a family

member needs medical services, payment of school fees by parents who are from low socio-economic backgrounds or mothers who keep small ruminants, may decide to sell their animals rather than have their children stay at home instead of schooling. These further explained why the income (value) increases simultaneously because it is expected that the larger the family size the more the investment on small ruminant keeping. Ajala and Gefu (2003), asserted that larger households possess more readily labour supply for small ruminant production activities than smaller households. Adesehinwa *et al.* (2004), agreed in their study on small ruminant farmers that 38% of the farmers claimed that religious festivals and social ceremonies (e.g. marriages, naming ceremony) has an effect in motivating them to increase their production as they make more profit selling the animals during festive periods. Budak *et al.* (2005), found that 57% of the farmers keeping small ruminants indicated that their main reason of keeping small ruminants was for cash income to meet up the household demand. Ajala (2004) also agreed that “emergency cash source is the major factor motivating farmers into ruminant production” which serves as a savings to those who keep the animals.

#### **Years of experience in keeping small ruminant**

Small ruminant farmers keeping experience contributes significantly towards income generation in keeping small ruminants with 0.001 significance as shown in table 4 which is within the 0.01 (1%) level of significance with a positive coefficient of 0.355. As it is often said “experience is the best teacher”, this also shows that with increase in small ruminant keeping experience, household income also increases. Another reason may be due to increase in live birth of the small ruminant over the years and the ability of the farmers to take care of the young animal to maturity stage, thereby reducing mortality rate, could also lead to increase in income to the farmers. Table 1 indicates a mean year of about 11 years of keeping small ruminants while the mean age of the farmers is about 42 years. This is an indication that small ruminant keepers are mainly adult.

#### **Use of radio**

Use of radio as shown in table 4 contributes significantly towards income of small ruminant farmers with 0.011 level of significance which is within the 0.01 (1%) level of significance with a

negative coefficient of -0.196. This revealed that as radio is used the income reduces or the income increases with a decrease in the use of radio. This indicates that the negative relationships might be as a result of the long term effect on income as a result of the information used from radio or farmers might not find the immediate information derived from the use of radio on small ruminant farming very interesting or helpful.

Information obtained by the farmers might not be properly understood by them, hence, they cannot use the technology to keep their animals or increase their production which might result in the farmers loss of interest in the information obtained but rely on the experience they acquired over the years, despite the fact that Arokoyo (2011) stated that to date, radio has been one of the major ICTs used in agricultural extension delivery in Nigeria. The problem of frequent breakages in transmission during broadcast of agricultural programmes as stated by farmers during data collection from Radio Nigeria Kaduna which could lead to loss of vital technical information that can help farmers to improve their production. Maru (2005) asserted that radio is suitable for learning in rural communities provided the reception is not problematic.

The negative relationship that existed between income and radio as shown in the negative coefficient of -0.196 in table 4 might be due to the fact that communication through the radio is one-way and audio which does not give the farmers opportunity to see the demonstrations made by the Extension Worker, thereby limiting their understanding of the techniques involved in the new technology to be adopted. Maru (2005) agreed that radio lacks visuals and are usually used for one-way communication. Inadequate finance, might contribute greatly to the negative relationship that existed between income and radio since most of the farmers listen to radio programmes, they might not be financially capable to purchase items needed to adopt the technology.

#### **Age of farmers**

Age of the farmers did not significantly contribute to the income as shown in table 4 where age is at 0.282 level of significant which is not significant at either 1% or 5% level of significance with a positive coefficient of 0.106. This might be due to the fact that majority of the farmers about 97.2% are still in there active ages as shown in table 1 indicating that the farmers are active to engage in other energy demanding

activities or other occupation as their major occupations which demand their time.

### Educational level

Educational background measured in years spent in schooling is not significant to income as shown in table 4 with a value of 0.170 of significance which is not significant at either 1% or 5% level of significance with a negative coefficient of -0.110. This might be due to the fact that 44% of the farmers lack western education and therefore their education does not contribute to income. The result shows that about 28% of the farmers attained primary education. The low rate of education among the farmers might result in lack of understanding of the technical issues discussed which will result in low productivity and thereby reduce income.

### Extension visit

Extension visit did not contribute significantly to income of the small ruminant farmers as shown in table 4 with 0.647 of significance which is not significant at either 1% or 5% level of significance with a negative coefficient of -0.039. Most of the extension workers' visits to farmers might be to discuss crop agriculture rather than discuss animal agriculture. Findings shows that most of the small ruminant farmers do not take to small ruminant farming as a major occupation but rather take to crop farming and other occupations which do not need the service of extension workers visits like civil service, trading and artisans.

### Use of television

The use of television did not contribute significantly to income of the small farmers as shown in table 4 with a value of 0.472 of significance which is not significant at either 1% or 5% level of significance with a positive coefficient of 0.064. This implies that a large proportion of small ruminant farmers are not using television. This might be as a result of the cost of purchase of the television set and the cost of purchasing generator and fuel to obtain electricity to power the television set. Most of the communities involved in the study are rural and without electricity and those with electricity are experiencing unstable power supply such as preventing them from participating or listening to agricultural programme aired at a particular time.

### Use of mobile phone

Use of mobile phone did not contribute significantly to income of the small ruminant farmers as shown in table 4 with a value of 0.490 of significance which is not significant at either 1% or 5% level of significance with a negative coefficient of 0.051. Majority of the farmers are aware of mobile phone but only 14.1% of the small ruminant farmers make use of it to make enquiries about their animals. This might be as a result of weak coverage of mobile networks, server failures by mobile network providers, inadequate resources by the small ruminant farmers to buy the pre-paid recharge card to recharge their phones or to pay for fuel for their generators to charge the batteries of their phones whenever the power goes down.

**TABLE 4**  
**Effect of the use of ICT on income among small ruminant farmers**

Variable	Unstandardized		Standardized	T	Sig
	Coefficient		Co-efficient		
	B	Standard Error	Beta		
Constant	4.491	0.076		59.306	0.000
Age	0.002	0.002	0.106	1.080	0.282
Household Size	0.012	0.004	0.250	2.729	0.007*
Education	-0.005	0.004	-0.110	-1.379	0.170
Years of keeping small ruminant	0.010	0.003	0.355	3.476	0.001*
Extension Visit	0.000	0.000	-0.039	-0.459	0.647
Use of Radio	0.000	0.000	-0.196	-2.577	0.011*
Use of Television	0.001	0.001	0.064	0.721	0.472
Use of Mobile phone	0.000	0.001	-0.051	-0.692	0.490
F = 14.187					0.000
R = 0.68					
R <sup>2</sup> = 0.462					
Adjusted R <sup>2</sup> = 0.42					

\*Regression is significant at 0.01 (1%) Level

## CONCLUSION AND RECOMMENDATION

Based on the findings from this study, the following conclusions have been reached:

In this study we conclude that majority of the farmers are above 40 years of age and most of the farmers earn ₦50,000 and below. Small ruminant farmers' low usage of mobile phone, internet, computer to source for information was due to their low level of education, income and their old ages. The independent variables are significantly related to the dependent variable and contribute 42% to the income of small ruminants. However, household size, years of keeping experience and number of yearly use of radio contribute significantly to the income of the small ruminant farmers.

Based on the findings from this study, the following recommendations are proffered:

1. Extension workers should intensify information dissemination on rabbits farming techniques to encourage farmers into production and marketing of rabbits.
2. Younger farmers should be encouraged into small ruminant farming.
3. Extension agency should collaborate with education extension services to promote adult education and computer educations to enable the farmers utilize the information from the modern ICTs.
4. Computers should be donated to the rural areas for the training of farmers. The farmers should be sensitized on the importance of using ICTs for sourcing current information on agriculture.

## REFERENCES

- Adesehinwa, A.O.K., Okunola, J.O. and Adewumi, M.K (2004). Socio-economic Characteristics of Ruminant Livestock Farmers and their Production Constraints in Some Parts of South-western Nigeria. *Livestock Research for Rural Development* 16 (8) 2004. Retrieved May 2, 2010 from <http://www.lrrd.org/lrrd16/8/cont1608.htm>
- Ajala, M.K. (2004). Household Decision-Making in the Production of Small Ruminants. In Giwa Local Area of Kaduna State of Nigeria. In: Adesehinwa, A.O.K., Okunola, J.O. and Adewumi, M.K (2004): Socio-economic Characteristics of Ruminant Livestock Farmers and their Production Constraints in Some Parts of South-western Nigeria. *Livestock Research for Rural Development* 16 (8) 2004. Retrieved May 2, 2010 from <http://www.lrrd.org/lrrd16/8/cont1608.htm>
- Ajala, M.K. and Gefu, J.O. (2003). Socio-economic Factors Influencing Small Ruminants Management Practices in Kaduna State. *Moor Journal of Agricultural Research* 4(2): 274-280.
- Arokoyo, T. (2003). ICTs in the Transformation of Agricultural Extension: The Case of Nigeria. Paper presented at the 6<sup>th</sup> Consultative Expert Meeting of the CTA's Observatory on ICTs, Wageningen. September 23<sup>rd</sup> – 25<sup>th</sup>, pp 10.
- Arokoyo, T. (2011). ICTs Application in Agricultural Extension Service Delivery. *Agricultural Extension in Nigeria*. Second Edition. Published by Agricultural Extension Society of Nigeria (AESON). pp. 327.
- Cieslikowsk, D.A., Halewood, N.J., Kimura, K. and Zhen-wei Qiang, C. (2009). Key Trends in ICT Development (World Bank Report). In: Mwakaje, A.G. (2010). Information and Communication Technology for Rural Farmers Marketing Access in Tanzania. *Journal of Information Technology Impact*. 10(2):111
- Kaduna State Agricultural Development Project (KADP)(2001). A Report of the 2001 Household Listing Survey. P.10.
- Kefela, G.T. (2010). The Impact of Mobile Phone and Economic Growth in Developing Countries. *Africa Journal of Business Management*. Vol. 5(2). pp 270.
- Lawal-Adebowale, O.A. (2008). Information and Communication Technology Development Policy: The Implications for Enhanced Research-Extension-Farmers-Linkage System in Nigeria. In: Proceedings of the 13<sup>th</sup> Annual National Conference of the Agricultural Extension Society of Nigeria (AESON). 8<sup>th</sup> – 11<sup>th</sup> April, p. 124.
- Maru, A. (2010). Using Information and Communications Technology (ICT) for Agricultural Extension Written and Researched. International Service for National Agricultural Research (ISNAR) Colin Latchem, Distance Education Consultant,

- Australia. Retrieved August 27, 2010 from <http://www.col.org/SiteCollectionDocuments/ICTagriculture.asp.htm>
- Mwakaje, A.G. (2010). Information and Communication Technology for Rural Farmers Marketing Access in Tanzania. *Journal of Information Technology Impact*. 10(2):111
- Odiaka, E.C. (2010). Differential Mass Media Use among Rice Farmers in Nigeria: Evidence from Benue State. *Journal of Communication*, 1(1):34
- Technical Centre for Agricultural and Rural Cooperation (CTA) (2003). *Spore*. Issue no. 99. In: E.L. Adebayo and O.M. Adesope (2007). Awareness, access and usage of Information and Communication Technologies between female researchers and extensionists. *International Journal of Education and Development using ICT*, Vol. 3(1).
- World Bank (2004). World Bank Development Indicators. In: Ifejika, P.I., Ayanda, J.O. and Nwabeze, G.O. (2007). Content Analysis of Radio Niger Programme on Promotion of Fisheries around Kainji Lake Basin, Nigeria. *Journal of Agricultural Extension*. Published by Agricultural Extension Society of Nigeria (AESON). pp. 54.