



Access and Application of Information and Communication Technology (ICT) among Farming Household in Kainji Lake Basin, Nigeria

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ABSTRACT

The study examined Access and Application of Information Communication Technology (ICTs) among farming household in Kainji lake basin, Nigeria. Multi-state sampling was used in selection of 200 farmers for the study. Primary data were collected with aid of a well structured questionnaire. 200 questionnaires were sent out for farmers but 194 questionnaires were retrieved. The data was subjected to descriptive statistical analysis. The percentage of the respondent is below the average. This implies that the farmers of this area used contemporary information communication technology (ICTs) for obtaining Agricultural technology information more than conventional (ICTs). The study recommended the strengthening of the use of conventional (ICTs) rather than contemporary (ICTs), also provision of adequate training on the use of (ICTs) for farmers and other Agricultural stakeholders.

Keyword: Farmer, conventional ICT, contemporary ICT, signal.

INTRODUCTION

It is commonly believed that researcher and farmer in Nigeria are battling the problem of inadequate and out-of-date materials; it could be argued that the only way to pursue knowledge is through research; however, research is changing (Ogundana, 2014). Information and Communication Technology (ICT) which can be broadly interpreted as technologies that facilitate communication and processing, transition of information by electronic means (CTA, 2003). This definition encompasses the full range of ICTs from Radio and Television to Telephones (fixed and mobile), computers and the internet. The ICT is a development agent having a profound impact on the research process and dissemination of information. Information and Communication Technology (ICT) is the scientific, technological and engineering discipline of management technologies used in the handling of information, processing and application related to computers. ICT is also concerned with interactions between man and machines; and associated socio-economic and cultural matters (Osuagwu, 2001). Information technology could be regarded as the coming together of computing and telecommunication for the purpose of handling information.

The advent of Information Communication Technology (ICT) and its subsequent adoption by both the developed and developing countries ushered in the information age. Consequently, information has become a valuable commodity in the global world. Thus, nations that have acquired the necessary ICT infrastructure have been moving rapidly into the post-industrial information-based economy (Alleman, 2005). ICTs are major catalyst for information and knowledge that can create development opportunities and choices for rural communities. These can under certain conditions help to improve the living conditions of the rural poor through better and more sustainable livelihoods strategies (UN, 2004). The application of ICT in different areas of human endeavor has brought about many benefits not only to the individual but also to the community whether in urban or rural areas.



Therefore, how far people progress in whatever they are doing in agriculture depends largely upon the availability and access to accurate and reliable information. Ogundana (2014) believes that the major setback in agricultural production in Nigeria is not lack of recommended practices needed for economic growth and rural transformation but that of disseminating the recommended practices to end users.

Study Area

Lake Kainji was formed by damming the river Niger at Kainji Island. The dam was closed on 2nd August, 1968 and the reservoir created behind it has a surface area of 1,120km² at maximum-recorded level. The lake is 137km long and 24km wide (Welcomme, 1972). Kainji Lake is in the Guinea savannah vegetation zone of the north-western Nigeria. Kainji Lake is located between longitude 9^o 20' and 10^o 55' East and latitude 4^o 22' and 4^o 45' North. It has a length of 134km, a maximum width of 21.1km and a maximum depth of 60meters. It has a surface area of 1270 km² and a mean annual water temperature of 27.85^oc after construction (Abiodun, 2002), and catchment area of 1.6 × 10⁶ km². The river Niger has two flood regimes, the black floods and white floods. Although the primary aim of the impoundment is to generate hydro-electric power. The lake also offers opportunities for developmental projects like irrigation farming, fisheries and navigation. Kainji Lake has its source from Futa Jalon in Niger Republic and from local rivers around the lake basin. It takes three to four months for the water from Futa Jalon to get to Kainji Lake especially the southern basin (Ogundana, 2014).

Objective of the Study

This study is aimed at achieving the following objectives

- ❖ To determine the level of ICT utilization among farming household in Kainji lake basin, Nigeria
- ❖ To identify the types of ICT infrastructures available in the farming household
- ❖ To identify perceived constraint to effective use of ICT by the respondent

Purpose of the Study

The purpose of this study was to examine the accessibility and level of utilization of ICT among farming household in Kainji lake basin, Nigeria.

METHODOLOGY

A descriptive survey method was adopted for the study. Questionnaire was the main instrument used for data collection, while oral interview was used to clarify some aspects of the questionnaire found unclear. As most literate farmers were able to complete the questionnaire on their own, few had to be interviewed and their responses were used to complete the questionnaires. The population of the study is made up of four districts in Kainji lake basin area, which include: Bussa, Karabonde, Wawa and Leaba. Fifty (50) respondents will be selected from each district making it a total of Two hundred (200) respondents which will be selected via multi-stage sampling. The researchers trained four (4) researcher assistant who have good command of the local languages that joined in the distribution and retrieval of the questionnaires, they also assisted in the interviewing of the



illiterate rural farmers using the Bussawa and Hausa languages. The entire questionnaires distributed to the rural farmers in the four districts, the researchers were able to retrieve 194, and thus there was 97 % response rate. Data collected was analyzed using tables, percentages and frequency distribution.

RESULT AND DISCUSSION

Table 1 shows that demographic information about the ages of the respondents. The result however revealed that majority 64.4% were male, this is supported by Amachai-Hamburger and Hayat (2001) that information communication technology usage are dominated by men. The results also indicate that most of the respondents 37.1% were within their productive age bracket between (40-50) years, and the mean age was found to be 45years. This revealed that farming is dominated by young people who are active. 79.9% were married while 20.1% were single. The finding is similar to that of (Ekong, 2003) who reported that marriage in our society is highly cherished. The result revealed that 55.7% of the respondents have tertiary education certificate, 21% of them have secondary education certificate; these suggest that farming is in the hand of enlightened people in the area. The majority 80.4% of the respondents belongs to farm association; which is a good platform for socialization and diffusion of new information. The result of household size clearly indicates that 60.8% of the respondents have family sizes of 4-7 with average of five people. Majority of the respondents had large family size, farm operation in the study area may depend on family labor, hiring of laborers may not be needed. This act will reduce the cost of production and add more value to the farmers. This result is confirmed by (Ani, 2004). The result further revealed that 34.5% of the respondents have 7-9years experience while 16.5% of them have less than three years. This is plausible in the sense that the higher the farming experience, the more the farmers would have gained more knowledge and technical ideas on how to improve their production; this finding is supported by Nwaru (2004). 25.8% of the respondents engage in fisheries while 30.4% of them engaged in arable crops, and 12.4% of the respondents engaged in livestock.

Table 2 clearly indicates that the majority of the respondents never use Radio due to poor radio signal in the area while 29.9% listened to radio programme daily with the aid of external antennal. 65.5% of the respondents watch Television programme on DSTV while 34.5% rarely watch Television due to lack of signal in the area. 100% of the respondents have and use mobile phone which helps to improve communication among them. 28.9% of the respondents make use of e-wallet weekly, 18% of them rarely use it while 53% never use it. 35% of the respondents do visit e-centre weekly while 39.7% never make use of the centre and 55.7% make use of internet either on their phones or computer system daily, 22.7% weekly while 12.3% never use internet.

From Table 3, it is clear that majority of the respondent use radio for marketing purpose, while 26.8% use it for information on recreation and farming. Most of the respondents watch television for recreation purpose and 49% for agricultural programme. 69.6% of the respondents used their phones to get information on recreation, while 50% for agricultural activities and 44% for agricultural marketing. 48.5% of the respondents use internet for



recreation, 35% uses it to get information on farm operations and 23.2% for processing. 69.6% of the respondents pay their farm operation bills using e-wallet, while 27.8% of the respondents visit e-centre to get information on farming.

Table 4 shows the extent of application of ICTs in farming activities, information and innovation acquired will determine by the respondents skill in using the ICTs. It entails the ability to use the technology in various farming activities. The result shows that 74.7% of the respondents acquired skill acquisition, 67% of them acquired information on credit need, 43.8% of the respondents acquired information on best processing method. 73.2% of them acquired information on improved seed variety, while 40.7% of respondents acquired information on fish breeding, 48.5% of them acquired information on farming system. 39.7% of the respondents acquired information on market scanning, 54.1% of them acquired information on agro-chemical usage. 38.7% and 30% of the respondents, acquired information on storage system, and record keeping respectively.

From Table 5, it is clear that 100% of the respondents observed that availability of power supply is not a constraint to the usage of ICTs gadgets; they enjoyed steady power supply from Kainji electric power station. 49% of them agreed that deficiency in ICTs knowledge is a constraint to them. This is supported by Omotayo (2006) that one of the major barriers to efficient internet use by researcher includes deficiency in ICTs knowledge. 64% of the respondents don't have access to ICT, 70% of the respondents observed that poor network signal is one of the major constraint to them. This finding goes in line with Laumbano and Nawe (2004) said slow internet and network failure contributed to small bandwidth is a major factor hindering ICT access and use in Africa. 79% of the respondents observed that lack of infrastructure limit their access to ICT while 100% of the respondent observed that poor TV/Radio signal is a big constraint to them.

CONCLUSION AND RECOMMENDATION

Based on the findings of this research work, it can be concluded that mobile phone, internet and television were the most accessed and utilized ITCs among the farmers in Kainji lake basin, Nigeria. However, the level of ICTs application to farming operations was still low, hence intensive effort should be made in creating and promoting favorable environment that will speed up the full utilization of the potentials of agricultural operation in the area. This is predicted on the fact that ICTs are essential for sourcing and disseminating information on extension service delivery for agricultural production. Thus, improved productivity by farmers can only be achieved through communication of the research findings to the largest numbers of farmers in the shortest possible time. Radio and television is the channel which can be utilized for such purpose. Based on the findings of this study, it was recommended that;

- i. Government should rehabilitate both Nigeria Television Authority (NTA New-Bussa) and rural radio Koro, New-Bussa. To stage educative Agricultural programme in local languages.



- ii. Fish farmers should be encouraged to access and utilize ICTs by supporting them with resources both financially and materially. This can be actualized by providing them with credit grant.
- iii. Improvement in rural infrastructures, particularly ICT facilities is very essential in the study area.

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Table 1: Revealed the Percentage Distribution of the Respondent by Socio-economic and Personal Characteristics.

Variable	Frequency	Percentage
SEX		
Male	125	64.4%
Female	69	35.6%
AGE		
20-30	33	17%
31-40	68	35%
41-50	72	37.1%
51-60	21	10.8%
60 above		
MARITAL STATUS		
Single	39	20.1%
Married	155	79.9%
RELIGION		
Christianity	84	43.3%
Islam	110	56.7%
Traditional	-	
EDUCATION		
Non formal Education		
Primary	26	13.4%
Secondary	40	21.6%
Tertiary	128	65%
FARMING ASSOCIATION		
Yes	156	80.4%
No	38	19.6%
HOUSEHOLD SIZE		
1-4	54	27.8%
4-7	118	60.8%
7 above	22	11.3%
FARMING EXPERIENCE		
Less than three years	32	16.5%
4-6 years	56	28.9%
7-9 years	67	34.5%
10 years above	39	20.1%
PROFESSION OF RESPONDENT		
Farmer and student	21	10.8%
Trader and Farmer	26	13.4%
Farmers	59	30.4%
Farmers and Civil servant	88	45.4%
TYPES OF FARMING SYSTEM		
Crop	22	11.3%
Livestock and crop	35	18%
Livestock	24	12.4%
Fisheries	50	25.8%
Fisheries and Livestock	36	18.6%
Crop and Fisheries	27	13.9%

SOURCE: Field survey, 2017



Table 2: ICTs available and usage by respondent

Variable	Daily (%)	Weekly (%)	Seldom (%)	Never (%)
Radio	58(29.9%)	-----	-----	136(70%)
Television	127(65.5%)	-----	67(34.5%)	-----
Mobile phone	194(100%)	-----	-----	-----
Internet	108(55.7%)	44(22.7%)	18(9.3%)	24(12.3%)
E-wallet	-----	56(28.9%)	35(18%)	103(53%)
E-centre	-----	68(35%)	49(25%)	77(39.7%)

SOURCE: Field survey, 2017

Table 3: Purpose of using ICT by respondent

Variable	Recreation (%)	Farming (%)	Marketing (%)	Processing (%)
Radio	48 (24.7%)	52 (26.8%)	55 (28.4%)	45 (23.2%)
Television	115 (59.3%)	95 (49%)	68 (35%)	75 (38.7%)
Mobile phone	135 (69.6%)	98 (50.5%)	86 (44%)	35 (18%)
Internet	94 (48.5%)	68 (35%)	52 (26.8%)	45 (23.2%)
E-wallet	-----	135 (69.6%)	105 (54%)	25 (12.9%)
E-centre	-----	54 (27.8%)	26 (13%)	17 (8.8%)

SOURCE: Field survey, 2017

Table 4: Level of information and innovation acquired by the respondent

Variable	Yes (%)	No (%)
Skill acquisition	145 (74.7%)	49 (25.3%)
Information on credit need	130 (67%)	64 (33%)
Modern processing method	85 (43.8%)	109 (56.2%)
Improved seed variety	142 (73.2%)	52 (26.8%)
Breeding	79 (40.7%)	115 (59.3%)
Farming system	94 (48.5%)	100 (51.5%)
Marketing scanning	77 (39.7%)	117 (60.3%)
Use of agro chemical	105 (54.1%)	89 (45.9%)
Storage system	75 (38.7%)	119 (61.3%)
Record keeping	58 (30%)	136 (70.%)

SOURCE: Field survey, 2017

Table 5: Barriers to access the ICT by respondent

Variable	Yes (%)	No (%)
Availability of power	-----	194 (100%)
Deficiency in ICT knowledge	95 (49%)	99(51%)
Accessibility to ICTs	124 (64%)	70 (36%)
Poor network signal	136 (70%)	58 (30%)
Lack of infrastructure	154 (79%)	40 (20.6%)
Poor TV/Radio Signal	194 (100%)	-----

SOURCE: Field survey, 2017