International Journal of Information and Communication Technology Research

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# Insight on How Fisherfolk Use Mobile Phone to Communicate in Fishing Communities of Kainji Lake Basin, Nigeria

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## ABSTRACT

Improving extension and advisory services to fisherfolk with mobile phone is dependent on better understanding of their communication behaviour. This informed decision to assess mobile phone usage among fisherfolk in fishing communities of Kainji Lake basin, Nigeria. Multistage sampling technique was employed to select 165 respondents in eleven fishing communities from two council areas in Niger State bordering the lake in the west. Primary data was collected with semi structured questionnaire and analysed descriptively. Outcome showed that respondents possessed the skill and showed competency for verbal communication against non verbal communication as many can speak better than reading and writing. Also they were found to have the ability to speak Hausa language compared to four other languages examined. In line with their verbal communication behaviour, mobile phone medium of communication was voice call compared to usage of SMS and multimedia message. However, mobile phone adoption rate was slow between 2002 and 2005 but escalated between 2006 and 2009 to reach peak in 2008 before it slacked down in 2010. Three GSM service providers found operational in the area were Glo, MTN and Airtel, but, Glo had a wider coverage and usage in the fishing communities. Also, it was found that fisherfolk had low knowledge of some of services provided by GSM operators to reduce cost or buy airtime on credit. Therefore, verbal communication skill should be explored using voice call medium of the mobile phone for fisheries extension and advisory services around the lake basin. GSM service providers with low coverage and usage for communication like MTN and Airtel should expand their scope in the lake basin. While government institutions in fisheries research and extension agencies should take urgent steps to establish customer services at tool free or reduced cost charges to boost access to quality information and extension contact with fisherfolk in the area.

**Key words**: *Mobile phone, fisheries, adoption rate, information, communication, Nigeria.*

## 1. INTRODUCTION

Kainji Lake impounded 43years ago is one of the popular fishing sites with close to forty fish species and generates substantial livelihood in 314 fishing communities for 6,613 fishers (men, women, youths and even children) as well as fish processors, fish marketers, craftsmen, transporters and auxiliary jobs. [1] recent study on the lake revealed a sharp decline in fish yield from 32,474 tonnes in 1995 to 9,248 tonnes valued at ₦661,758,000.00 million Nigeria Naira. Therefore, fishers and others in the value chain need to realise that opportunities and possibilities existing in the water bodies within their domain require new ideas and connections to harness and improve livelihood activities. As such, these people require new communication tools and quality information to access the new ideas and connections within and outside to gain relevant knowledge and take good decisions to overcome the barriers of information poverty affecting the lake fish resources management, market price, weak extension contact, distance, location and poor infrastructure. Quality information possesses the following characteristics: accuracy, completeness, objectivity and representation said Kopak 2011 in [2]. Also, quality information need to be seek and if found, communicated through the right channel and medium to facilitate quick understanding and usage. Hence, people are not interested in just any information; they request the best information available for their purpose [2].

Mobile phone is one of the new productive assets alongside other resources of production with potential and capacity to empower fisherfolk to acquire new relevant ideas, quality information and technical know-how. [3] posited that GSM has brought about faster access to expert knowledge and information to people in rural areas with deeper geographic penetration. While [4] asserted that the most outstanding advantage of integrating GSM as a tool for dissemination is simply the fact that extension agents can easily pass on information more efficiently through mobile phones. Also, literature has convincing evidences across the globe on the positive contributions of mobile phone in livelihood of artisanal small-scale fisherfolk and rural development as document in [5], [6]; [7]; [8]; [9] and [10]

Unfortunately, Nigeria is lagging behind many African countries on organised use of mobile phone for advisory or disseminate agricultural information to rural people engaged in fisheries. Even in Nigeria, mobile phone had been grossly underutilised to mainstream or resuscitate collapsed extension and advisory services in agricultural sector. Meanwhile, the impact of mobile phone is more visible in other sectors of the economy like industry, education, transportation, tourism, health, banking, commerce, governance, security, social and sports [11]. Underutilisation of mobile phone in extension and advisory services in agriculture is appalling with subscribership strength of over 87,297, 789 million after eleven years of liberalisation. Investigations in the country had proven that extension agents and farmers including fisherfolk were among the million subscribers that own and

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use mobile phone in rural and urban areas [12]; [13]; [14]. It was just last year (2012) that the Federal Ministry of Agriculture and Rural Development (FMARD) made effort to develop national farmer's database of 4.5 million and used it to distribute inputs of seeds and fertilizers to 1.2 million crop farmers within 120 days through mobile phone "E-wallet System or Paper Vouchers" project [15]. This substantiated the power of mobile phone to share new ideas required on sustainable fishery community based management approach, application of geographic information system (GIS) in fish tracking, education on fishing law edicts, standardization of fish sales, market information and intelligence, best practices in fish processing and packaging as well as connections with institutions of government, co-operative associations, non-governmental organisations, extension agents, credit and research.

Mobile phone is handy, understand s every language unlike its users and has facilities to personalise messages as well as initiate verbal and non verbal communication. Some brands like Nokia are configured to local languages in Nigeria like Igbo, Hausa, and Yoruba. It has multimedia and multi-medium facilities for feedback mechanism, information generation and distribution to individual, group and mass in a variety of ways like text message, voice call, voice message, multimedia messaging and internet. According to [10] mobile phone is relatively cheaper and efficient compared to personal cost of extension agent, television and newspaper used in extension services. However, the use of mobile phone to communicate effectively to supply quality information depends to a large extent on mastery of the tools. This is important because effective communication occurs when co-communicators exchange mutually understood messages, which move both of them towards mutually beneficial end [16]. Information is effective when it is timely, clear and has adequate content [17]. While [18] argued that it requires communication competence, that is, the ability to effectively exchange meaning through a mutually shared system of symbols or signs or behaviour.

In Nigeria, gap exists in literature on mobile phone communication behaviour, adoption rate and knowledge of services offered by GSM operators' among fisherfolk. The study will generate baseline information for planning and implementation of mobile phone based extension and advisory services in fishery in the catchment area. This informed the decision to assess how fisherfolk use mobile phone to communicate in fishing communities of Kainji Lake basin. The four guiding specific objectives were to:

1. ascertain fisher-folk language of communication
2. determine the adoption rate of mobile phone
3. ascertain mobile phone tools and network services used to communicate.
4. examine their knowledge on services provided by GSM operators

## 2. STUDY AREA

The Kainji Lake basin is situated between kilometres 1,008 to 1,144 along the 5,872 KMs of the River Niger and covered an area of 1,250km$^2$ [19]. The lake is located at longitude $9^o50'$ – $10^o$ 55'N and latitude $4^o23'$ – 45'E [20]. Harbouring States are Niger in the West and Kebbi in the East with two urban towns of New-Bussa and Yauri respectively which act as feeder and transit route for rural communities to cities. However, infrastructural development is skewed against fishing communities around the lake except GSM infrastructure.

## 3. METHODOLOGY

Adopted sampling method was multi stage and the first step was stratification of the lake into two along Niger and Kebbi States bordering it. Niger state was purposively selected for the study due to access and presence of GSM network in the area. Next was random selection of Borgu and Magama Local Government Areas (LGAs) out of three LGAs (Borgu, Agwara, Magama) bordering the lake in Niger State. Third step was purposive selection of 11 fishing communities with GSM network in the two LGAs out of 174 fishing communities in the State. The selected fishing communities were Malale, New-Bussa, Musawa, Monai, Yuna and Gwatankwara. Others were Kaya, Sakakinka, Yunawa, Tunga Angulu and Tunga Alhaji Ibrahim. The population for the study comprised of all fisherfolk in the selected eleven fishing communities. While the sample size was estimated 280 fisherfolk that owned mobile phone in the selected fishing communities. Final step was the random selection of 165 subjects from sample size as respondents for study. Instrument for primary data collection was semi structured questionnaire which was face validated by experts in extension communication in an in-house seminar. Primary data was collected through face to face interview. Trained enumerators fluent in Hausa language were used to administer the interview schedule to respondents in the months of June and July, 2010. Analytical tool applied was descriptive whereas result were presented in frequencies, percentages, chart and graph.

## 4. RESULTS AND DISCUSSION

Table 1 below is on language communication skill of fisher-folk determined on ability to speak, read and write at three levels of not at all (0), not easily (1), and easily (2). As shown, bulk of the respondents has the ability for verbal communication but had difficulty in non-verbal communication in terms of reading and writing. On speaking ability, almost all (94.0%) easily speaks Hausa language followed by pidgin (30.0%) against poorly spoken Arabic and English languages. Respondents displayed poor non-verbal communication ability in terms of writing and reading i.e. "wording" in all the five languages even though Hausa was better than others. Shocking was Arabic language that vast majority (63.0%) of the Muslims could neither speak nor write despite claim on Arabic education in the area. Finding on speaking Hausa is not surprising since over 70% of them came from northern states that use it as lingual fraca. [16] wrote that it is an assumption that most, if not all speak Hausa in States like Kaduna and Plateau in Northern Nigeria. Similarly, [21] Ibeun and Mdaihli (1994) reported that fishermen around the lake mostly communicate in Hausa language. Poor communication skill and incompetency

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exhibited on writing and reading is linked to high illiteracy of fisher-folk which might affect the use of SMS to seek information and interaction. Observed difficulty in writing and reading is likely to affect their use of cheap non verbal tool of SMS to communicate, understand information relevant in their livelihood as well as derive benefits provided by GSM operators to customers. Finding was collaborated elsewhere in Tanzania that voice calls was preferred more as it just involved listening and talking as opposed to SMS which required both writing and reading skills in rural communities [9]. Strength of voice call and voice message where fisher-folk displayed communication ability and competency should be exploited for social change campaign using local Hausa language in the area.

**Table 1: Respondents language communication skill**

| Languages | Not at all | | Not easily | | Easily | |
|---|---|---|---|---|---|---|
| | Frequency | % | Frequency | % | Frequency | % |
| **Speaking Ability** | | | | | | |
| Hausa | 1 | 0.6 | 9 | 5.5 | 153 | 93.9 |
| Arabic | 104 | 63.0 | 47 | 28.5 | 14 | 8.5 |
| Pidgin | 53 | 32.1 | 62 | 37.6 | 50 | 30.3 |
| English | 93 | 56.4 | 50 | 30.3 | 21 | 12.7 |
| Others: Isoko, Igbo, Urobo, Yoruba | 96 | 58.2 | 6 | 3.6 | 63 | 38.2 |
| **Reading Ability** | | | | | | |
| Hausa | 77 | 46.7 | 52 | 31.5 | 36 | 21.8 |
| Arabic | 80 | 48.5 | 63 | 38.2 | 22 | 13.3 |
| Pigeon English | 104 | 63.0 | 43 | 26.1 | 18 | 10.9 |
| Good English | 106 | 64.2 | 47 | 18.5 | 12 | 7.3 |
| Others: Isoko, Igbo, Urobo, Yoruba | 118 | 71.5 | 28 | 17.0 | 19 | 11.5 |
| **Writing Ability** | | | | | | |
| Hausa | 82 | 49.7 | 50 | 30.3 | 33 | 20.0 |
| Arabic | 78 | 47.3 | 60 | 36.4 | 27 | 16.4 |
| Pigeon English | 106 | 66.1 | 40 | 24.2 | 16 | 9.7 |
| Good English | 113 | 68.5 | 41 | 24.8 | 11 | 6.7 |
| Others: Isoko, Igbo, Urobo, Yoruba | 129 | 78.2 | 21 | 12.7 | 15 | 19.1 |

Source: Field survey (2010)

Figure 1 below was on adoption rate of mobile phone by fisherfolk which was measured in years. Adoption rate is a measure of speed at which they respondent bought first mobile phone and activated the Subscriber Identity Module (SIM) card for communication. As shown, mobile phone rate of adoption was found to be high between 2006 and 2009 but sharply declined in 2010. This occurred after 6years of telecommunication liberalization policy in 2001 and two years after the first GSM operator (Globacom) entered New-Bussa town around the lake basin in 2004. As shown, purchase of mobile phone and SIM activation became very intense in 2008 (23.64%) closely followed by 2006 (19.0%), 2009 (18.0%) and 2007 (18.0%). Using adoption theory to explain the result: only 1.8% were innovators for adopting mobile phone before it entered the area in 2004, followed by early adopters (9.7%) that constituted small proportion between 2004 and 2005, early majority (42.4%) occurred between 2006 and 2009 and late majority (8.48%) in 2010. Encouraging factor to high adoption rate was competition among service providers for customers in rural areas, falling price of mobile phone handsets and declining tariff charges. Result shows that mobile phone owners among fisherfolk fall into different categories of adopters and in line with global trend.

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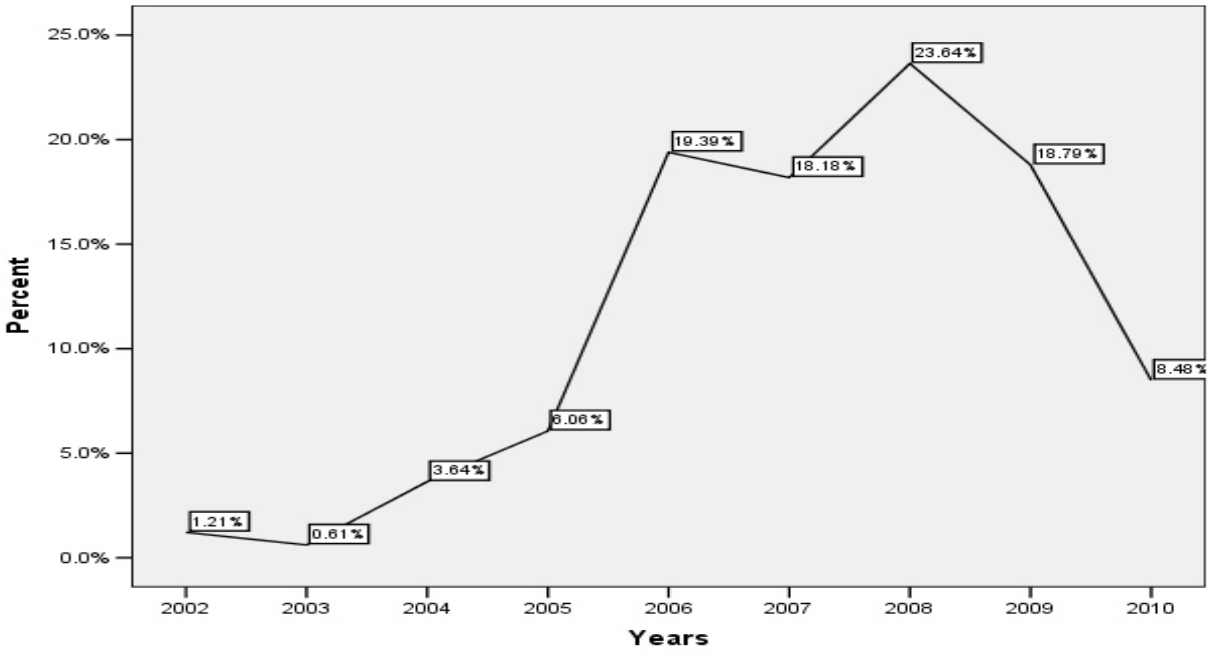


**Figure 1: Mobile phone adoption rate among respondents**

An entry in Table 2 was on mobile phone tools and network services used to initiate communication. Response revealed that respondents had used all the selected four tools but at various degrees in the last 12 months. Voice call and flashing had the highest usage of 98.8% respectively trailed by low usage of SMS (43.6%) and MMM (17.6%). Voice call is voice communication tool whereas flashing is non verbal communication tool of the mobile phone. Similar findings were obtained on popular use of voice call among farmers and extension agents in Nigeria [22], [23] and [13] as well as in Tanzania by [9]. Findings here suggest respondents' possession of skill and competency to use the tools for communication. Audio visual and wordings tools were grossly underutilization such as text message, picture and video, thus confirming finding on their poor skill. This buttresses the consideration for choice of voice call rather than SMS in organise fisheries extension and advisory service in the area. Worthy of note was Malalle community with weak network access and reception, as such mobile phone owners mount external antenna at home or go to river side to receive services as shown in the picture below. (See figure 5). Also, the table further shows that respondents received only three network services out of existing five operators in the country then. The leading network service received was Globacom (97.0%) closely followed by MTN (95.2%) and Airtel (74.5%). It indicates that Globacom had the widest network coverage in the area. Sequence of GSM operator's entry in the western side of Kainji Lake basin since 2004 was first by Glo, MTN and last by Airtel. It justifies the importance of access to usage of ICT facilities in rural communities for agricultural information sharing.

On number of mobile phones handsets owned, 165 respondents interviewed owned 195 handsets. Majority (84.1%) had one mobile phone distantly followed by owners of two handsets (13.3%) and three handsets (2.6%). It illustrates that double SIM mobile phone was not popular among respondents. It supported the assertion of [24] that in India of late, GSM and CDMA with twin SIM cards are also coming up quite handy with multimedia inputs such as internet, radio, television, scanner and camera too. Quest for more than one handset is to have access to other networks, enjoy reduce call tariff and overcome the challenge of bad network services experienced in Nigeria. This reason prompted the evolution of mobile phones with double SIM card facilities in the country.

Information on handset make revealed existence of 17 brands of mobile phone names bought by respondents. As shown, the most popular and dominant brand name was Nokia phone bought by almost (72.7%) of respondents distantly trailed by Techno phone (7.3%), Motorola (4.2%), Sagem (3.0%) and other 13 brands account for 17. 8%. Out of the 17 brand names, only 5 brands namely Nokia, Motorola, Sagem, Alkatel and Samsung were known quality brand names while the rest 13 fall within the category of "China Phones" known for low quality. Similarly, in India, [24] reported that Nokia brand garners about 40% of total mobile sector consumption in GSM mobile technology. Nokia phone is more popular due to its outstanding qualities compared to low quality China phones.

The quest to be connected made 165 respondents to buy a total of 243 SIM cards and the most popular SIM card was Globacom (56.8%) distantly trailed by MTN SIM cards owners (25.5%) and Airtel SIM card (17.7%). Evidence from the result suggests that Globacom network controls GSM market in the area which was incidentally the first network operator to enter Kainji Lake basin in February, 2004. It agreed with earlier information found on network services received in the study area led by Globacom. From the result, Globacom and MTN network services control GSM market in

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the study area and stand a better chance for mainstreaming in organised fisheries extension delivery services around the lake basin.

Data on frequency of using GSM to communicate demonstrates that 73.9% used mobile phone to call once a day compared to few that call at least once a week but not every day (18.2%) and weekly (7.9%). In contrast was [25] finding that rural inhabitants and urban poor users value phone services but do not use them very often compared to relatively more affluent users in Botswana, Ghana, and Uganda. High frequency of communication with mobile phone recorded on daily usage can be traced to nature of fisherfolk livelihood and need for interaction with relatives and business associate.

**Table2: Responses on network services, mobile phone make and SIM usage**

| Net Network services received | Frequency | % | Mobile phone make | Frequency | % |
|---|---|---|---|---|---|
| Glo | 160 | 97.0 | Nokia | 120 | 72.2 |
| MTN | 157 | 95.2 | Techno | 12 | 7.2 |
| Zain | 123 | 74.5 | Motorola | 7 | 4.2 |
| Number of handsets owned | | | Sagem | 5 | 3.0 |
| 1 | 164 | 84.1 | Other 13 brands | 21 | 12. 7 |
| 2 | 26 | 13.3 | Frequency of communication | | |
| 3 | 5 | 2.6 | More than a week. | 13 | 7.9 |
| SIM ownership | | | At least once a week but not every day | 30 | 18.2 |
| Glo | 138 | 56.8 | Once a day | 122 | 73.9 |
| Zain | 43 | 17.7 | Mobile phone tools used to communicate | | |
| MTN | 62 | 25.5 | Short message sending | 72 | 43.6 |
| | | | Voice call | 163 | 98.8 |
| | | | Flashing | 163 | 98.8 |
| | | | Pictures | 29 | 17.6 |

Source: Field survey (2010) multiple response

Table 3 is on respondent's choices of GSM network for communication in the last 12months. It clearly showed that Globacom (89.1%) was the most popular network used followed by MTN (53.3%) and Airtel (40.6%). The trend was in agreement with results on SIM card ownership and network received in fishing communities. Leadership of Globacom in the area was confirmed on response of always use (75.8%) compared to 24.2% for MTN and 16.4% for Airtel. About half of the respondents 59.4% and 46.7% never used Airtel and MTN respectively to communicate within the period. Substantiation here attests that Globacom network is the most popular and widely used network for communication among fisherfolk in the area indicating penetration and access to network service in the lake basin.

**Table 3: Respondents choice of network used for communication**

| Networks | Never use | | Use Occasionally | | Use Always | |
|---|---|---|---|---|---|---|
| | frequency | % | frequency | % | frequency | % |
| Glo | 18 | 10.9 | 22 | 13.3 | 125 | 75.8 |
| Airtel | 98 | 59.4 | 40 | 24.2 | 27 | 16.4 |
| MTN | 77 | 46.7 | 48 | 29.1 | 40 | 24.2 |

Source: Field survey, 2010

Table 4 provides information on fisherfolk knowledge of selected three services provided by GSM operators. As revealed, only 36% had knowledge of the services and 64% had no knowledge. Therefore, overall knowledge of respondents was low and poor on the services provided by GSM operators' aimed at reducing tariff paid and to buy airtime on credit: friends and family (21%), credit me (11.52%) and pay for me (3%). It implies that many of the respondents do not derive the benefit of such services due to inability to read and write. As such, GSM operators should device better option of informing rural mobile phone users or have uniform minimum tariff for every user to enjoy.

**Table 4: Respondents' knowledge of phone services**

| GSM operators Services | Frequency | % |
|---|---|---|
| Credit me | 19 | 11.5 |
| Pay for me | 5 | 3.0 |
| Friends & family | 36 | 21.0 |

Source: Field survey, 2010

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## 5. CONCLUSION & RECOMMENDATIONS

In conclusion, respondents have competency for speaking in local language compare to writing and reading five other languages. Also, the rate of mobile phone adoption among fisherfolk was at its peak between 2006 and 2009 and highest in 2008 but lowest in 2004. Most of the respondents displayed ability to communicate with voice call and flashing tools of the mobile phone. Also, three service providers were found in the area but their scope of coverage differs. Hence, the need for expansion of GSM service operations to adequately cover the entire Kainji lake basin for access in the fishing and riverine communities. Agencies involved in fisheries extension services should take advantage of the opportunity to mainstream mobile phone in extension and advisory services in the lake basin.

## REFERENCES

[1]. Abiodun, J.A. and A.M. Niworu (2004). Fisheries Statistics Bulletin, Kainji Lake, Nigeria. *Kainji Lake Fisheries Management and Conservation Unit Technical Report Series* No. 23, ISBN 978-037-022-6. pp 1-6.

[2]. Mai, J (2013). The quality and qualities of information. Journal of the American society for information science and technology, 64(4):675–688.

[3]. Chapman R and Slaymaker, T (2002). ICTs and rural development: review of the literature, current interventions and opportunities for action. *Overseas development institute working paper 192*. Pp 1- 17.

[4]. Meera, S.N (2004). Information and communication technology in agricultural development: Comparative analysis of three projects from India. *Agricultural research and extension network, paper no*. 135. 13p.

[5]. Govindaraju, P and Mabel, M. M. (2010). The Status of Information and Communication Technology in a Coastal Village: A Case Study. *International Journal of Education and Development using Information and Communication Technology*, Vol. 6, No.1

[6]. Rashid, A.T. and Elder, L. (2009). Mobile Phones and Development: An Analysis of IDRC-Supported Projects, *The Electronic Journal on Information Systems in Developing Countries*, 36, 2, 1-16

[7]. Adogla, E.C. (2009). Mobile telecommunications in Africa: Past, present and future of the continent-wide technological phenomenon. *Stanford Journal of African Studies*. Retrieved June 20, 2009, from http://stanford.edu/group/sauti/html/vol2/article3.html

[8]. Jensen, R (2007). The Digital Provide: Information (Technology), Market Performance, and Welfare in the South Indian Fisheries Sector. *The Quarterly Journal of Economics, Vol.* 122, 3, 879-924.

[9]. Mtega, W.P and Ronald, B (2013). The state of rural information and communication services in Tanzania: A meta-analysis. IJICTR, vol. 3 (2), 64-73.

[10]. Aker, J.C. (2010). Dial "A" for agriculture: Using information and communication technologies for agricultural extension in developing countries. Pp 1-42. AFDR_Aker_Dial-A-for-Agriculture_P-S.PDF-Adobe Reader.

[11]. Posu, S.M.A (2006). Information and Communication Technologies in the Nigerian conomy. "*Technology*" *International Conference on Human and Economic Resources, Izmir*, pp 327-337

[12]. Adeyinka, T., Ajiboye, J.O. Adu, O.E and Wojuade, J.I. (2007). Stakeholders' perceptions of the impact of GSM on Nigeria Rural Economy: Implication for an Emerging Communication Industry. *The Journal of Community Informatics*, *3*(4), 1-17.

[13]. Banmeke, T.O.A., Fapojuwo, O.E. and E.O. Fakoya (2010). Extension agent's perception of the use of mobile phone to disseminate information to farmers in Edo state, Nigeria. J*ournal of sustainable development*, vol. 7, no 2. pp 27-33.

[14]. Ifejika, P.I (2012). Personal Profile of Mobile Phone Owners among Fisherfolk in Fishing Communities of Kainji Lake Basin, Nigeria. *International Journal of Rural Studies*,Vol. 19, No.2. pp 13-18.

[15]. Adesina, A. A. (2013). Address by the honourable minister of agriculture and rural development, on the occasion of the signing of memorandum of understanding between sasakawa africa association (saa)-sg 2000 on extension services delivery to nigerian farmers on friday 8 february,2013 at hon minister's office, area 11, garki-abuja, Nigeria. pp 1-4.

*[16]*. Ojebode, A. (2008). Overcoming Language Barriers in Effective Communication for Social Change. In: Yahaya, Y. K. (editor). *Communication for Social Change in Developing Countries.* Ibadan, Nigeria, Kraft Books Limited, pp. 26-48.

[17]. Ifejika, P.I., Ayanda, J.O., Nwabeze, G.O and Obetta, N. C. (2008). Contribution of information channels to adoption of aquaculture technologies among fish farmers in Anambra state and implication for training. Journal of agriculture and social research (JASR) Vol. 8, No. 2,

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[18]. Pearson, J.C., Nelson, P.E., Titsworth, S., and Harter, L., (2003). Human Communication, New York: McGraw Hill.

[19]. Okoye, F.C. (1992): Problems and prospects of fish pond culture around the kainji lake basin. In: *Proceedings of national conference on two decades of research on Lake Kainji* held from 29th Nov. to 1st Dec. 1989. NIFFR Publication, 212-214.

[20]. Salzwedel, H. (2001). Nigeria-German Kainji Lake Fisheries Promotion Project: Achievements, Problems, Outlook. Paper presented at the 16th Conference of FISON, Maiduguri, 4-9, November, 200. Pp 1-8.

[21]. Ibeun, M.O. and Mdaihli, M (1994): Media of Communication among fishermen around kainji lake basin. *NIFFR Annual Report.* pp182-189

[22]. Olatokun, W.M. (2009.) Analysing Socio-Demographic Differences in Access and Use of ICTs in Nigeria Using the Capability Approach. *Issues in Informing Science and Information Technology*, Vol. 6, 479-496.

*[23]*. Ofuoku, A.U.A., Isife, B.I., and Emah, G.N. (2007). Adoption of Mobile phone among Poultry Farmers in Delta State, Nigeria. *Journal of Engineering and Applied Sciences 2 (1): 10-16.*

*[24]*. Murthy ,C.S.H.N. (2009). Use of convergent mobile technologies for sustainable economic transformation in the lives of small farmers in rural India. *Turkish Online Journal of Distance Education*, Vol. 10, N0. 3.

[25]. Scotts, N. (2004).New research findings point to high rates of phone use in no or low service areas. Accessed12/05/2006 from: http://www.balancingact-africa.com/news/back/balancing-act_203.html