GENDER INEQUALITIES ISSUES IN FISH FARMING IN SOUTH-WESTERN, NIGERIA

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ABSTRACT

Fish farming is the rearing of fish in pond, cages and other enclosure. It serves as source of employment and livelihood for both men and women, thereby alleviating poverty. In Nigeria, fish provides cheap and readily available animal protein. Women's involvement in fish farming is more significant than often assumed. The focus of this paper is to examine gender inequalities issues as it applies to fish farming in the southwestern state, Nigeria. The specific objectives are to identify the socio-economic characteristics of the male and female fish farmers and examine the extent in accessibility of economics/productive resources. A multi-stage sampling technique was employed. The first stage involved selection of two out of six states in south – western, Nigeria. The second stage was the selection of one local government in each state and last stage involved selection equal number of male and female fish farmers (40 male fish farmers and 40 female fish farmers). The study was carried out with the use of well-structured interview schedule to obtain the necessary data. Both descriptive and inferential analytical tools such as frequency distribution, mean, standard deviation, probit and chi square were employed. The findings of this study provided information on the extent of access to economic resources by gender and how it can impact fish production. It also provided useful information to policy makers on how to address the complex issues related to gender inequalities and food security.

Key words: Gender, gender inequality, fish farming and Nigeria

Introduction

Aquaculture is one of the sub-sectors of Nigerian fishing industry. Recently in Nigeria, the potential of aquaculture to contribute to livelihood and food security has attracted the attention of men as well as women to the sectors. The practice of fish farming is aliens to Nigeria [1,2] species has existed for centuries, and in recent decades, technological innovations have intensified the production process to increase yield and profit levels. Aquaculture has become a thriving industry as a result of the depletion of natural sources of seafood. Global aquaculture production has continued to grow in the new millennium, albeit more slowly than in the 1990s. World aquaculture production attained an all-time high level in 2006, at 47.3 million tonnes excluding aquatic plants and non-food products [3].

The issue of gender sensitivity cannot be over emphasized in the development of agriculture because women play a crucial role in farming and it is estimated that about 60 to 80 percent of all agricultural production activities are carried out by women in the continent of Africa. According to [4], women combine domestic works with subsistence farming, including fishing, processing and sales of agricultural produce and products. In aquaculture, the contribution of women extends to every aspect of fish farming, fish feed, feeding of fish, cleaning of nets/cages and general maintenance and upkeep of the pond or cages [5]. Globally, the discourse on inequalities between males and females has attracted concerns over a considerable period of time. The issue of gender inequality has of recent come to the fore in the struggle for women's empowerment and emancipation in Nigeria.

Justification

In aquaculture, the sector is often considered a male domain because of the high levels of investment and the adoption of new technology associated with its development,[6] and this has been a major contributory factor to inequalities. Also, most researches and development programs still generally regard fishers as men and remain oblivious to women's direct participation in fishing and their contribution to the fishing industry[7,8]. Moreover, customary beliefs, norms and laws, and/or unfavorable regulatory structures of the state, reduce women's access to fisheries resources, assets and decision-making.

According to [9,10,11,12], this confining them to the lower end of supply chains within the so-called "informal" sector in many developing countries. This results in women receiving lower returns on their labor. This implies that women are likely to constitute a larger proportion of the poor within this sector, as much as in agriculture, forestry and industry. They often have little or no access to productive technologies which could increase the economic returns from their labor. This study is important because inequalities among communities relating to gender relations need to be fully understood, so that technology can target the right people without being biased towards a certain group of people. In this paper, the word male and female will be used interchangeably with men and women respectively.

Objectives of the study

The general objective of the study was to determine the gender issues as related to fish farming in southwest Nigeria. The specific objectives are to:

- ✓ examine the socio economics of the fish farmers in the study area,
- ✓ determine the extent of the respondents accessibility to economics /productive resources and
- ✓ determine the relationship between genders and the selected economics/ productive resource.

Methodology

Study area

The study was carried out in southwest, Nigeria. Southwest is one of the six geopolitical zones in Nigeria. It falls on latitude 6º to the North and latitude 4º to the south. It is marked by longitude 4º to the West and 6º to the East. It is bounded in the North by Kogi and Kwara States, in the East by Edo and Delta States, in the South by Atlantic Ocean and in the West by Republic of Benin. The Climate is equatorial with distinct wet (rainy) and dry seasons with relatively high humidity. The dry season lasts from November to March while the wet season starts from April and ends in October. The mean annual rainfall is 1480 mm with a mean monthly temperature range from 18-24ºC during the rainy season and from 30-35ºC during the dry season. Southwest Nigeria covers approximately an area of 114, 271 km^2 that is, approximately 12% of Nigeria's total land mass and the vegetation is typically rainforest. The total population is 27, 581, 992 as at 2006 and they are mainly farmers. The climate in the zone favors the cultivation of crops like maize, yam, cassava, millet, rice, plantains, cocoa, kolanut, coffee, palm produce, cashew and fish production,[13]. The zone comprises six states namely: Ekiti, Lagos, Ogun, Ondo, Osun and Oyo states.

Sampling procedure

A 3 stage multi- sampling was used in this study. The first stage was to select two highest fish producing states (Oyo and Osun) in southwest Nigeria., The second stage was selection of 1 LGA each with highest concentration of fish farmers from available information collected from the Ministry of Agriculture in Oyo and Osun states Thus, Egbeda local government in Oyo state and Iwo local government in Osun state were selected. The third stage was random selection of 40 male and purposive selection of 40 female fish farmers in each local government.

Data collection and Analysis

Analytical techniques such as descriptive statistic such as frequency; chi square test, probit model, tables and bar charts were employed in analyzing the data collected for this study.

Descriptive analysis

This was done to have a general idea about the respondents in the study area. The various descriptive statistics that were used for the study are: mean, standard deviation, percentages, frequency distribution and likert scale. These were used for both male and female respondents. This include individual demographic characteristics as well as socio-economic variables. A 4-point Likert Scale (frequently = 4points, occasionally=3point, rarely=3points and not at all = 1point) was used to determine the extent of accessibility to economics/productive resources.

Inferential Statistics

Chi-square ($\chi 2$) was used to test various statistical significances of gender and some selected variables. Probit model was used to analyze the relationship between selected socio-economic characteristics of the respondent and gender. Gender was assigned a discrete choice variable (yes or no) where a selected respondent was asked to individually indicate whether a female or male.

Probit Model specification

According to [14], the probit model is expressed as:

$Y = Bo + BiXi + ei$ Where Y is dichotomous dependent variable which can be explained as; Y = 1, if female, Y = 0, if male

Bo = the intercept

Bi = regression coefficients that explain the probability of being a female,

ei = the error term.

Xi = Vectors of parameters to be estimated, i.e independent variables (i =1, 2, 3…11) where:

X_1= Age (years),

X_2= Marital status (Dummy; Married = 1, Otherwise = 0)

X_3= Year of schooling (Years of formal education),

X_4= Access to training (Dummy; Yes =1, No = 0)

X_5= Access to credit (Dummy; Yes =1, No = 0)

X_6= Access to subsidized input (Dummy; Yes =1, No = 0) ,

X_7= Pond size (acres)

Dependent Variable (Y) =gender

X_1 to X_7 = Independent Variables

Result and Discussion

Table 1 revealed the key socio economics characteristic of the fish farmers in the study areas. It was discovered that the majority (62.5%) of the women were above 50 years while 17.5% of the male were above 50 years. Also the mean age of females was 43.5years while their male counterpart was 44 years. This results showed that men participant in fish farming were middle age while the women were relatively old, which implied that old women participated in fish farming activities than the young women. Personal communication with the women revealed that these women were either retired or about to retire from government service. The age ranged of the women may affect the efficiency in fish farming. A greater proportion of the women (60.0%) are widowed while 70% of the male are still married. This may probably implied that women were getting involved in fish farming at this stage and that they will devote more time for fish farming activities at this stage as source of livelihood. There was a significant relationship between gender and marital status at 0.05 level of significance ($\chi2$=1. 726, p=0.010). The results showed that 70% of the men in the study areas had post-secondary education while 60 % of the women had post-secondary education. Unlike women from fisher households who were depicted as illiterate according to the findings of [15,16], women fish farmers were educated in the study areas. This implied that both men and women participating in fish farming in the study areas were educated. This further showed that women may be favorably disposed to innovative because of their level of education.

The study revealed that, none of the women utilized more than 0.25 acres of land in fish farming whereas a greater percentage (85%) of the women utilized less than 0.125 acre of land in fish farming. In contrary, about 45% of the men utilized more than 0.25 acres of land in fish farming while only 25% of the men utilized less than 0.125 acre of land in fish farming. This implies that male fish farmers with larger size of land are more likely to produce fish in large quantity as compared to women with smaller size of land. It is evident from this survey that women were practicing fish farming on a smaller scale. Little wonder why majority (75%) of them were doing subsistence production compare to men who were into commercial production as revealed in table 1. The relationship between the size of land that farmers in the study area in fish farming was significantly dependent on gender ($\chi2$=39.30, p=0.000). As shown in the study, 50.0% and 40.0% of the male farmers were able to fund fish farming business through cooperative and bank loan respectively while only 30% of the women financed their business through cooperative only. None of the women could not obtain bank loan. Men were likely to fund their fish farming activities because of their size of land which they may use as collateral to secure loans from financial institutions. Majority (95%) of the women financed their business through personal saving. This is because they could not raise funds themselves unlike men. Moreover, the relationship between source of funding and gender was found to be significant at 0.05 level of significance ($\chi2$=41.2, p=0.000).

Table 1: Key socio economic characteristics of the respondents

Parameters	Male		Female	
Age (yrs)	Freq	%	Freq	%
<30	3	7.5	-	-
30-40	12	30.0	5	12.5
41-50	18	45.0	10	25.0
>50	7	17.5	25	62.5
Total	**40**	**100**	**40**	**100**
Mean	43.5		51.2	
Marital status				
Single	4	10.0	-	-
Married	28	70.0	7	17.5
Divorced	2	5.0	9	22.5
Widow	-	-	24	60.0
Widower	6	15.0	-	-
Total	**40**	**100**	**40**	**100**
Level of education				
No formal education	-	-	-	-
Primary education	-	-	7	17.5
Secondary education	12	30.0	9	22.5
Post secondary education	28	70.0	24	60.0
Total	**40**	**100**	**40**	**100**
Size of land under fish farming (hectares)				
<0.125	10	25.0	34	85.0
0.25	12	30.0	6	15.0
>0.25	18	45.0	-	-
Total	**40**	**100**	**40**	**100**
Source of finance				
Bank loan	16	40.0	-	-
Personal saving	4	10.0	35	87.5
Co –operative	20	50.0	5	12.5
Others	-	-	-	-
Total	**40**	**100**	**40**	**100**
Major occupation				
Fish farming	18	45.0	5	12.5
Others	32	55.0	35	87.5
Total	**40**	**100**	**40**	**100**
Purpose of establishment				
Commercial	32	80.0	10	25.0
Subsistence	8	20.0	30	75.0
Total	**40**	**100.0**	**40**	**100.0**

Source: Field survey, 2013 -2014

Extent of accessibility to economic/ productive resources

The extent of female and male fish farmers' accessibility to economics/productive resources is showing below in the fig 2 and fig 3 respectively. As revealed in fig 2, male fish farmers had better access to land and as well to credit facilities and subsidized inputs which are very important in fish farming. On the other hand, as seen in fig 3, female fish farmers had little or no access to credit facilities, subsidized input and land compared to other resources. Their access to extension service and fisheries training were also limited. Access to credit is a very important to the success of farming. According to [17], women faces specific gender barriers in accessing financial services, including lack of collateral (usually land), low levels of numeracy, education and the fact that they have less time and cash to undertake the journey to a credit institution. Moreover, [18] reported that only few female benefited from formal credit facilities given out to farmers for larger scale agricultural production, and concluded that access to credit facilities promote high productivity. Credit enables producers to initiate, sustain, or expand agricultural production and increase productivity. All the women reported that they do not have access to credit unlike men. This may be attributed to the small scale of their fish production. Therefore, women fish farmers produced with limited credit. As land is the major asset used as collateral to obtain credit and women do not traditionally have access to land and limited access to credit facilities hence the smallness in size of farm.

Majority of the women were widow, and revealed that they lost control of their husband property after his demise, which was the major reason they were practicing monoculture since this is relatively easy to maintain and require small land and less technical know- how. They were also involved in intensive method of fish culture and they used concrete tank as culture facilities.

It worthwhile to mention that women in fish farming in the study area were women with high level of education compare to their male counterpart. However, many of them did not have fisheries background and many times, when training and extension services are offered, it didn't favour them because of time constraint due to other role as women and may also be held at a remote place where women cannot attend. This implies that in cases of distribution of new technologies, there is hardly any scope for women to avail of new technologies as they are hardly or never considered as potential practitioners of such innovations. There was a significant relationship between gender and training at 0.05 level of significance ($\chi 2$=71. 333, p=0.000).

There is also a gender inequality accessibility of inputs. Because women are restricted in movement due to other economics role of women, they have been deprived of inputs like fingerlings, feed especially in a situation when being subsidized for fish farmers at a particular period of time by the government. In such cases, women are at the mercy of men in supplying it for them.

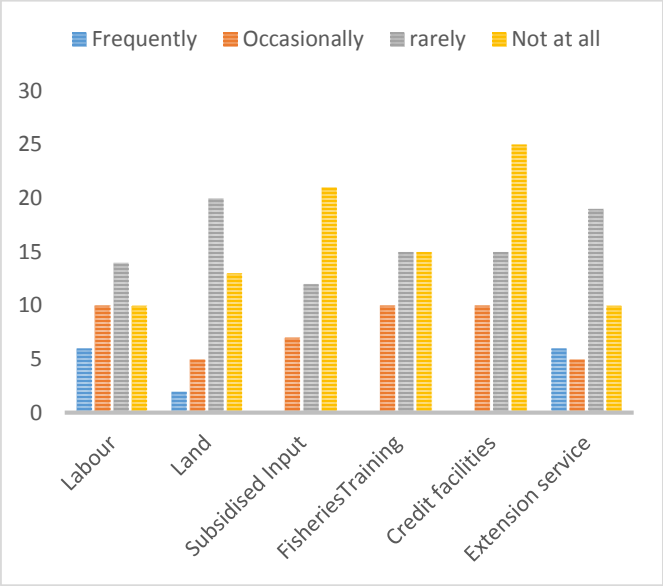

Fig 2: The extent of accessibility of male fish farmers to economic/ productive resources

Source: Field survey, 2013 -2014

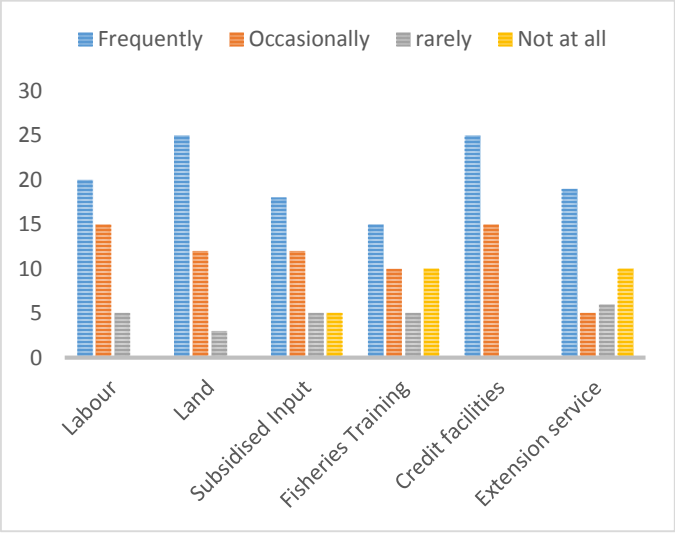

Fig 3: The extent of accessibility of female fish farmers to economic/ productive resources

Source: Field survey, 2013 -2014

Probit estimates of selected explanatory variables

Table 2 shows the probit results for relationship between gender and accessibility to economics/productive resources. The pseudo adjusted coefficient of determination shows that the model explained 32.03 percent of the variations in the probability. The computed Chi Square value for the likelihood ratio is statistically significant ($p<0.01$). This shows that the model fits the data very appropriately. Out of the included variables, access to training (X_4) and access to credit (X_5) show statistical significance, ($p<0.01$), access to input (X_6) was statistical significance ($p<0.05$) while and pond size (X_7) was significant ($p<0.10$). The implication of these from the finding is that increase in the level of any of the explanatory variables with positive sign will have a positive effect on the inequalities of women, whereas those explanatory variables with negative sign, will exert a negative effect.

Therefore from this result, it could be deduced that an increase in women's accessibility of independent variables X_4, X_5, X_6 and X_7 will a produce a positive effect on female fish farmers. The coefficient of access to training (X_4) and pond size (X_7) have a negative sign. These implied that these factors are not favourable to female gender but are contributing positively to male gender in fish farming. The coefficient of X_4 is negative but significant ($p<0.10$) show that the women do not have access to training compared to men. The coefficient of X_7 was also negative but significant ($p<0.10$). This is probably because the pond size of women in the study area was small compared to the men as revealed in table 1 which may be the due to the women unequal access to land as men. However, both access to training (X_4) and pond size (X_7) were significant showing that these are an important factor to be considered.

Table 2: Probit analysis result of women's access to economics /productive resources

Variables	Coefficient	Standard Error	Z statistics	P-value
Constant	1.425	1.361	1.05	0.295
Age (X_1)	0.228	0.171	1.33	0.182
Marital status (X_2)	0.044	0.291	-0.15	0.879
Year of schooling (X_3)	0.007	0.026	-0.26	0.796
Training (X_4)	-0.067	0.020	-3.47	0.001
Credit (X_5)	0.528	0.246	2.15	0.032
Subsidized input (X_6)	0.065	0.023	2.82	0.005
Pond size (X_7)	-4.787	2.509	-1.91	0.056

Source: Field survey, 2013 -2014

Conclusion and Recommendation

From the study it is clear that access to some economics/productivity in fish farming in the study area do not favour women and this is not encouraging. This invariably showed that inequality exist and this may be the factor hindering full participation of women. Women in the study areas are educated enough to adopt any new innovation brought to them through training in the area of aquaculture and they should be able to utilize any loan giving to them well. So the question of lack of education as it occurs in captured fisheries is out of place. Therefore intervention is urgently needed in order to strengthen women. There is need to improve policy formulation in order to enhance gender mainstreaming in various government interventions. It is very important that training should be given to women fish farmers this will help to alleviate poverty and advance economic and social development.

This is because if women are given the right training they will be equipped with the necessary skill and knowledge that will make them compare favorably with the male counterpart which will help in nation building and poverty alleviation. Gender training sessions should be provided for both men and women, including extension education and fisheries related training; particular emphasis should focus on changing male attitudes and perceptions.
More credit facilities should be made available to women fish farmers. This study also recommends that the government should employ encourage extension agent to design special training opportunities to the doorsteps of female fish farmers. Cooperative society involves a social participation that helps participant to pool their resource. Membership of cooperative societies are therefore a factor which influences the adoption of improve technologies and poverty alleviation. Women should be encouraged to pull their resources together by forming co-operative groups of their own.

References

1. Charkoff, M.1978. Freshwater fish pond culture and management (Druben L. ed).
2. Bryant,P, Jancy K, Atatck T. 1980. Backyard fish farming, Printing Press U.S.A.
3. FAO, 2008. The State of World Fisheries and Aquaculture (SOFIA): World Review of Fisheries and Aquaculture 1- 84pp.
4. Ochoon,A.E. 1993. "Improving African women and end hunger". African farmer.
5. Food and Agricultural Organisation 1985. A Review Study of the Sungai Merbok flooting Cage culture project.
6. Nireka Weeratunge-Starkloff and Jharendu Pant,2011. Gender and aquaculture: Sharing the benefits equitably. The WorldFish centre, Penang, Malaysia, Issues Brief 2011 32.12pp.
7. Luz Lopez-Rodriguez, 1993. The fishers of Talangban: Women's roles and gender issues in community-based coastal resources management CBCRM case studies in the Philippines. http/www/cbcrm.rc.freeservers.com/casestudies/rodriguez.pdf Aquaculture 1-84p.
8. Murray and Kesone, 1998. Socio-economic and gender issues in the UNDP/FAO Provincial Aquaculture Development Project. THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS. Bangkok.
9. Néis, B,Binkely, M., Gerrand, S and M, Manaschy (Eds.), 2005. *Changing Tides: Gender, fisheries and globalization*. Halifax; Fernwood.
10. Food and Agriculture Organization of the United Nations, 2006 *Gender polices for responsible fisheries*. Rome; FAO
11. Porter, M. 2006. Gender and Fisheries: A global perspective.paper presented at Global Coast: Gender , Fisheries and Contemporary Issues, International Symposiun,University of Tromso, Norway, June 2006, 16 pages.
12. Okali, C. and Holvoet, K. 2007. Negotiating changes within fisheries development. sustainable Fisheries Livelihoods Programme: FAO/ DFID. United Kingdom and Benin, 35 pages.
13. National Population Commission (NPC). 2006. National Bureau of Statistics Official Gazatte (FGP 71/52007/2,500 (OL24) Abuja. URL http://www.nigerianstat.gov.ng. (retrieved on 2011-04-30).
14. Oni, O.A, Oladele, O.I, Oyewole, I.K. 2005. 'Analysis of factors influencing loan default among poultry farmers in Ogun state: probit analysis', Journal of Central European Agriculture, Vol. 6 (4) p. 620.
15. Williams, S.B 2006. The socioeconomics potentials of women in Riverine small scale fisheries in Nigeria, Department of Agriculture Economics, Obafemi Awolowo University, Ile –Ife , Osun state
16. UNDP,1995. United Nation Development Programme Report, 1995
17. Duggleby T. 1995. Gender Growth and Poverty Reduction: Special Program of Assistance for Africa, 1998 Status Report on Poverty in Sub-Saharan Africa.
18. Akande,S.O.and lgbi, M.S 1984. Intra agricultural inequality; The male-female dichotomy; Ife Science Review.Vol.7,No.Land 2.pp.213-235.