

Role of Women in Food Security and Seasonal Variation of Expenditure Pattern in Coastal Fishing Communities in Lagos State

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Abstract

This study examined the socio-economic characteristics, role of women and expenditure pattern as it relates to seasonal variation in lagoon and marine fishing communities in Lagos State. A two stage stratified sampling method was used to select the sample size of 210 fishing (35 female and 175 male-headed) households from 25 lagoon and 10 marine fishing communities. Data were collected through field observation and administration of structured questionnaire at household level. Analytical technique used was descriptive statistics. Results indicate that though women do not fish in the high sea, female-headed households from among the Ilajes are actively involved in fishing in the lagoon waters. The study reveals that wives and daughters of fishermen are actively involved in fish processing, preservation and sales of fish caught as well as farming. Mean per Adult Equivalent Household Expenditure (MPAEHE) ranged from ₦350.74 for the first decile to ₦3,928.30 for the tenth decile. Percentage of the total expenditure spent on food decreased from 90.8% for the first decile to 41.9% in the tenth deciles. Other crucial roles of women in ensuring food security despite the seasonal variation are highlighted. The need to ensure food security should follow a multi-dimensional approach in order to achieve considerable improvement in the living standards of the poor fisher-folks.

INTRODUCTION

In 2000, the Millennium Summit synthesized previously agreed global goals and targets in a document called the 'Millennium Declaration'. Formulated as 8 goals and 18 targets, the Millennium Development Goals (MDGs) were endorsed by the United Nations General Assembly in late 2001 (UNDP, 2007). They were selected on the basis of available indicators and reliable data for documenting progress. Among the eight goals, eradication of extreme poverty and hunger, as well as ensuring a sustainable environment is central to securing a sustainable livelihood for fisher folks in Nigeria. Fisheries have provided for centuries the main source of livelihood for the population of fishing communities in Nigeria and a vital sector of the economy by employing more than 6 million fisher folks in Nigeria (Fish for All Summit, 2005) in terms of fish production, processing and distribution. Entire families (men, women and children) in the fishing communities are engaged in the sector. The catch from these fisheries plays an

important role in food security as it is mostly consumed by local communities and is an important source of animal protein in peoples' diets.

Seasonal fluctuation in food availability and household responses to this insecurity has been observed to influence individual consumption patterns (Longhurst, 1986). In fishing communities, during the off-fishing season, which is usually in the rainy season (July to September), fish catch is low. This is because of the increased level of turbid water and strong wind, which hinder the fishermen without outboard engine from going far out to sea. In an attempt to make a living, they have resulted to the exploitation of generally fragile environment, thereby leading to a cycle of low production, low income, and poverty and being food insecure (National Institute of Oceanography and Marine Research, (NIOMR), 1989 and Federal Office of Statistics, (FOS), 1999). As a result of inadequate purchasing power (income), fisher folks often experience a food - insecure period (Fregene, 2002).

Small - scale fishing communities in Nigeria, as elsewhere in the world are vulnerable to exploitation due to poverty and uncertainty of their income. The seasonality of fish catch coupled with inadequate processing capacity has resulted in high post harvest losses, which diminish benefits accruing to small-scale operators. Realizing that fisher folks are not a homogenous group of people, there is the need for a comparative study of fishing communities. The research questions are:

- (a) What are the differences in socio-economic characteristics of fisher folks, if any between lagoon and marine communities?
- (b) What are the roles of women in the fishing communities?
- (c) What is their expenditure pattern as it relates to seasonal variations in poverty level in the lagoon and marine fishing communities?

The study therefore examined the socio-economic characteristics, role of women and expenditure pattern as they relate to seasonal variation poverty level in lagoon and marine fishing communities in Lagos State.

METHODOLOGY

The study was carried out in Lagos State, which has 22.5% of Nigeria's coastline and occupies an area of 3,577 square kilometre mass with 786.94 square kilometre or 22 percent of it being lagoons and creeks, in Lagos, Ikorodu, Badagry and Epe local government areas (Udo and Mamman, 1993).

A two stage stratified sampling method was used with initial strata being the types of fishing ground (lagoon and marine waters) and the Lagos State Agricultural Development Program (LADP) administrative blocks (NIOMR, 1989). From a number of eight ADP blocks, six blocks containing lagoon and coastal fishing communities were used for the study. At the first stage, in order to ensure that all the six blocks were represented; a minimum of one community was selected where necessary. Proportional allocation of communities was according to the number of fishing villages within each (stratum) block. The second stage was stratified based on sex and from each stratum (female and male headed households). Six households (one female-headed and five male-headed) were selected from each community. A total of 35 (16.7%) female headed and 175 (83.3%) male-headed households were used for the study. Analysis of the 1992 Household survey revealed that a proportion of 17% of households in the southern zone of Nigeria are headed by females (World Bank, 1996). This was the basis for which 16.67% were selected for the female-headed households. On the whole thirty-five fishing communities were randomly selected from the list of fishing communities in the six ADP blocks (Table 1). Pre-tested structured questionnaire was

administered to 210 household heads by enumerators. Data were also collected through field observation.

Descriptive statistics used include measures of frequency distribution, central tendency and dispersion. Measures of central tendency and dispersion used are mean and percentiles respectively. The frequency distribution was used to show the occurrence of a given sample characteristic grouped into classes. Percentage food share in the household expenditure was determined by percentile on decile basis (10 percentile) according to seasons by sorting the data points from the high to the low. Percentile is the value of variables below which a certain percent will be found. The relative approach (two-thirds of the Mean Per Adult Equivalent Household Expenditure (2/3 MPAEHE)) was used to determine the moderate poverty line, one-third of the mean was regarded as the line for extreme (core) poverty for the female-headed and male-headed households in lagoon and marine fishing communities. The World Bank (1996) and FOS (1999a) used this method for the poverty assessment of Nigeria. The MPAEHE converts the households into equivalent households' based on the nutritional requirement of sex and age of the members (Table 2).

TABLE 1: List of Sampled Fishing Communities

ADP Zone	Lagoon Communities	ADP Block	n	Marine Communities	ADP Block	n	
Eastern	Ijede	Ikorodu	6	Magbon	Ibeju-Lekki	6	
				Alade			
		Bayeku	Ikorodu	6	Akodo	Ibeju-Lekki	6
		Ibeshe	Ikorodu	6	Orimedu	Ibeju-Lekki	6
		Ebute Afuye	Epe	6	Lekki	Ibeju-Lekki	6
		Ejinrin	Epe	6	Folu	Ibeju-Lekki	6
		Agbowa-Ikosi	Epe	6			
		Imope	Epe	6			
		Itoiken (Zion)	Epe	6			
		Ibeju	Ibeju-Lekki	6			
		Ebute Lekk	Ibeju-Lekki	6			
		Ebute Siriwon	Ibeju-Lekki	6			
		Ise	Ibeju-Lekki	6			
	Western	Iworo	Badagry	6	Yovoyan	Badagry	6
Tohon		Badagry	6	Aganrin	Badagry	6	
Iyafin		Badagry	6	Tafi	Badagry	6	
Ajido		Badagry	6	Ibesa	Badagry	6	
Ganyigbo - Topo		Badagry	6	Okun Alfa	Eti-Osa	6	
Iragbo		Badagry	6				
Gberefun		Badagry	6				
Erekiti		Badagry	6				
Bariga		Alimoso-Ikeja	6				
Ado		Eti-Osa	6				
Badore		Eti-Osa	6				
Langbasa		Eti-Osa	6				
Ajah Ilaje		Eti-Osa	6				
Total		25		150	10		60

TABLE 2: Nutrition (Calorie based) Equivalent Scale

Years of Age	Female	Male
0-4	0.4875	0.4875
5-14	0.7600	0.8550
15-16	0.8350	1.0600
Above16	0.7400	0.8400

Source: Dercon and Krishnan (1998)

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Fisher-Folks

An understanding of the socio-economic characteristics of households in fishing communities is required to determine the role of women and expenditure pattern for the appropriate intervention. This is because the household is the unit of production, consumption and reproduction.

As presented in Table 3, all of the respondents were either married (82.4%) or widowed (16.2%); except for one respondent who was not married (0.5%). Some fishermen have maintained one wife based on religious belief (Jehovah Witness). Others have married more than one due to the need for cheap labour to assist in fish processing, while some as a sign of social affluence (Fregene, 2002). The female heads were either *de jure* or *de facto*. *De jure* female households are mostly widows without an adult male son of social and productive age. On the other hand, *de facto* female heads are essentially those whose husbands work away from the fishing enterprise and were not permanently living in the community leaving their wives to manage the fishing enterprise (World Bank, 1996).

TABLE 3: Socio-Economic Characteristics of Fisher Folks-Male-Headed and Female Headed Households (n=210)

Variable	Lagoon Communities		Marine Communities		Total	
	Frequency	%	Frequency	%	Frequency	%
Marital status						
Single	0	0	1	1.7	1	0.5
Married	125	83.4	48	80.0	173	82.4
Divorced	2	1.3			2	0.9
Widow	23	15.3	10	16.6	33	15.7
Widower			1	1.7	1	0.5
Age						
21-40	42	28.0	24	40.0	66	31.5
41-60	101	67.3	32	53.3	133	63.3
>60	7	4.7	4	6.7	11	5.2
Level of Education						
None	57	38.0	17	28.3	74	35.3
Primary School	66	44.0	34	56.7	100	47.6
Modern School	13	8.7	3	5.0	16	7.6
Secondary School	14	9.3	6	10.0	20	9.5
Household size						
1-5	6	4.0	2	03.3	8	3.8
6-10	102	68.0	48	80.0	150	71.4
> 10	42	28.0	10	16.7	52	24.8
Ethnic Groups						
Ijebus	91	60.7	31	51.7	122	58.1
Ilajes	17	11.3	3	5.0	20	9.5
Ijaws and Urhobos	4	2.7	0	0.0	4	1.9
Eguns	33	22.0	9	15.0	42	20.0
Aganrins	0	0.0	6	10.0	6	2.9
Aworos	5	3.3	6	10.0	11	5.2
Ghanaians	0	0.0	5	8.3	5	2.4
Major occupation						
Fishing, fish processing and monger alone	19	12.7	6	10.0	25	11.9
Fishing, fish processing and monger and Farming	87	58.0	50	83.3	137	65.2
Fishing, fish processing and monger and off farm jobs	44	29.3	4	6.7	48	22.8
Land Holdings						
None	23	15.3	7	11.6	30	14.3
< 1 hectare	111	74.0	31	51.7	142	67.6
≥ 1hectare	16	10.7	22	36.7	38	18.1

The average age of sampled fisher-folks was 42.5 years for those in the lagoon communities, while, among the marine dwellers, it was 38.2 years. In all, the proportion of older inhabitants was higher in lagoon communities. A third of the fishermen had no formal education, but the marine fishermen were more exposed to primary education.

Average household size is quite large because the supply of potential labour force depends mainly on the household size and structure. The main tribe in the study area are the Ijebus who are natives of Lagos State (48.1%). Minor tribes include the Ijaws and Urhobos (1.9%) and Eguns (16.7%) who are migrant fishermen from Republic of Benin. The, Aworos and Aganrins (4.7%) are Non-Nigerians whose grand parents have resettled for long in the fishing communities. Ghanaians make up only 1.9%.

Due to the location of these communities near the lagoons and the Atlantic Ocean, more than 80% of the respondents are either fishermen or fishmongers. This is because fishing is a ready cash earner as opposed to farming in which the farmer has to raise his crops and wait for many months for the products to be harvested and sold. In the lagoon, 9.33% were involved in off-farm jobs (transporting people across the lagoon, wood sawing and construction of canoes) as a main source of occupation, while, 20% of the population had it as their secondary jobs. Others were involved in farming (mainly at subsistence level), though 14.3% who are foreigners do not have access to land.

Presented in Table 4 are the socio-economic characteristics of female headed households in the lagoon and marine fishing communities. Majority of them are widowed (94.3%), 65.7% had no form of education, households' size of between 6 and 10 (80.0%), and three quarter of the female household heads are Ijebus (60.0%). In terms of livelihood, only the Ilaje women folks (11.3%) are actively involved in fishing in the lagoon waters. Other sources of livelihood in the study area include fish processing, weaving of mats, trading and farming. In marine communities, all the women are involved in fish processing and mongering as their main occupation. Women in the lagoon communities have combined fish processing and mongering with fishing (8.0%), farming (32.0%) and trading (16.0%). Female-headed households have farming as main and secondary sources of income.

Role of Women in Fishing Communities

Women fisher folks in Lagos State fishing communities were mainly involved in the processing of fish caught by smoking using traditional earthen ovens (Table 4). They do not fish in the high sea; but the Ilaje women who are immigrant fishing families from Ondo State where women fish; were actively involved in fishing. Female-headed households who fish in the lagoon waters among the Ilajes were located in Bariga, Ejirin, and Ereketi have fishing net, paddles and boats. They catch shrimps using traps (lyere). The female-headed household in Ereketi, an Ilaje woman does not farm but fishes throughout the seasons and owns a canoe, tilapia fishing nets and shrimp traps. The Ilaje women often catch and collect fish and aquatic animals all year round due to their responsibilities for the food security of the family. The Aworo women are engaged in harvesting of crabs and shrimps from the lagoons using hand nets and various cane traps. The Ijebu women in Ibeshe and Ijede also set traps to catch shrimps especially during the lean season which is sold to buy gari and soup ingredient. They market live shrimps, crabs and oyster. The females among the Ijebus do not fish but buy fish, make nets and sell provisions. In the lean season, due to lack of fish landings, the women in lagoon fishing communities smoke ice fish.

The study reveal that wives and daughters of fishermen were actively involved in fish processing, preservation and sales of fish caught by their husbands and fathers respectively as well as farming. It was observed that they also play a major role in extraction of the fish from the gill and set nets, sorting the units of fish products for wet and fresh sales. During the off-fishing season, women in the fishing communities are involved in several off-farm activities such as mat weaving, petty trading and sales of cooked food. Women in Iragbo produce brooms and buy straws from elsewhere to make mats. Widows in this community are cared for by their brothers-in-law who provide them with fish and money, while their sons go for fishing. They are also allowed to farm on their late husbands' land, while the widow in Iyafin sells food. Divorced women and widows have access to land as long as she has a male child for the husband. In the marine communities, women have access to land before and after the death of their husbands.

The remoteness of and poor accessible roads to fishing villages makes the fishing-family self-sufficient in food production in terms of the family budget. Cassava as the main staple crop is grown by the women along with maize and vegetables such as melon, okra, pepper and fruit (mangoes, cashew, and oranges) for family use. They also process cassava into gari, fufu as well as coconut oil from coconut. Family members are mainly involved in the provision of labour for the farming activities. The women were the life-wire of the fishing families because they ensured the survival of every member of the family and assist in catering for the extended family. This aspect of welfare of the fishing family is a cultural process that has been taught the family from one generation to the other. According to the Fish Centre (2006) examination of women's roles in the post-harvest sector and other shore-based activities is critical for food security, poverty alleviation and sustainable livelihoods of fishing communities.

TABLE 4: Demographic Characteristics of Female-Headed Fisher Folks (n=35)

Variable	Lagoon Communities		Marine Communities		Total	
	Frequency	%	Frequency	%	Frequency	%
Marital status						
Married	2	8.0	0	0	2	5.7
Divorced	0	0	0	0	0	0
Widow	23	92.0	10	100	33	94.3
level of Education						
None	16	64.0	7	70.0	23	65.7
Primary School	9	36.0	3	30.0	12	34.3
Modern School	0	0	0		0	0
Secondary School	0	0	0		0	0
Household size						
1-5	1	4.0	2	20.0	3	8.6
6-10	20	80.0	8	80.0	28	80.0
> 10	4	16.0	0	0	4	11.4
Ethnic Groups						
Ijebus	16	64.0	5	50.0	21	60.0
Ilajes	4	16.0	0	0	4	11.3
Ijaws and Urhobos	0	0	0	0	0	0
Eguns	4	16.0	2	20.0	6	17.2
Aganrins	0		1	10.0	1	2.9
Aworos	1	4.0	1	10.0	2	5.7
Ghanaians	0	0	1	10.0	1	2.9
Major occupation						
Fishing alone	1	4.0	0	0	1	2.8
Fish processing and monger alone	0	0	10	100. 0	10	28.8
Fishing, fish, processing and monger	2	8.0			2	5.7
Fishing and Farming	2	8.0	0	0	2	5.7
Fish processing, monger and Farming	8	32.0	0	0	8	22.8
Fish processing, monger and trading	4	16.0	0	0	4	11.4
Farming and trading	8	32.0	0	0	8	22.8

Food and Non-Food Ratio of Total Expenditure

In the lagoon fishing communities, fisher-folks in the first decile used a disproportionately high share of their income, as much as 93.96% for consumption purposes during the off-fishing season, but decreases to 48.41% for the tenth decile (Table 5). On the average 71.71% is spent by the fisher folks living in the marine communities on food in the late dry season and it increases to 81.86% during the off fishing season (Table 6). The late rains recorded the highest percentage of food share generally. It was observed that fisher-folks spent more for food in the late dry season than in rainy season. This is because though income is more, a greater proportion of the income is spent on food and it is in conformity with the Engel law which states that food-share in total spending (expenditure) reduce as income increases. Fisher-folks in the lagoon communities recorded a higher percentage of food-share when compared to the marine ones. This is due to the lack of good access roads to these communities, thereby increasing the cost of transportation of food items which results in the high cost of food stuff. On the average, marine communities spent more on non-food items such as alcohol and smoking due to the frequent fishing operations at night.

In the lagoon and marine communities, female-headed households had about twice the level of poverty incidence compared to their male counterparts, while a 100% of poverty level was recorded for the female household heads in the late rains (Figures 1 and 2). As level of poverty increases, effect of seasonal variation also becomes even more significant. Poor families therefore spend 80% of their budget and more on food. This percentage exceed the observation of von Braun (2008) that poor people spend 50 to 70 percent of their income on food and to cope, households limit their food consumption, shift to even less-balanced diets, and spend less on other goods and services that are essential for their health and welfare.\

During the lean season when fish catches are low, fisher-folks depend on their farm produce especially cassava, as a means for sustenance. The seasonality of fish catch, on the part of the women; coupled with inadequate processing capacity has resulted in high post harvest losses, which diminish benefits that should accrue to them as small-scale operators.

TABLE 5: Percentage of Food Share by Deciles According to the Seasons for Lagoon Communities

Decile	Percentage Food Share (%)			
	Late Dry (Jan.-Mar.)	Early Rains (April -June)	Late Rains (July-Sept.)	Early Dry (Oct.-Dec.)
First	91.6	89.8	94.0	92.9
Second	90.3	89.3	93.7	92.9
Third	89.9	88.3	94.0	91.7
Fourth	88.7	87.5	92.6	91.7
Fifth	82.8	80.9	90.3	90.8
Sixth	76.4	74.6	83.0	89.1
Seventh	72.2	71.2	79.1	79.5
Eight	64.9	63.7	68.7	73.7
Ninth	60.2	60.8	64.0	65.5
Tenth	55.1	55.9	48.4	55.7
Mean Food Share (%)	76.6	75.3	81.7	79.7

TABLE 6: Percentage Food Share by Deciles According to the Seasons for Marine Communities

Decile	Percentage Food Share (%)			
	Late Dry (Jan.-Mar.)	Early Rains (April-June)	Late Rains (July-Sept.)	Early Dry (Oct.-Dec.)
First	86.1	93.9	93.6	93.6
Second	86.1	93.9	93.6	93.6
Third	85.0	89.2	93.0	93.0
Fourth	83.8	88.0	92.6	92.6
Fifth	74.0	76.4	92.1	92.1
Sixth	72.5	73.8	82.4	82.4
Seventh	70.3	71.1	72.4	72.4
Eight	59.4	62.9	69.9	69.9
Ninth	55.4	60.5	66.7	66.7
Tenth	54.5	58.1	57.1	57.1
Mean Food Share (%)	71.71	74.7	81.9	77.3

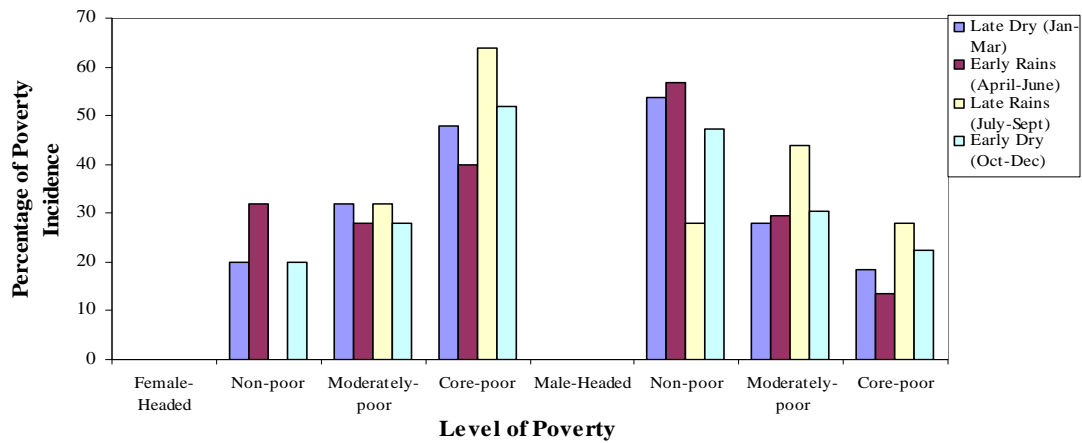


Fig. 1: Seasonal Variation of Poverty Incidence in Lagoon Fishing Communities

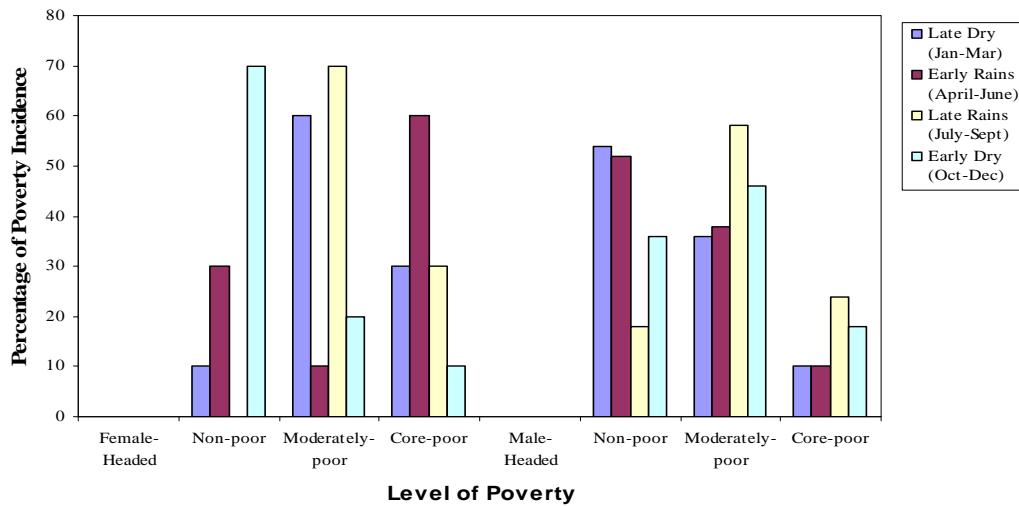


Fig. 2: Seasonal Variation of Poverty Incidence in Marine Fishing Households

CONCLUSION AND RECOMMENDATIONS

Women in lagoon and marine fishing communities play a central role in the fisheries and in maintaining the social family structure. Despite the fact that fish and fish products provide significant proportion of the supply of animal protein needs, the fisher folks experience seasonal food crisis, particularly the poor women. It is obvious that with seasonal variation in production, fishing household spend more on food and level of poverty incidence increases especially in the female headed households. Seasonal variations in fish supply thereby, leads to serious economic, nutritional and poverty consequences.

Considering the importance of fisheries to food security and poverty alleviation, especially to coastal communities, a multi-dimensional approach is required to achieve considerable improvement in the living standards of the poor fisher-folks. In time past, Agricultural extension service have played vital role in growth of the agricultural sector through dissemination of agricultural knowledge, information and technologies; linking farmers and other actors in the economy. Among the challenges facing agriculture in Nigeria named by the Minister of Commerce and Industry, Engr. Charles Ugwu, includes high cost of production, low quality of farm inputs and weak agricultural extension services (Omoh Gabriel *et al*, 2008). The current challenge of being a change agent in the promotion of household food security and reducing poverty in the face of world food crisis, are issues we as extension personnel must address as we come to the end of the first decade in the third millennium. Another major challenge is how to empower women farmers and fisher folks to better access credit, agricultural extension services, and training (FAO, 1990; Power, 1992; UN, 1995; UNFPA, 1996). According to the World Food Summit, held in Rome in 1996, women grow 80% to 90% of all food consumed locally in many developing countries and recommended that they should be empowered to improve agriculture (Hinrichsen and Robey 2000).

The following recommendations are hereby made:

1. The roles of women in fishing communities though very crucial are usually not documented. There is little focus on the significant and varied roles that fisherwomen play in all aspects of the fisheries sector. This is crucial in order to offer relevant interventions. Policy interventions meant to support them have been few and often the focus of policy makers is on fishermen and the actual act of fishing. These should address issues on food security and poverty reduction as it relate to women's affairs.
2. Provision of fish processing and preservation methods in order to reduce harvest losses will lead to increase income. Improvement of extension services in the areas of identification of more appropriate improved technologies for the benefit of women fisher folks; reducing the ratio of extension staff to the fisher folks; mainstreaming gender concerns into extension activities planning by allocating substantial resources for such purpose; involving fisher folks in planning and implementation of extension programmes and facilitating access of women fisher folks to sources of efficient credit.
3. Due to the seasonal variation of fish catches, an understanding of various off-farm works available should be highlighted especially for non-natives of the community who may not have access to land for farming. Occupation opportunities and alternatives should also be developed for effective utilization of the family's idle time during the off-fishing season. These should focus on non-agricultural practices (small-scale entrepreneurs, handicrafts, cottage industry); services (beauty salon, repair and maintenance, tailoring); value-added activities (food processing and preservation, packaging) and eco-tourism on fisheries activities.
4. Provision of basic rural infrastructures and social amenities in terms of access roads to fishing communities and fish landing sites, electricity, water, markets, primary and secondary schools, health care centers and hospitals will enhance the living standards of fisher folks.

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