

## ASSESSMENT OF THE ROLE OF RURAL WOMEN IN SMALL SCALE FRESH FISH PROCESSING IN KATCHA LOCAL GOVERNMENT AREA, NIGER STATE, NIGERIA

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Received 11<sup>th</sup> March, 2016 Accepted 5<sup>th</sup> June, 2016

### Abstract

The study assessed rural women involvement in small scale fish processing in Katcha Local Government Area, Niger State. Structured questionnaire was administered to randomly selected ninety (90) women fresh fish processors in the study area to generate relevant data. The data obtained were analyzed using descriptive statistics and ordinary least square (OLS) regression model. Results revealed that majority (95.56%) of the women were married, most (64.44%) of them have household sizes of between 6-10 persons. About 65.56% of the women were illiterate. About 63.33% of them received no extension contact. The cost of fresh fish ( $X_6$ ), availability of fresh fish ( $X_8$ ), access to credit ( $X_{10}$ ) and cooperative membership ( $X_{11}$ ) significantly influenced small scale fish processing ( $p < 0.01$ ) while other expenses ( $X_7$ ) significantly influenced fish processing ( $p < 0.05$ ). However, the women in the study area were yet to embrace improved methods of fish processing due to inadequate capital, poor access to credit and poor extension service delivery. It was recommended that the women fish processors should be sensitized and encouraged to collect soft loans as members from the cooperative savings, linked to credit institutions, while extension service delivery in the study area should be improved.

**Key words:** Rural women, Fish, Processing, Small Scale, Katcha

### Introduction

In many African societies, Nigeria inclusive women are considered as weak, only capable of child nurturing and household caring (Ibrahim *et al.*, 2011). The historical deprivation of women by men politically, socially, culturally and technologically has negatively affected their status in the society. In fact, women are often regarded as second class citizens by men. According to Baden (1997), there are some gender based differentiations that exist within the rural households such as the control over family labour, access to production and processing inputs, inequality in consumption and responsibility for households' expenses. Acharya (2013), stated that lack of women access to and control over productive resources as one of the major limiting factors for women participation in economic activities like agro-processing and hence retards human development process. Nonetheless, women have a great share of responsibility among households involved in processing of agricultural produce, irrespective of whether they reside in rural or urban settings (Rosemond and James, 2012). This however, underscores the crucial role women play in agricultural processing. These activities are certainly the surest platform to empower women as well as their means of livelihood. Aworh (2008) stated

that small scale processing contributes to employment generation for the rural women and thus assist in reducing rural-urban drift as it offers rural women secured source of income.

### Role of Women in Fish Processing

Fish is an important source of good quality protein required in human diets. It has the highest level of easily digestible protein, fats, vitamins, calcium, irons and essential amino acids when compared to other sources of animal protein like beef and poultry (Babalola *et al.*, 2015). FAO (2004) reported that fish account for about one-fifth of world total supply of animal protein source. The importance of fish in human nutrition cannot therefore be over emphasized. According to Oluwatoyin *et al.* (2010) fish is one of the safest source of calories, protein, fat, calcium, iron, vitamins and essential amino acids.

By and large, fish are highly perishable food which requires proper handling in form of processing and preservation, if it is to have long shelf life and retain a desirable quality and nutritional value (Oluwatoyin *et al.*, 2010). Okonta and Ekelemu (2005) reported that immediately fish dies some physiological and microbial deterioration begins which reduce the quality of the fish. In other words, one of the central objectives of fish processing is to prevent fish from deterioration (RSE, 2004).

Fresh fish once processed minimize, post harvest losses.

However, the processing, preservation and marketing of fish are important complementary functions of food production systems. The women are traditionally believed to play a major role in these activities. Women who resides in the riverine fishing communities partake actively in fish processing and preservation either in small scale, private or cooperative societies levels as their primary means of livelihood. According to Ibrahim *et al.* (2011), Nigerian women engage in fish processing in order to upset their children school fees, buy household assets, generate saving and acquire goods and services. Akinola *et al.* (2006) reported different methods used to process fish to include smoking, drying, salting, chilling and freezing. Okoeley and Kwartan (2006) and Oluwatoyin *et al.* (2010) stated different methods, fish can be traditionally processed to include; gutting, splitting, filleting, sun-drying, smoke-drying, frying and salting. However, despite these enormous role women render in preserving the quality of fish and ensure its availability to the end users, there has been no much recognition of the women's role in the fisheries subsector (Babalola *et al.*, 2015). The objectives of this study therefore were to describe the socio-economic characteristics of the respondents; identify fish

processing methods used by the women in the study area; examine monthly income generation by women from processed fish; analyze variables that influence small scale fish processing in the study area and identify the constraints faced by the rural women.

## **Methodology**

### **Study Area**

The study was conducted in Katcha Local Government Area of Niger State. The Local Government Area (LGA) lies between latitude 9<sup>0</sup>09'N and 9<sup>0</sup>15'N and between longitude 6<sup>0</sup>14'E and 6<sup>0</sup>23'E. Katch LGA covers an estimated land area of 1,681 sq. km. (Wikipedia, 2015). The human population as at 2006 census stood at 122,176 (NPC, 2006). Crop production and fishing form the major occupation of the people. The basic pattern of land ownership is communal system. The LGA is in the tropical climate marked by wet and dry seasons. The wet season commences late April and cease; mid October. The remaining months of the year is dry season. The dry period is characterized by harmattan and hot weather. Katcha LGA has mean annual rainfall range of 1000mm-2500mm while mean annual minimum and maximum temperatures of 23<sup>0</sup>c-33<sup>0</sup>c (NSADP, 2012). The figure below is a map of Niger State showing the study area.



Figure 1: Map of Niger State showing the study area

**Sampling procedure and Data Collection**

Two stage sampling technique was used to select the respondents. The first stage involved purposive selection of nine (9) major fish processing villages namely Badeggi, Ecegi, Emitsu, Jibo, Katcha, Kangi-toga, Ndaladan, Samma and Zhitu. The last stage was random selection of ten (10) women fish processors from each village and this gave a total sample size of 90 respondents. Primary data were used for this study. The data were obtained using structured questionnaire, administered to the respondents through interview schedule by trained enumerators.

**Analysis of Data**

Data collected were analyzed using descriptive statistics such as frequency, percentage counts and mean. However, ordinary least square (OLS) regression was used to analyze the variable that influence small scale fish processing in the study area. The regression model is implicitly specified as;

$$(Y = X_1 - - - X_n, ei)$$

Where;

Y = Output of processed fish (kg)

X<sub>1</sub>- -X<sub>n</sub> = Explanatory variables

e<sub>i</sub> = Error term.

The model above can be explicitly expressed as;

$$Y = \ln b_0 + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + b_4 \ln X_4 + b_5 \ln X_5 + b_6 \ln X_6 + b_7 \ln X_7 + b_8 \ln X_8 + b_9 \ln X_9 + b_{10} \ln X_{10} + b_{11} \ln X_{11} + e_i$$

Where;

X<sub>1</sub> = Age of respondent (in years), X<sub>2</sub> = Marital status (married =1, otherwise =0), X<sub>3</sub> = Educational level (years spent schooling), X<sub>4</sub> = Household size (No. of person), X<sub>5</sub> = Fish processing experience (in years), X<sub>6</sub> = Cost of fresh fish ( in ₦), X<sub>7</sub> = other expenses (₦), X<sub>8</sub> = Availability of fresh fish (available =1, otherwise =0), X<sub>9</sub> = Contact with extension

agents (No. of contacts),  $X_{10}$  = Access to credit (Access =1, otherwise =0),  $X_{11}$  = Cooperative membership (member =1, otherwise =0),  $b_1 - b_{11}$  = Coefficients of explanatory variables,  $b_0$  = constant.

**Results and Discussion**

Results in Table 1 revealed that majority (50.00%) of the women were within age range of 31-40 years with a mean age of 38.02 years, while a few (3.33%) were within the age range of 51-60. This implies that most of the women were in their productive age. The result also showed that most (95.56%) of the women fresh fish processors were married while 1.11% and 3.33% of the women were divorced and widows respectively. It implies that fish processing business was mostly undertaken by married women in the study area. This may be attributed to their desire to supplement their family expenses. This result is in line with the findings of Ibrahim, et. al.

(2010) who stated that, in Nigeria women engage in fish processing in order to pay their children and medical fees. Result also revealed that (10.00%) of the women has household size of 1-5 person, majority (64.44%) has household size of 6-10 person with an average of about 7 person, meanwhile, 11.11%, 7.78% and 6.67% has household size of 11-15 person, 16-20 person and above 20 person respectively. The fairly large household size could serve as cheap source of labour for the women fish processors. Table 2 showed that, large proportion (65.56%) of the women had no formal education while (2.22%, 31.11% and 1.11%) of the women attained adult, primary and secondary education respectively. This implies that majority of women fish processors in the study area were illiterate. This agrees with the findings of Aqeela et al. (2005) that two-third of the one billion illiterate persons in the world are women and girls.

**Table 1 Socio-economic Characteristics of respondents**

Variables	Frequency	Percentage (%)	mean
Age (years)		28.89	
20-30	26	50.00	38.02
31-40	45	17.78	
41-50	16	33.33	
51-60	3	100.00	
<b>Total</b>	<b>90</b>		
Marital Status		95.56	
Married	86	1.11	
Divorced	1	3.33	
Widow	3	100.00	
<b>Total</b>	<b>90</b>		
Household size (No. of person)		64.44	7.07
1-5	58	11.11	
6-10	10	7.78	
11-15	7	6.67	
16-20	6		
>21		100.00	
<b>Total</b>	<b>90</b>		

Source: Field Survey, 2014

Result also revealed in Table 2, that majority (80.00%) of the women has 1-20 years of fish processing experience. It implies that fish processing was a popular occupation among women in the study area. Result also indicates that more than half (62.22%) of the women belonged to one cooperative society or the other, while (37.78%) of the women were

not members of any cooperative. Also large proportion (63.33%) of the women received no extension contact, however, 17.78%, 5.56% and 13.33% of the women received extension visit on monthly, quarterly and yearly basis respectively. This implies, extension service delivery was poor in the study area.

**Table 2: Socio economic characteristics; educational level, processing experience, cooperative membership and extension contact.**

Educational level		
Non-formal education	59	65.56
Adult education	2	2.22
Primary education	28	31.11
Secondary education	1	1.11
<b>Total</b>	<b>90</b>	<b>100.00</b>
Fish processing experience (yrs)		
1-10	45	46.67
11-20	30	33.33
21-30	12	13.33
31-40	6	6.67
<b>Total</b>	<b>90</b>	<b>100.00</b>
Cooperative membership		
Yes	56	62.22
No	34	37.78
<b>Total</b>	<b>90</b>	<b>100.00</b>
Extension contact		
No contact	57	63.33
Monthly	16	17.78
Quarterly	5	5.56
Yearly	12	13.33
<b>Total</b>	<b>90</b>	<b>100.00</b>

Source: Field Survey, 2014

**Method of Fish Processing**

Result in Table 3 indicates that all (100.00%) of the women smoked their fish, 62.22% and 16.67% employed sun drying and

salting methods to process their fish respectively. This implies that fish processing in the study area was through traditional methods.

**Table 3 Distribution of respondents according to fish processing methods**

Processing Method	Frequency*	Percentage (%)
Smoking	90	100.00
Sun drying	56	62.22
Salting	15	16.67

Source: Field Survey, 2014

\*Multiple responses

On the other hand, Table 4 revealed that (6.67%) of the women generated less than ₦25,000 monthly, most (68.88%) of the women generated income of between ₦26,000 – ₦50,000 monthly. The women earned above

the national minimum wage of Nigeria ₦18,000 per month from fish processing. It implies that the enterprise has the potential for rural women economic empowerment.

**Table 4: Respondent's income generation from sale of processed per month.**

Income (₦)	Frequency	Percentage (%)
<25,000	6	6.67
26,000-40,000	12	13.33
41,000-50,000	10	11.11
51,000-60,000	40	44.44
61,000-70,000	14	15.56
>70,000	8	8.89
<b>Total</b>	<b>90</b>	<b>100.00</b>

Source: Field Survey, 2014

Table 5 presents regression analysis of factors that influenced rural women fish processing activities. The result revealed that cost of fresh fish ( $X_1$ ) was a significant variable ( $p < 0.01$ ) that influenced fish processing by women in the study area. It has positive coefficient which is unexpected. Other expenses ( $X_7$ ) significantly ( $p < 0.05$ ) influenced fish processing. The variable has negative coefficient, which implies that, the less in the other expenses the women incurred the more they were likely to increase their processing activities. Similarly, availability of fresh fish ( $X_8$ ) significantly influenced fish processing ( $p < 0.01$ ) and has positive coefficient that implies, the more fresh fish were available the

more rural women were likely to intensify their processing efforts. Access to credit ( $X_{10}$ ) significantly influenced fish processing ( $p < 0.01$ ) and has positive coefficient which implies that, the more credit was available to the women, the more they would process fish. Cooperative membership ( $X_{11}$ ) significantly influenced women fish processing effort ( $p < 0.01$ ) and it has positive coefficient which implies that, women who were members of cooperative societies were likely to put their resources together to obtain improved processing technologies and also they stand better chances of receiving necessary government support in form of credit or processing infrastructure

**Table 5 Regression analysis of factors influencing processing**

Variables	Regression coefficients	Standard error	p>t
Constant	-365.5431***	30.1882	0.000
Age $X_1$	3.802846	5.353635	0.480
Marital status $X_2$	-0.372733	4.094348	0.928
Education $X_3$	0.0612987	0.8234492	0.941
Household size $X_4$	-1.398296	2.336704	0.551
Experiencing $X_5$	-0.773009	1.707136	0.652
Cost of fish $X_6$	-106.3638***	38.88521	0.008
Other expenses $X_7$	-17.88916**	8.577104	0.040
Availability of fresh fish $X_8$	0.333239***	0.0863357	0.000
Extension visit $X_9$	-2.276603	2.407319	0.347
Access to credit $X_{10}$	13.80547***	4.441731	0.003
Cooperative membership $X_{11}$	0.450345***	0.0991468	0.000
$R^2$	0.9045		
Adjusted $R^2$	0.8910		
F-value	67.16		

Computed from field data, 2014

\*\*\*significant at 1%, \*\*significant at 5% level of probability respectively

Results in Table 6 showed that high cost of modern processing equipment was considered as the most serious constraint. Inadequate capital was ranked 2<sup>nd</sup> as serious constraint faced by the women fish processors. Also poor extension visit, poor access to credit and lack of storage facilities were ranked 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> as constraints faced by the women respectively. Others were poor market infrastructure, high cost-of fresh fish, high

transportation cost and poor market price which were ranked 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> as constraints faced respectively. This finding is in line with that of Ibrahim *et al.* (2011) who reported major constraints faced by women fish processors to include lack of modern processing facilities, inadequate extension services, inadequate market infrastructure and inadequate storage facilities.

**Table 6: Constraints faced by the Women fish processors**

Constraints	Frequency*	Percentage (%)	Rank
Constraints	90	100	1 <sup>st</sup>
High cost of modern processing equipment	86	95.56	3 <sup>rd</sup>
Poor extension visit	84	93.33	4 <sup>th</sup>
Poor access to credit	88	97.78	2 <sup>nd</sup>
Inadequate capital	83	92.22	6 <sup>th</sup>
Poor market infrastructure	84	93.53	5 <sup>th</sup>
Lack of storage facilities	80	88.89	7 <sup>th</sup>
High cost of fresh fish	77	85.56	8 <sup>th</sup>
High transportation cost	38	42.22	9 <sup>th</sup>
Poor market price			

Source: Field Survey, 2014

\*Multiple responses

### Conclusion and Recommendations

The women fish processors in the study area were yet to embrace improved fish processing techniques, that are less labour intensive and which can assist them to expand their scale of operation and realize increased outputs of processed fish. This may not be unconnected with their inadequate capital base, poor access to credit and poor extension service delivery system.

To this end, the study made the following recommendations; the women should be sensitized and encouraged to collect soft loans as members from the cooperative savings linked to credit institutions, while extension service delivery in the study area should be improved.

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