EVALUATION OF TRANSFERRED FISHERIES TECHNOLOGIES IN KAINJI LAKE BASIN

W. S BAKO

Federal College of Freshwater Fisheries Technology
P. M. B. 1500, New Bussa Niger State, Nigeria

INTRODUCTION

Fishery is important to Nigeria agricultural economy because it provides employment for fisherfolks (men and women fishers, fishmongers (fish traders), fish processors and fish farmers. It also supplies protein to the diet of Nigerians and it is equally a viable source of foreign exchange earning to the government.

Tobor (1994) reported that the estimated Nigeria population of 120 million consumes about 1.2 million metric tonnes of fish and fish products annually. The author further justified the important role fisheries could play in Nigerian diet when he added that Nigeria has vast inland waters that cover an estimated total surface area of 199,580km^2 and equally vast sea area of 25,000km^2. In these waters the author claimed that there are diverse fish resources that are of economic importance in both inland and seawaters. FDF (2000) also estimated that the current annual yield of both inland and seawater put together is about 418,069, 3 metric tonnes from artisanal fisheries and 23,720 metric tonnes from aquaculture. The shortage between the annual consumption level of 1.2 million metric tonnes and annual yield of 418,069, 3 metric tonnes is made available through importation.

It is therefore of concern that given the level of current fish yield from the various fisheries resources the demand still exceed supply. One wonders whether the production inadequacy is due to poor management of available fisheries resources or that improved fisheries technology that could aid increased production were not efficiently transferred to fish farmers.

To answer these questions one need to examine the past and present extension policy in Nigeria as they affect dissemination of fisheries technologies

PAST AND PRESENT AGRICULTURAL EXTENSION POLICY.

The first era of extension services dated back to colonial period when regional governments offered extension by demonstration approach to farmers. The second era was in the 1970s when several institutions performed agricultural extension services. The era attracted active participation of National Accelerated Food production Programme, (NAFPP) River Basin Development Authorities (RBDA) and Local Governments in extension activities

It is also a period in which extension workers were involved in input supplies and credit procurement rather than advisers on agricultural matters. Also in the mid- seventies, World Bank Assisted Agricultural Development Project (ADP) were introduced and with them the "progressive", 'target" or "contact farmer" became a standard approach. Methods have metamorphosed by mid 1980s to the full introduction of Training and Visit (T&V) system of extension which Nigerian now operates until early '90s when the Unified Agricultural Extension System (UAES) was introduced. This system required that one frontline extension agent of ADP takes message to the farmer in all the sub-sectors of agriculture which then also sub-sumes that these agents should be knowledgeable enough to be able to disseminate messages in the various fields of agriculture including fisheries sub-sector.

It is a matter of fact that a good extension policy cannot deliver the desired increased fish production without an enabling environment of national agricultural policy, trained manpower and field infrastructures.

CURRENT AGRICULTURAL POLICY

The emphasis of present administration is on alleviating poverty of the rural poor through the following underlisted policies.

1) Attainment of self-sufficiency in basic food commodities.
2) Increased production of agricultural raw materials to meet the growing needs of an expanding industrial sector
3) Increased production and processing of export crops
4) Modernization of agricultural production, processing storage and distribution systems through improved technology.
5) Protection against environmental degradation
6) Creation of increased rural employment
7) Improvement in basic amenities available in rural areas.

From these policies government has set in motion development programme in agricultural sector of the economy but its achievement depends on the might of the research and extension system already put in place. This necessitates a brief assessment of the achievements made by the research and extension institution.

STUDY AREA

Lake Kainji is situated between latitudes 9° 50'-10° 57' North and longitudes 4° 25' – 4° 45' East. The lake was impounded in August, 1968 and it is 134km in length and 24.1km at its widest point. Its surface area has been variously quoted as approximately 1,270km^2 (du Feu and Abiodun, 1998). Within the geographical boundary of the lake defined above are 273 fishing villages where artisanal fishermen live. There are also two major towns, New Bussa and Yauri that have mixed population but mainly civil servants (Fig.1).

AIMS AND OBJECTIVES OF THE STUDY

The objectives of this study are:-

1) To determine Socio-economic and cultural factors peculiar to fisherfolks in the adoption of fisheries technologies
2) To determine how fisheries technologies are being transferred in the Lake basin
3) To assess the impact of contribution transferred technologies have made to fish production in the basin
4) Make recommendation to policy makers on the present extension system so that transferred technologies can have desired impact.

METHODOLOGY

In evaluating fisheries technology transfer in Kainji lake basin three sources of information and data were employed namely.

i) Secondary data sources
ii) Primary data sources
iii) Participant's observation

The secondary sources of data concern the use of published research reports in books, journals, bulletins, occasional papers and proceedings of conference. The various publications were extensively consulted during literature review to ascertain the evolution of extension policy and the current status of government policy on fisheries. Furthermore, methods of transferring

fisheries technology generally the world over and those that were used in Kainji lake basin were also mentioned. Levels and attitude of the government to funding technology transfer and manpower required were also reviewed.

The primary sources of data collection involve the use of questionnaires,.

There were two separate questionnaires. One was on the culture fishery while the other was on the artisanal fishery.

The two questionnaires were carefully drawn up to probe into socio-economic data of both fish farmers and artisanal fisherfolks, level of fish production, levels of awareness of various technology and impact of the technologies used on the quantity of fish caught or produced in ponds. Details of each of the questionnaire are provided in the appendices I and II.

Having drawn the questionnaire on artisanal fisheries the sampling strata normally used by the Kainji lake Fisheries Promotion Project (KLFPP) for their monthly catch assessment survey was used to select six villages spanning the whole length of the lake from the dam site to the last village in the northern part. Two villages or (fishing camps) were selected from each main stratum. In all, there are 3 strata and two fishing villages give a total of six, three villages in the western part of the lake and three villages in the eastern part. By so doing, fifty-eight respondents were interviewed in the whole lake, 20 each from strata 1 & 2 and 18 from stratum 3. Stratum 3 had 18 respondents due to unforeseen circumstances beyond the interviewers control at the time of visit.

The choices of these villages were determined by a number of factors.

1) locations where experienced field workers exist were chosen to enable solicit their assistance in the administration of the questionnaire to reduce cost.
2) Villages further away will give the true area of coverage Extension Agents (EA) made during the technology transfer activities.
3) Cost of covering many fishing villages will be too enormous to afford for a project of this nature particularly that the interest is on the representative ness of each stratum for ease of analysis.

On the questionnaire for fish culture, total number of fish farmers in New Bussa was obtained. The total actual number was twenty-five and twenty fish farmers representing 80% were sampled. For the two questionnaires a total of 78 respondents were interviewed giving 20 for culture and 58 for artisanal fisherfolks.

Microsoft Excel computer software was used to draw the figures and prepare the table for analysis.

The participant observation involves notes and record keeping by the interviewer on observation made either on the fish farm or in the premises of the artisanal fisherfolks. Such records assist in cross checking some answers provide by the interviewed on the questionnaire for validation. It also helps to remove bias that my arose self-interpretations of answer from respondents flat may otherwise not easily digested during coding and analysis.

RESULTS

CULTURE FISHERY

Socio-Economics data of the Respondents.

The age distribution of the respondent utilizing transferred fisheries technology is presented in Table 4.1.1.1. Respondents between the 31-40 years rank highest with 40%, followed by 41-50 years with 25%, 60 + ranked third with 15% while age groups 21-31 and 51-60 each scored 10%. Age group 0-21 had no respondent meaning that fish farming is not common among youth. Ninety percent of the respondents are married while only 10% are single. The married groups together have average household size of 2.25 male and 2.50 female.

Table 3.1.1.1 Age group distribution of the culture respondents in Kainji Lake Basin.

Age group	No respondents	%
0-21	0	0
21-31	2	10
31-40	8	40
41-50	5	25
51-60	2	10
60+	3	15
Total	**20**	**100**

Educational Status.

Fig. 2 shows the educational status of those in cultured fisheries. About 75% of the respondents had tertiary education which include, Universities, Polytechnics and College of Education. Koranic and Primary education each had 10% while those of secondary education had only 5%. It is therefore expected that transferred technologies will be easily understood.

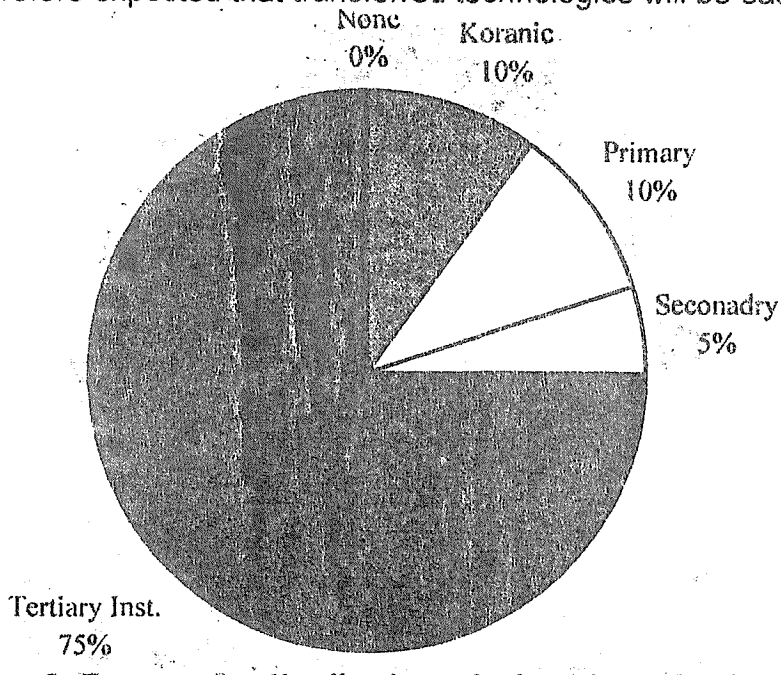

Figure 2: Percentage distribution of educational background of the respondents in fish culture on Kaniji Lake Basin

Fish Production Economics from Culture.

Fig. 3 shows the distribution of respondents on sources of capital with which ponds were acquired and stocked. Ninety (90%) percent claimed to have started from personal savings while loans from co-operatives and relatives each had 5%.

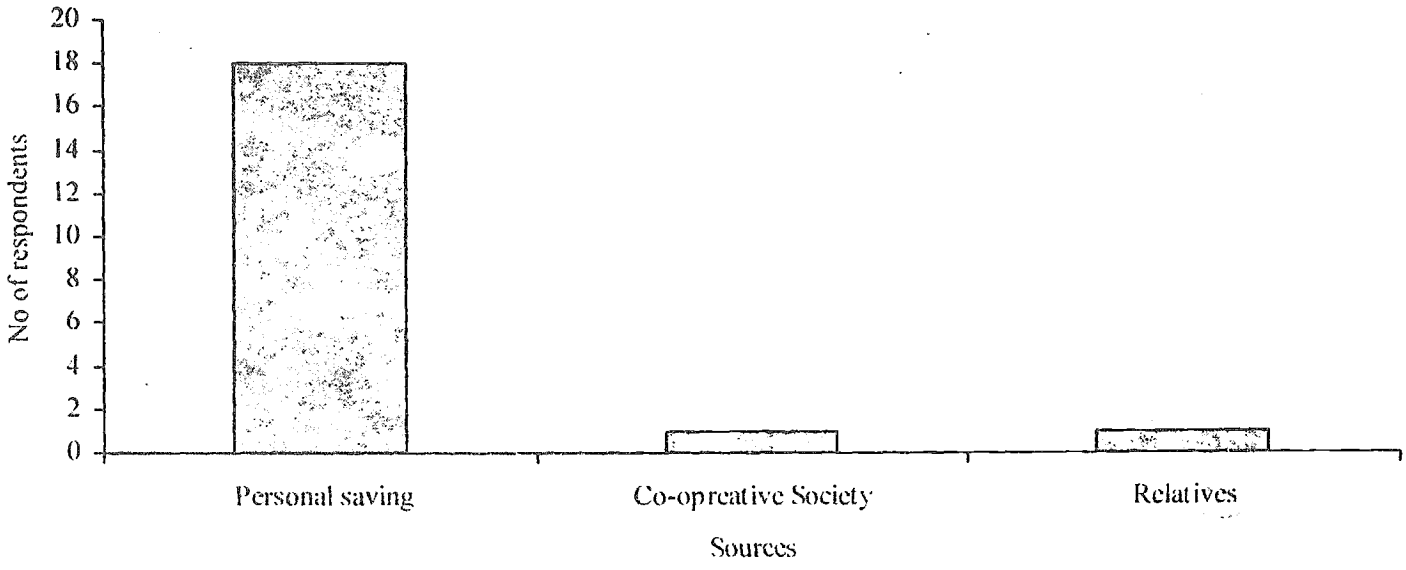

Figure 3: Sources of credit facilities for acquiring transferred fisheries technology in Kainji Lake Basin

Table 3.1.1.2.1 Shows the number of ponds owned by the respondents. Eleven (55%) respondents had only 1 pond, 25% had 2 ponds, 2(10%) had six ponds while I (5%) respondent each had 3 ponds and 4 ponds respectively.

Table 3.1.1.2.1. Distribution of ponds owned by the fish culture respondents in Kainji Lake Basin.

No of respondents	*Ponds owned*	*% of pond owned*
11	1	55
5	2	25
1	3	5
1	4	5
2	6	10
Total 20	**15**	**100.00**

Table 3.1.1.2.2. Shows the types of fish cultured Polyculture of *Clarias* + *Tilapia* dominated with 50% while monoculture of Tilapia ranked second with 35%. Other catfish like *Heterobanchus bidosalis* is stocked only by 1(5%). Other fish species like carp is being cultured only by 2 (10%) respondents.

Table 3.1.1.2.2. Distribution of fish species cultured by the Respondents in Kainji Lake Basin.

Species	No of respondents	%of respondents
Tilapia	7	35
Catfish	1	5
Other species	2	10
Clarias and Tilapia	10	50
Total	20	100

Table 3.1.1.2.3. Shows the level of harvest of ponds for sale by the owners. Thirteen (65%) respondents have never harvested their ponds since commenced culture Only 3(27.3) out of the 11 respondents that own 1 pond ever harvested their ponds. Together they realized an average of N850.00. Three (27.3%) of the five that own 2 ponds also have harvested realizing an average of N550.00. One (33.3%) out o those who own three ponds also have harvested realizing average income of N300.00 from sales as proceeds.

Table 3.1.1.2.3 Fish harvested and amount realised by the fish culture respondents in Kainji Lake Basin.

No of Ponds	Total harvest (Kg)	Amount Realised
From 1 pond = 3	Not weighed	850
From 2 pond = 3	"	550
From 1 pond = 1	"	300
No responses =13	"	200
Total		1900

Transferred Technology Awareness

Table 3.1.2.1 list out the fish culture technologies that have been developed and transferred to fish farmers in Kainji lake basin especially in New-Bussa. Of the 10 different technologies that cover several aspect of fish culture such as site selection and pond construction, pond fertilization and water quality management techniques ranked highest in awareness each with 15%. Three others namely Species of Hybrid Fish, Handling of transportation of fingerlings, Stocking density and Feed and Feeding rate each has 10%. Others like Pond Disease control, Application of Natural Fish food and Fish feed Formulation each has 5% awareness of the respondents.

Table 3.1.2.1: Level of Awareness of the Technologies Available to culture respondents in Kainji Lake Basin.

S/No	Technology	Awareness Frequency	%
1.	Site Selection and Pond Construction	3	15
2	Handling and transportation of fingerlings	2	10
3	Pond Fertilization	3	15
4	Stocking Density	2	10
5	Feed and Feeding Rate	2	10
6	Pond Disease Control	1	5
7	Application of natural fish food	1	5
8	Fish Feed Formulation	1	5
9	Water Quality Management	3	15
10	Species of Hybrid Fish	2	10
	TOTAL	20	100

TRANSFERRED TECHNOLOGY IN USE

The distribution of the respondents using one or more of the transferred technology is in Table 4.1.3.1. The highest ranked technologies in use are site selection and pond construction and Pond Fertilization each with 15%. Six other technologies each with 10% ranking followed the first two and they are Handling and transportation of fingerlings, Stocking Density, Feed and Feeding rate, Application of Natural Fish Food, Water Quality Management and species of Hybrid fish. The other two technologies each had 5% being the least used technologies.

Table 3.1.3.1: Transferred Technology in use by fish culture respondents in Kainji Lake Basin.

S/No	Technology	Usage Frequency	%
1.	Site Selection and Pond Construction	3	15
2	Handling and transportation of fingerlings	2	10
3	Pond Fertilization	3	15
4	Stocking Density	2	10
5	Feed and Feeding Rate	2	10
6	Pond Disease Control	1	5
7	Application of natural fish food	2	10
8	Fish Feed Formulation	1	5
9	Water Quality Management	2	10
10	Species of Hybrid Fish	2	10
	TOTAL	20	100

SOURCE OF INFORMATION ON TECHNOLOGY

Table 3.1.4.1 show the agencies or organizations that are generating technologies and releasing them to fish farmers.

Research Institute ranked highest with 85% followed by Agricultural Development Programme (ADP) 10% and State Ministry of Agriculture with 5%. Table 3.1.4.2 show sources through which information pass to the fish farmers. Individual picking information, most especially published works, ranked 65%, followed by Discussion with friends and colleagues ranking 30% and the combination of the two (Individual/Discussion) has 5%.

Table 3.1.4.1: Organization or agencies generating and releasing technology

Organization	No of respondents	%
ADP	2	10
Research Institute	17	85
State Ministry of agriculture	1	5
Total	20	100

Table 3.1.4.2: Sources of information

Organization	No of respondents	%
Individual /Discussion	1	5
Discussion only	6	30
Individual only	13	65
Total	20	100

EXTENSION IMPACT ON FISH CULTURE

Fig. 4 show the responses of the fish farmers to the question as to whether or nor extension had made any impact on their income technologies more than they would have done. Forty-five (45% percent agreed that extension made them use improved technologies more, 30% agreed that their income from fish culture was enhanced though not all of the respondents harvest their ponds for sale. Fifteen (15%) percent are of the opinion that it made no impact on them why only 2 (10%) of the respondents remained sealed lip.

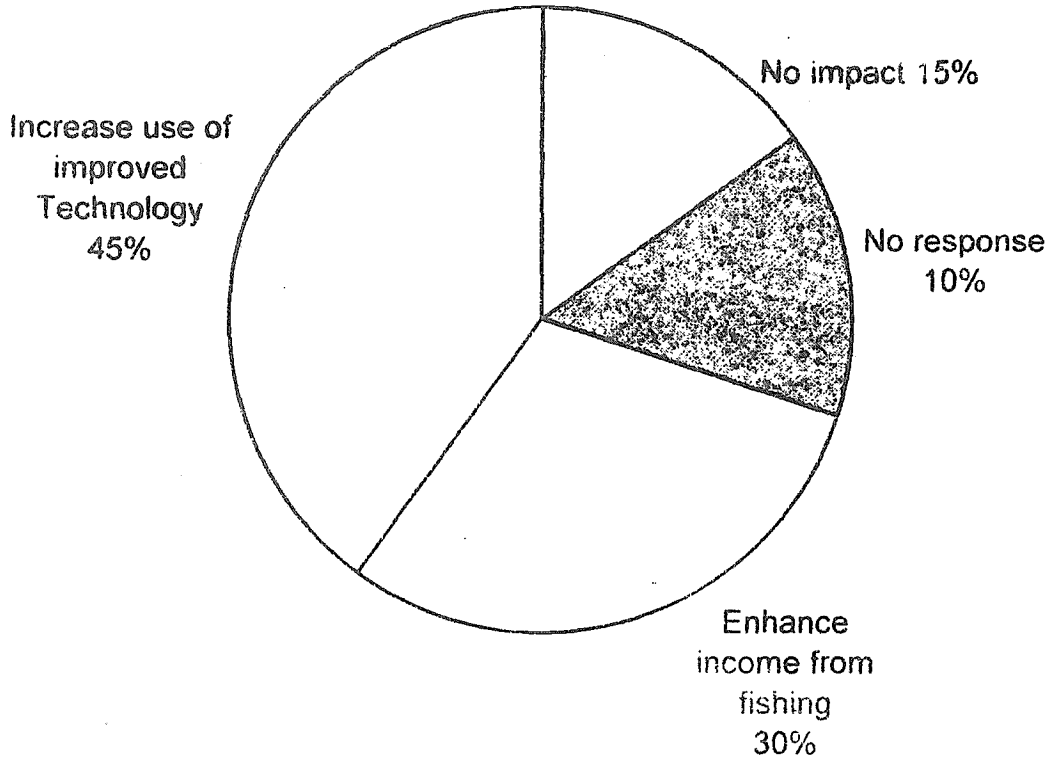

Figure 4: Major impact of extension activities on culture fishing in Kainji Lake Basin.

CAPTURE FISHERY

Socio-economic data of the respondents

The age distribution of the 58 respondents is shown in Table 3.2.1.1. Ages between 41-50 have 31.1% of the respondents while ages between 31-40 have 24%. The third category of respondents is between ages 21-30 and 51-60 both with 13.8% each. On the other hand, ages 0.20 and 60> has 8.6% respectively. In this fishery children are made to assist in fishing activities right from childhood and this is why ages 0.20 is represented in the responses. Out of the 58 respondents only 3(5.2%) are single, the remaining 55 (94.8%) are married. The average family size are 4.95 female and 5.38 male, together they make an average of 10 family per respondents.

Table 3.2.1.1 Age distribution of the respondents in capture fisheries in Kainji Lake Basin.

	Total	%
0-20	5	8.6
21-30	8	13.8
31-40	14	24.1
41-50	18	31.1

51-60	8	13.8
> 60	5	8.6
Total	58	100

Educational Status

Fig 5 shows the level of education of the respondents in capture fishery. Koranic education dominated with 79.4% while non-formal and primary school each with 10.3%. This indicates that most of the fishermen in capture fishery lack qualifications in secondary an tertiary institutions. It is expected that such qualifications will assist them in the understanding of fisheries technology being transferred to them. The use of Arabic may have to be adopted as the language to transfer the technologies for quick understanding and formal education can be improved upon among the fisherfolks.

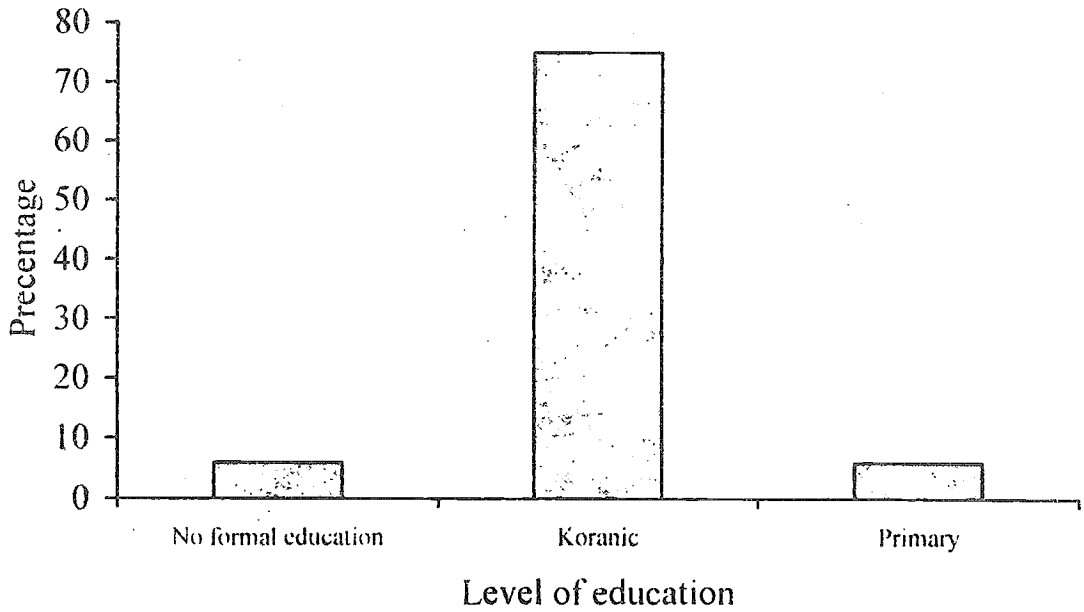

Figure 5: Percentage number of respondents on educational background for capture fishfolks in Kainji Lake Basin.

Fish Production Economics

Fig. 6 shows details of sources of capital the fisherfolks invest in fishing. These range from contribution (Adashe), Personal savings, Relatives and to farming. Personal Savings ranked highest with 40% followed by Income from farming (8%) while contributions and relatives as sources each ranked 5%. All the respondents had an average of 26.2 years in fishing profession. Occasionally, they supplement family income with what they realized from farming, livestock and trading.

The types of gear used in fishing include Gill net, Drift net, Cast net, Long line and Traps. The length of the Gill net ranges from 100m to 1,200m. They confirm using 3" mesh size recommended by research to ensure sustainable fish harvest on the lake. It is however unhealthy when only 25.8% of the respondents are members of a fishing organization while 74.1% did not belong to any. The lack of existence of fishing organization may limit the source of capital from which money could be acquired to buy fishing equipment. All the fisherfolks fish daily spending an average of 5 hours daily.

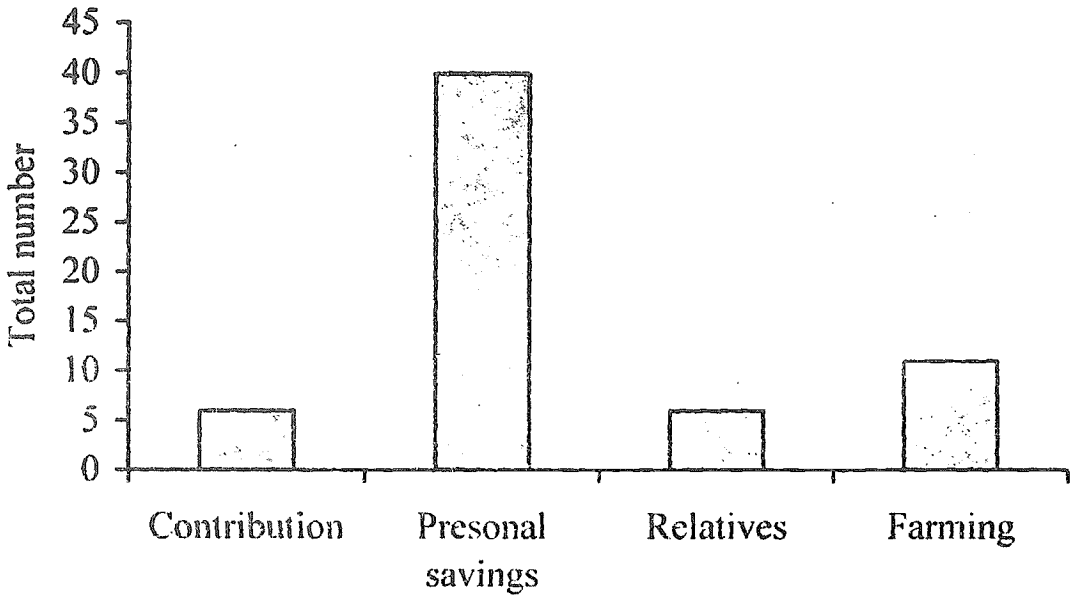

Figure 6: Sources of credit to capture fisherfolks in Kainji Lake Basin

Table 3.2.1.2 shows the quantity of fish caught in bowls, average number of bowls per respondent and the average price per bowl. A total of 458.2 bowls for all the sampled fisherfolks was analysed. Ayanda (1990) determined the average weight of a bowl to be 9.0kg. In a month therefore, about 4123.8kg of fish is caught and sold at an average price of N1274.30 per bowl. This gives a total value of N5,254,958.3 in a month.

Table 3.2.1.2: Shows the quantity of fish caught by capture fisherfolks in Kainji Lake Basin.

No. of respondents	Ave. no of bowl	Ave. prices per bowl
8	1.4	1387.00
10	1.3	1300.00
10	1.3	1850.00
10	1.5	2200.00
10	1.2	1130.00
10	1.2	2200.00
58	7.9	

Fish Marketing

In Table 4.2.3.1. about 55.2% of the respondents sell their fish dry weight, 37.9% sell in fresh weight while only 6.9% sell in both fresh and dry weight. Most of the buyers are from outside the lake basin (63.8%), buyers within the village constitute only 19.0% and fisherfolks wives buying fish from their husband constitute only 17.2% (Table 4.2.1.3.2.). However, 84.5% of the fisherfolks confirmed that they do not have enough fish to sell while only 15.5% confirmed otherwise. This is the situation in which technology transfer to the fisherfolks in the language they can understand is very important to the ultimate adoption of the technologies.

Table 4.2.3.1. Technologies in use by capture respondents in Kainji Lake Basin.

	Total	%
Dry	32	55.2
Fresh	22	37.9
Both	4	6.9
Total	58	100.0

Table 3.2.3.2 Who are your buyers?

	Total	%
Within the village	11	19.0
From outside	37	63.8
Our wives	10	17.2
Total	58	100.0

When asked for reasons why enough fish is not sold, Fig. 7 show the responses from the fisherfolks. The reasons gave range from low water level that prevents catching enough (29.3%), farm work which occupies their time from setting and checking nets daily (3.5%), lack of inputs due to poverty (12.0%), seasonality of catch (20.7%) to low catch all they time due to ban on beach seining (19%). Only 15.5% had no reason(s) to give that are responsible for not having enough fish to sell.

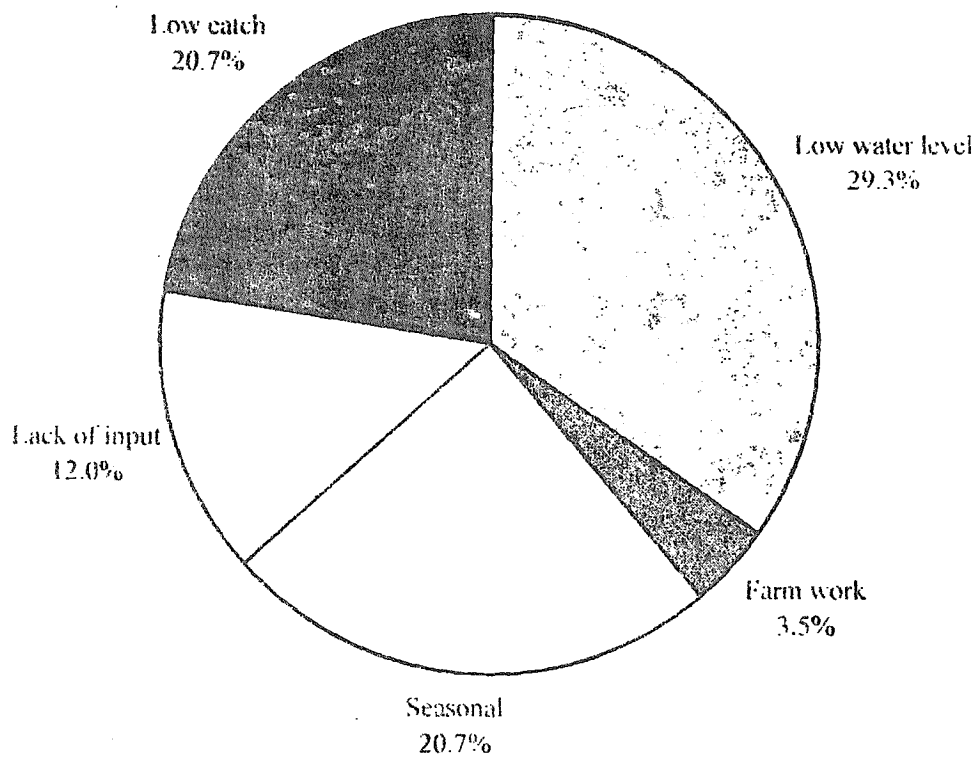

Figure 7:Percentage number of capture respondent on why no enough fish forsale in Kainji Lake Basin

Technology Transfer

Five improved technologies were known to have been transferred to the fisherfolks within the lake basin. These are:

I) Improved maintenance of fishing gears/craft
II) Hygienic handling of freshly caught fish
III) Use of appropriate mesh size
IV) Improved smoking Kiln
V) Preventing insect pest menace

Asking whether or not the fisherfolks are aware of these improved technologies, Table 4.2.2.1. show the distribution of their responses. About 50% of the respondents claimed to be aware of improved smoking Kiln (IV), while 25.9% are aware of use of appropriate mesh size. Both items (I) and (II) had 3.5% each of awareness. Item (V) had 6.9% and only 10.2% of the respondents claim ignorance of all the improved technologies. Indeed observation from the field indicated that the 'Improved Smoking Kiln" they claimed to be aware of is.Solar tents extended to them during Kainji Lake Fisheries Promotion Project activities. It is not the Kainji Gas Smoking Kiln developed by neither the Institute nor the improved Banda (local smoking kiln) that are currently available.

Table 3.2.2.1. Awareness of Transferred Technology by capture respondents in Kainji Lake Basin..

I	2	3.5
II	2	3.5
III	15	25.9
IV	29	50.0
V	4	6.9
None	6	10.2
Total	58	100.0

Transferred Technology in use

Table 3.2.3.1 Shows the technologies that are being made use of by the fisherfolks after their awareness of them. Use of appropriate mesh size rank first with 31%, followed by those who use none of the technologies with 27.6%. Improved smoking Kiln followed with 13.8%, maintenance of gear/craft with 10.4% while hygienic handling of fish caught and prevention of insect menace each had 8.6%.

I	6	10.4
Ii	5	8.6
Iii	18	31.0
Iv	8	13.8
V	5	8.6
None	16	27.6
Total	58	100.0

Source of information on Technology

Table 3.2 4.1 shows the distribution of popularity of Radio, T.V., Friends, E.As and Extension Publication as sources of information among the fisherfolks. Radio (84.5%) ranked first followed by Extension Agents (8.6%) while friends as a source had 6.9%. Extension Publications like Guides, Bulletins are not known off at all. The reason for this may be the low level of literacy among the fisherfolks.

Table 3.2.4.1: Regular source of extension information to capture fisherfolks in Kainji Lake Basin.

Radio	49	84.5
T.V	0	0.0
Friends	4	6.9
E. As	5	8.6
Ext. Pun	0	0.0
Total	58	100.0

Contact with ADP Extension Agent

None of the respondent is a contact farmer to the E.As. Perhaps this may be due to remoteness or inaccessible location of some of the villages sampled in this survey and also lack of field support for the EAs.

The total lack of contact with the ADP EAs is evident from the responses obtained when asked to comment on the EAs activities. About 56.9% are of the opinion that the EAs are not useful; 37.9% expressed the opinion what the EAs are useful while 5.2% are of the opinion that they EAs are very useful. Details of this are shown on Table3.2.5.1.

Table 3.2.5.1 Respondents opinion on EAs in Kainji Lake Basin.

Not useful	33	56.9
Useful	22	37.9
Very useful	3	5.2
Total	58	100.0

Extension Impact on fishing

The respondents were asked to judge if improved technologies transferred to them had any impact on their fishing. Specifically they were asked the following questions.

I) Enhanced income from fishing
II) Enhanced income from fish processing
III) Increased use of improved technologies
IV) No impact

Fig. 8 show that No impact ranked highest with 58.6%, followed by Enhanced income from fish processing (19%). Increased use of improved technology had 12.1% while Enhanced income from fishing had 10.3%. This shows that technology transfer activities in the lake basin to capture fishery is yet to make its desired impact on the fisherfolks.

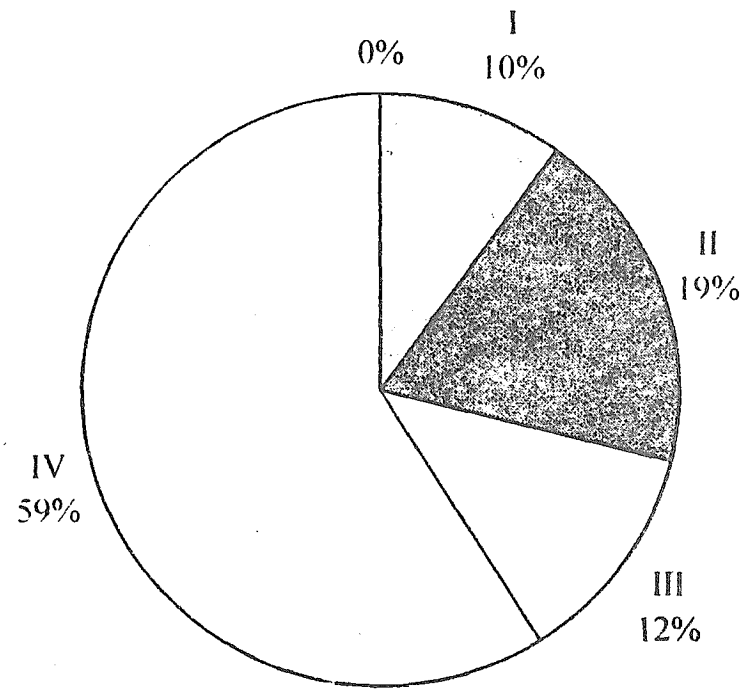

Figure 8: Major impact of extension activities on capture fishing in Kainji Lake Basin.

DISCUSSION.

Socio-Economic-data for technology adoption.

The results of socio-economic data indicated that the educational background of the fish culture respondents differ markedly from those of capture fisherfolks. While 75% of the culture respondents have tertiary level education which gave them advantage in understanding technologies transferred either through Radio broadcast and published materials in English the capture fisherfolks has Koranic education ranking highest followed by primary school (10.3%). None of the capture fisherfolks had a secondary education which limits their understanding of English used in radio broadcast and published guides. Parameters such as age, family size and marital status do not influence understanding and adoption of technologies. Family size provides assisting labour to both culture and capture while age reflects possibility of succession in the trade. For instance respondents between 41-50 in capture fisheries and 31-40 years are in active age population. Ages 0-20 is involved in capture while none in culture. It thus means that succession in capture fishery is indicative but not in culture. Another possible reason while 0-20 years are not involved in culture may be due to capital investment required in setting up a pond. In capture they only assist parents in fishing through which they develop expertise before they attain adult age.

Technology Transfer.

Radio is the popular means of transferring technology whether the broadcast was made in English or Hausa. Print materials conveying extension messages to capture fisherfolks may have to be made in Arabic but broadcast on radio, T.,V. etc can still be in Hausa . However, it is evident from the results that the awareness level of all the technologies is low in both culture and capture. It may be indicative of poor performance of extension services by ADP Extension Agents and NIFFR Extension services. More awareness can be created if print information on technologies are made in Arabic to enable capture fisherfolks utilize their educational background. Also remote areas are often being neglected by the EAs for reasons of lack of infrastructures yet without reaching fisherfolks in such remote areas, desired increased fish production from transferred of improved technologies may for long not be realized in the lake basin and in Nigeria.

Apart from infrastructure that may be adduced for poor performance of Extension Agents. funding and improper training of the agents may also contribute.

Extension Impact.

In capture fishery, 58.6% expressed the opinion that extension activities through visits, radio broadcast and print materials did not make any impact. This shows that more efforts are still being required by ADPs and NIFFR in reaching the fisherfolks in their remote environment. Similarly 15% expressed same opinion in culture. The advantage here is the high level of education of the respondents in culture because technologies transferred to them through Radio broadcast and print materials in English are understood. One way to increase extension impact in capture is to increase level of formal education of the fisherfolks through adult literacy campaign. Another way is to send messages to them through Arabic language which they can read and understand. In whatever manner governments provide funds and introduce articulated extension policy, if the medium of contact with the fisherfolks is not to the level of their understanding no result may be achieved.

RECOMMENDATION AND CONCLUSION.

Recommendation

1) It is still evident that extension information reach fisherfolks in limited forms due to their lack of formal education. Therefore it is recommended that adult literacy be intensified in the basin to increase their understanding of English, the medium through which radio broadcast and print materials get to them.
2) It may also be necessary to use Arabic as medium of printing and broadcast extension message to them because that is to level of education majority of them have in the rural area.
3) It is also confirmed that visitation EAs to fisherfolks is not common on the Basin. This may be due to poor infrastructures and funding at the disposal of the EAs. It is recommended that bicycles and motorcycles should be made available to the EAs for easy movement so that they can visit regularly.

Conclusion.

This study revealed that education is an advantage if target groups have the opportunity to attain the highest attainable level. They will easily understand the language through which extension messages are currently being passed to them in the lake basin. This is one prime socio-economic data that enhances understanding and adoption of technologies for possible impact.

The method of transferring technologies in the basin is though Radio, individual and discussion. EAs however do not visit regularly as they ought to and therefore no follow up to assist the fisherfolks or fisher farmers in areas of problem they have an technologies transferred to them.

Thus far, extension activities in sin transferring technologies have not achieved the desire impact and intervention by the government is required to change this Scenario.

In conclusion, transferred technologies to culture farmers and capture fisherfolks face some problems and therefore have not made the desired impact in increasing fish supply in the lake basin.

REFERENCES

Ajana, M.A (1999). Overview of Highlight and Problems of Fisheries Extension in Nigeria. Paper Presented at the National Workshop on Fisheries Extension held in NIOM. Lagos 27th July, 1999.

Atala, T.K (2001). Which Extension Model For Nigeria. Paper presented at the North West Zonal REFILS Workshop, IAR, ABU, Zaria. 22nd-23rd March. 2001.

Ayanda, J.O. (1990) . Economics of fishing and fish marketing in the Kainji lake basin. In NIFFR Annual Report 1990.

Falaye, A.E. and Olaniran, J.S (1999). Development and Transfer of Effective Fisheries Extension Packages to farmers. An invited paper presented at the workshop on improvement of the Effectiveness of Fisheries in Nigeria, held at the NIOMR, Victoria Island. Lagos. 27th Jul, 1999.

Federal Department of Fisheries (2000). Presentation on Fisheries Development sub-sector at the Presidential Forum held in August 2003.

Jibowo, A.A (1999). Programme Planning, Monitoring, Evaluation and Local Leaders for Effective Fisheries Extension Research and Information Dissemination. Paper Presented at the Workshop on Fisheries Extension. Research and Information Dissemination, NIOMR, Lagos. 25th May, 1999

Kolawole, Y.B. (1991). Communication Skills and Extension Methodology. In Proceedings of Fisheries Development Extensionists Training Course, Uyo, Akwa-Ibom state, Nigeria. 11th Nov – 6th Dec., 1991.

Misari, S.M (1997). Sustainability of REFILS structures and activities: Role of NARIS. Lead Paper delivered at the 1997 Training Workshop for REFILS Leaders, at ARMTI, Ilorin 29th May, 1997.

Ogunsuyi, I.M (1994) . Fisheries in the Unified Agricultural Extension System. Paper presented at the NIFFR/FACU National Workshop on Aquaculture Development, Fish Seed Production and Post-harvest Technology, at New Bussa. 20th – 23rd, September, 1994.

Tobor, J.G (1979) Transfer systems of fisheries research results to uses. NIOMR Occasional paper No.28

Tobor, J.G (1994). A Fishery Policy for Nigeria. Paper Presented at Fisheries Society of Nigeria (FISON) Quarterly Public Lecture. Lagos, 10 June 1994.