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### **Full Length Article**

## **Extension Needs of Fish Marketers in Akwa Ibom State, Nigeria**

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### **ABSTRACT**

The study focused on fish marketer's perceptions of their extension needs in Akwa Ibom State of Nigeria. The study aimed at the determination of the general status of and identification of the significant extension needs of respondents. Stratified random sampling was utilized to select 120 fresh and dried fish marketers. Factorial analysis revealed four significant extension needs categories. Information on "value-added management of fish marketing activities" recorded the highest variation of 43.90%. T-test analysis revealed that fresh and dried fish marketers had similar extension needs. Recommendations proffered in the light of the results of this study, included the necessity to conduct capacity building activities for fish marketing groups on means of overcoming identified extension needs.

**Key Words:** Akwa Ibom State; Fish; Marketers; Nigeria; Significant extension needs

### **INTRODUCTION**

The issue of globalization is influencing the development of agricultural extension in developing countries, especially as it affects trade in agricultural commodities. This situation has arisen, because extension must focus on all aspects of production, processing and marketing and essentially evolve strategies to remove threats that may debar effective farmer participation in the global trade. Therefore, extension must identify how internal markets and production systems can be supported and stimulated, with the ultimate aim of ensuring that farmers can gain access to information that would help them in their livelihood activities (Garforth *et al.*, 2003).

The fishery marketing enterprise is an important agricultural domain that must be targeted by extension. Roheim and Sutinem (2006) declared that seafood is one of the most extensively traded commodities in the world and export of fish produce from developing countries, comprise 20% of agriculture and food processing exports and is likely to increase as demand for fish produce continues to increase. Neiland *et al.* (2005) revealed that in 2004, the fishery sub-sector contributed to the food and nutritional security of 200 million Africans and provided for the 10 million engaged in fish production, processing and trade.

Nigeria is blessed with a vast expanse of inland fresh waters and marine brackish ecosystem, which are very rich in aquatic life. Tall (2004), however, observed that Nigeria's fish production volume of 0.5 million tonnes cannot meet the annual demand of 1.3 million tonnes. Average annual fish consumption in the country has therefore stagnated at 9.2 kg per capita, which is quite below the world average of

13 kg per capita, a situation that resulted in a huge supply and consumption gap. The Inter Academy Council has also reported that future projections indicate a wider supply-demand gap (IAC, 2004). Over 90% of domestic fish supply in Nigeria comes from artisanal capture. The process of transferring the produce from the landing point to the end-users, introduces the concept of marketing. The marketing function revolves around people and the people need proper education, enlightenment, advice and training, in order to function effectively and hence the need for the extension service. This is the public organ saddled with the task of developing agriculture through the conversion of information into useful knowledge for different end-users and stakeholders.

The provision of marketing information is of utmost importance in the fishery industry, especially with regard to the prevailing problem of post-harvest losses, which according to Bolorunduro (1996) may affect about 50% of estimated daily harvests. Neiland and Bene (2004) and Tall (2004) have proffered various reasons for the trend, including the lack of targeted extension service and illiteracy of operators, leading to inability to access information on resources and market opportunities. It is obvious that the Unified Agricultural Extension Service (UAES) must revamp and capacitate its fishery extension unit. In doing this, it must take cognizance of German *et al.* (2005) admonition to the effect that "farmers' knowledge is essential in the information, selection and adaptation process". The extension service must also consider Sseguya and Abel (2003) assertion, to the effect that farmers know what they want and are more easily influenced by the experiences of other farmers.

It is against the above-enumerated background that the study was conceived, to ascertain fish marketers' perceptions of their extension needs. On a specific basis, the research activity was an attempt to: identify fish farmers' perceptions of their extension needs; ascertain the general status of extension needs and determine the significant extension needs of fish farmers in the study area. A hypothesis was also tested whether a significant difference existed in the perception of fresh fish and dried fish marketers, with regard to their extension needs.

## MATERIALS AND METHODS

The study was conducted in the dry season, from November 2005 to February 2006. This is a period of active fishing and marketing activities. The study population consisted of both fresh fish and dried fish marketers in the 14 fish landing ports of Akwa Ibom State. Random sampling was used to select six fishing ports, while stratified random sampling aided in the selection of 10 each of fresh fish and dried fish marketers, at each of the six fishing ports. In essence, 120 fish marketers were sampled (Table I).

Primary and secondary data sources were consulted in the course of study. Primary data collection was with the aid of a validated interview schedule (administered by trained enumerators) and in-depth-interview (IDI) sessions. Data were analyzed with the aid of descriptive (means, percentages composite index) and inferential (independent t-test & factor analysis) statistics. The hypothesis was tested at the 95% ( $P = 0.05$ ) level of significance.

In order to ascertain fish marketers' extension needs, 12 major extension need items were identified through focus group discussions (FGDs) interviews and literature search. Respondents were requested to indicate their perception of the magnitude of each need item. This was done with the aid of a 3-point Likert continuum of: Disagreed, No Opinion and Agreed. These were assigned respective scores of "1", "2" and "3". Total and mean perception scores were computed for each need item after which a cut-off means score of 2.5  $[(1+2+3)/3+0.5]$  was utilized to differentiate between a perceived extension need (EN) ( $x \geq 2.5$ ) and a non-extension need (NEN) ( $x < 2.5$ ).

General status of extension needs was determined with the aid of a Composite Index Technique, which had four ranges of (1) very low (0.00-0.25); (2) low (0.26-0.50); (3) high (0.51-0.75) and (4) very high (0.76-1.00). T-test statistic was finally utilized to determine whether a significant difference existed in the perception of fresh fish and dried fish marketers, with regard to perceived extension needs. Significant extension needs of fish marketers' were determined with the aid of Factor Analysis.

## RESULTS AND DISCUSSION

Fish marketers' responses on perceived extension needs are given in Table II. Respondents perceived all the

listed items as extension needs. This was a direct confirmation of Farrington *et al.* (2002) assertion that farmers need extension education on a diverse range of rural development options, including: Information on markets, rural enterprises and other income generating opportunities. Okoko (2001) also opined that fish handling is a very delicate business and needs several strategies to reduce post harvest losses. Seven of the need items accrued means scores of 3.0 each, although five of such items recorded 98.3% each in the "agreed" response category. These were: (1) improved Storage; (2) improved packaging; (3) improved marketing techniques (4) sources of credit and (5) record keeping techniques (Table II). Improved fish sorting techniques ( $x=2.8$ ) was perceived, as the least important extension need. This activity is actually the first stage in the fish marketing chain, as it occurs immediately after the landing of harvested fish. The activity consists essentially of differentiating fish stock, with respect to size/weight, level of freshness/spoilage and/or whole (real) fish per trash fish etc. This activity recorded the lowest needs score, because of respondents' belief that they have acquired enough experience to be able to sort fish from open vessels. Further interaction however revealed that respondents' still need extension advice on the means of determining the quality and size of harvested fish sold from trawlers. It is pertinent to note that fish purchased from trawlers are usually frozen and packed in bags/sacks. Fishmongers are not allowed entry into trawlers to make choices from the cluster of packages. Even when they are opportune to make choices, problems may arise with regard to means of determination of the quality or sizes of contents in the different packages.

**General status of extension needs.** A composite index of extension needs was calculated to determine the general status of extension needs. Table III revealed the existence of a very high extension needs index, as majority of the respondents (99.2%) fell within the very high (0.76-1.00) index range. This is a disconcerting confirmation of Tall (2004) postulation, to the effect that there is a low dissemination of appropriate fisheries related technologies in Nigeria, resulting to insufficient knowledge of fish handling, preservation, processing and distribution methods. The Sustainable Fisheries Livelihood Program attributed this trend to the limited contribution of fisheries research to fishery policy formulation in Nigeria (SFLP/DFID/FAO, 2002). This is because the main actors in the fisheries policy development process are government administrators rather than key fisheries researchers (Neiland & Bene, 2004). The situation above has resulted in a lot of negative consequences for the fishery sub-sector of the economy, most especially with respect to lack of appropriate coordinated policies for fish trade. Ladu *et al.* (2000) asserted that the Nigerian government has no specific policy on fish trade, except for levy of taxes.

Negative fallouts from above reported situation, include the threat of weak fisheries governance, elite capture of wealth and benefits emanating from fish trade and failure

**Table I. Procedure for the sampling of fishes**

S/N	LGA	Fishing Ports	Sampled Ports	Sample Size (Marketers)	
				Fresh	Dried
1	Itu	Ayadehe, Okopedi	Ayadehe	10	10
2	Uruan	Ishiet	-	-	-
3	Ibena	Upenekang	Upenekang	10	10
4	Ikot Abasi	Utaewa, Old Market Beach	Utaewa	10	10
5	Eastern Obollo	Iko, Okoroete, Okorombokho	Iko	10	10
6	Oron	Oron Beach	-	-	-
7	Mbo	Ibaka	Ibaka	10	10
8	Okobo	Atabong	Atabong	10	10
9	Ini/Ikono	Ikpe Ikot Nkon, Ibiono Ewara	-	-	-
Total				60	60
				120	

**Table II. Fish Marketers' Responses on Extension Needs in Akwa Ibom State**

S/N	Extension Needs	Responses			Mean score	Remarks / Rank
		D	U	A		
1	Improved fish sorting techniques	0	26*(21.7)**	94(78.3)	2.8	EN(9)
2	Fish hygiene techniques	0	14(11.7)	106(88.3)	2.9	EN(8)
3	Fish procurement strategies	0	3(2.5)	116(96.7)	3.0	EN(1)
4	Environmental hygiene techniques	0	3(2.5)	117(97.5)	3.0	EN(1)
5	Use of innovative smoking devices	0	7(5.8)	113(94.2)	2.9	EN(8)
6	Microbial reduction activities	0	7(5.8)	113(94.2)	2.9	EN(8)
7	Prevention of insect/rodent attack	0	7(5.8)	113(94.2)	2.9	EN(8)
8	Improved storage methods	0	2(1.7)	118(98.3)	3.0	EN(1)
9	Improved packaging techniques	0	2(1.7)	118(98.3)	3.0	EN(1)
10	Improved marketing techniques	0	2(1.7)	118(98.3)	3.0	EN(1)
11	Sources of credit	0	2(1.7)	118(98.3)	3.0	EN(1)
12	Record keeping techniques	0	2(1.7)	118(98.3)	3.0	EN(1)

Note: D = Disagree; U=Undecided; A=Agreed; \*=Frequencies, \*\*=Percentages  
EN=Extension Need.

**Table III. Extension Needs Index for Fish Marketers in Akwa Ibom State**

S/N	Range	Interpretation	Frequency	Percentage
1	0.00-0.25	Very low	0	0.0
2	0.26-0.50	Low	0	0.0
3	0.51-0.75	High	1	0.8
4	0.76-1.00	Very high	119	99.2
Total			120	100.0

**Table IV. Significant Extension Needs of Fish Marketers in Akwa Ibom State**

S/N	Extension Need (EN) Item	EN Loading Index	Column Squares (Eigen Value)	Sum of % Variance	Extension Need Dimension Name
1	Environmental Hygiene techniques	0.849			(1)
2	Prevention of insect/rodent attack	0.988			Information on Value added management of fish marketing activities
3	Information on proper storage methods	0.988			
4	Improved packaging techniques	0.988			
5	Information on improved marketing techniques	0.988			
6	Information on sources of credit	0.988			(2)
7	Information on record keeping techniques	0.988	5.268	43.90	
8	Reduction of microbial activities in fish	0.833			Scientific processing methods
9	Use of innovative smoking devices	0.825	2.574	21.45	
10	Fish hygiene techniques	0.970	1.765	14.71	(3)
11	Improved fish sorting techniques	0.831			(4)
12	Fish procurement strategies	0.901	1.259	10.50	
Total				90.56	Improved fish handling techniques Innovative fish procurement/selection strategies

of the dominant poor, who are the direct stakeholders in the fishery industry to capitalize on the potentials for development action provided by the over US\$50 million dollars per annum wealth inherent in the fish marketing

industry (Neiland & Bene, 2004; Neiland *et al.*, 2005).

**Significant extension needs.** Arising from the generally similar pattern of responses to perceived extension needs, it became necessary to determine the most significant

**Table V. Extension Need Index for Fish Marketers in Akwa Ibom State**

Index range	Interpretation	Marketers			
		Fresh fish Frequency	Percentage	Dried fish Frequency	Percentage
0.00-0.25	Very low	0	0.00	0	0.00
0.26-0.50	Low	0	0.00	0	0.00
0.51-0.75	High	0	0.00	1	1.7
0.76-1.00	Very high	60	100.0	59	98.3
Total		60	100.0	60	100.0

**Table VI. Independent T-test Analysis on Difference in the Perceptions of Fresh and Dried Fish Marketers on Extension Needs**

S/N	Variable	Mean Extension	t-value	df	Sig. level	Alpha level	Remarks
1	Fresh fish marketers	0.9731	1.287	89.53	0.201	0.05	Not significant
	Dried fish marketers	0.9847					

extension needs, which should be accorded priority in the formulation of an extension plan of action for fish marketers. Factor analysis statistical tool was utilized for this purpose. This tool assumes that there should be an index of interrelationship among an array of variables (in this case, the extension needs). The Principal Component Analysis was adopted to assess how each identified extension need is interrelated, in terms of the Communalities Extraction Index of extension needs. The values for the 12 need items are expressed in column 2 of Table IV. It showed that there was a high degree of interrelationship (communalities) among the variables. To determine the significant needs among the 12 identified items, a criterion with an eigen value that is greater than or equal to 1, was applied and 4 interpretable eigen values (dimensions) were extracted and chosen, which accounted for 90.56% of the variations (This is observed in columns 3 & 4). Factor rotation was thereafter introduced to help eliminate or obtain factors, which are more easily interpretable. Orthogonal rotation by Varimax Criterion, with Kaizer normalization, was utilized to ensure that factor loadings obtained are independent of each other. Based on the foregoing, the mutually exclusive factors were named to reflect the loaded factors (variables). Column 5 of Table IV showed that component or dimension 1 accounted for 43.90% of the total variance and was the most important dimension since over-a-half of the individual variables were contained therein. This dimension was made up of variables associated with adding value to the activities involved in management of fish marketing, and named “Information on value-added management of fish marketing activities”. Dimension 4 was found to consist of only two variables and accounted for 10.50% of the total variance in the original data matrix and was therefore named “innovative fish procurement/selection strategies”.

In essence, for extension to make an immediate impact on the socio-economic livelihood on fish marketers, it must make concerted efforts to disseminate information on: prevention of insect/rodent attack; proper storage methods; good packaging techniques; improved marketing techniques; source of credit and record keeping. Thereafter, information may then be disseminated on other areas of

identified extension needs.

**Determination of the existence or non-existence of a significant difference in the needs perception of fresh-fish and dried-fish marketers.** It was necessary to ascertain the existence of a significant difference in the level of extension needs perception between fresh and dried fish marketers. This analysis was necessary so as to ensure that identified extension needs reflected the views of both groups of marketers. From Table V and VI, it was revealed that no significant difference existed between fresh and dried fish marketers, with regard to perceived extension needs. This result confirms the validity of findings on significant extension needs of fish marketers. It may therefore be inferred that both fresh and dried fish marketers in Akwa Ibom State fishing ports are united in their perception of extension needs requirement for improved fish marketing activities in the study area.

**CONCLUSION IMPLICATIONS AND RECOMMENDATIONS**

The study has revealed that there is a very high extension need index among fish marketers in the fish landing ports of Akwa Ibom State. This assertion is derived from the fact that respondents perceived that they do require extension assistance in all aspects of the fish marketing chain. Four significant dimensions of extension needs were also identified to include: Information on value-added management of fish marketing activities, scientific processing methods, improved fish handling techniques and innovative fish procurement/selection strategies. It was finally revealed that both fresh fish marketers and dried fish marketers had identical perceptions of extension requirements for improved fish marketing activities.

The implications of the above results is that attempts should be instituted to ensure that fish marketers, who provide a vital link between artisanal fishermen and the consuming public are empowered to benefit from the vast wealth generated by the fishery sub-sector of the Nigerian economy. Failure to act positively in this direction would lead to increases in ever-widening fish demand – supply

gap. Negative fall-outs from this situation would include poor human nutrition, food insecurity, low employment rate, worsened socio-economic deprivation and ultimate decline in Nigeria's gross domestic product.

It is imperative that the Unified Agricultural Extension service wakes up to its statutory responsibility of providing education and training opportunities to the teeming Nigerians involved in the myriad of fish marketing enterprises thriving in the coastal regions of the country and Akwa Ibom State. Against this background, the following actions are recommended:

- (1). A more intensive evaluation of activities, across the fish marketing chain should be conducted so as to place in proper perspective, the reasons for the high index of extension needs in the study area.
- (2). It would be necessary to convene a stakeholders' forum (to include all those remotely or prominently involved in the fish marketing chain) to discuss and concretize plans of action to revamp fish marketing activities in the study area in terms of policy formulation and improved statistical base.
- (3). Capacity building activities should be conducted for fish marketing groups on how to overcome the extension needs, how to articulate their needs in a more coherent manner and on how to draw down government/NGO assistance to improve on their economic activities.
- (4). The UAES should incorporate fishery sub-sector education and training activities into its fortnightly training activities for extension agents. The UAES should also relay indigenous technical knowledge in the fishery sub-sector to the research institutes and proceed to collaborate with the research institutes in the formulation of sustainable technologies for improved fish marketing g activities.

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