



IMPACT OF FISH FARMING ON POVERTY ALLEVIATION IN EKITI-STATE

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Poverty is a state of being poor, being deprived from opportunities as a result of several factors and a state of inequality. It is a situation of low income or low consumption where the resources of families or individuals are inadequate to provide a socially acceptable standard of living. The study critically presents an overview of state of fish farming in Nigeria with particular reference to Ekiti-State, South-West, Nigeria. The study examine the level of fish farming production, socio-economic characteristics and function, production level and management and lastly on how it contributes to the livelihood of the poor through food supply, employment, trade and income generating. Both primary and secondary data were used. Primary data came from validated questionnaires administered on fish farmers from 10 Local Government Areas of the state and data were analyzed using Tables, frequency counts, mean and percentage, gross margin. Socio-economic characteristics of the respondents were evaluated with the use of Pearson correlation coefficient. The result of the study shows that, the majority of the fish farms were owned by individuals and some factors like poaching activities, predators, management lapses, diseases outbreak contribute to low profitability. In this study, the following conclusion emerged. There is need to raise awareness of large economic potential contribution of fish farming as it is unappreciated and ignored by rural development professionals and policy makers. Only then would its potential to contribute more towards elimination of poverty have better prospects of being realized. These recommendations and some strategies already in place will improve fish farming in Ekiti-state, increase protein intake, increase entrepreneurship, promote self-sufficiency, and improve income and living conditions amongst the Ekiti populace.

KEYWORDS: Fish Farming, Poverty Alleviation, Ekiti State**INTRODUCTION**

Aquaculture is the husbandry of aquatic food organisms. The need arose from the decrease in supply from ocean fisheries as a result of over-fishing and pollution. Aquacultures consist of a broad spectrum of system or practices operating through a continuous ranging from backyard household pond to small-scale industrial system. Aquaculture may be defined also as farming fish and other aquatic organisms. Fish is used here generically to include all farmed aquatic organisms. Land-base systems are commonly integrated with aquaculture by stocking fish in rice fields and ponds. Water-based system involves stocking fish directly in enclosure or attaching them to substrates in water bodies such as rivers, lakes reservoirs or bays. Water-based system may provide an entry point for landless people and poor fisher to farm fish.

Aquaculture contributes to the livelihoods of the poor through improved food supply, employment, and income generation. (Omitoyin, 2007). Food supply; food of high nutritional value, especially for vulnerable groups such as pregnant and lactating women, infant and pre-school children. Increased availability of fish in local rural and urban markets which may bring prices down. Increase farm sustainability through construction of ponds which also serve as small-scale on-farm reservoirs and rice/fish culture as a component of integrated arrangement.

Majority of people are highly dependent on fish as part of their daily diet in countries in Africa. According to Fagbenro (2002), fish provide at least 40% of dietary animal protein. They also provide highly digestible protein and are a rich source of fat and water soluble vitamins,

minerals and fatty acids. Aquaculture has contributed in the past towards poverty reduction in poor societies in some parts of the world where it is traditionally practiced. Aquaculture activities are new in the state and anchored mainly by the state government and some by private farms. Aquaculture has a lot of prospect, not only in alleviating under nutrition and poverty but as a source of foreign exchange for the state and nation at large. Aquaculture can also provide a viable socio-economic alternative to capture fisheries. Aquaculture can be operated either on a small scale, low-cost, utilizing family labour or at high cost under intensive operation. This provides opportunities for both the poor and the rich to improve their standard of living apart from providing employment opportunities. (Omitoyin, 2007). Aquaculture practice also generates employment directly or indirectly in terms of people employed in the production of fishing output and other allied business. It also generates income for all categories of people involved in fish farming and alleviates poverty in the state thus, contributes to the national income

Present level of fish production in Nigeria

In Nigeria, fish amounts to about one fifth of total supply of animal protein and this will rise in about five folds over the last forty years from 20million metric tons to 98million metric tones by the year 2010. (F.A.O, 2000). Fish alone contributes, on the average, 20-25% per caput animal intake and could be as high as 80% in coastal and riverine communities (FAO 1998). Tobor (1992) and Ajana (2002) reported that the average annual demand for fish in Nigeria between 1995 and 2000 was established at

1.22million metric tones and that this might increase to about 1.425million metric tones by the year 2005. FAO (2000) estimated the projected population and fish demand/supply from 1997 to 2015, with domestic fish production by the year 2007 as 0.77million tones.

Aquaculture, the rearing of aquatic organism, has high prospects in Nigeria. With a projected population of 139.1million people in 2007. (FAO, 2000). Fish demand is estimated at 1.06metric tones while supply stands at 0.81metric tones leaving a deficit of 0.25metric tones (FAO, 2000). However, the actual total domestic fish production in Nigeria in 2005 was about 579,500metric tones (Adamu, 2007). Faturoti (1999) noted that recent trends all over the world point to a decline in landing from capture fisheries which are an indicator that fish stocks have approached the point of maximum sustainability yield.

Statement of the problem

Aquaculture has contributed in the past towards poverty reduction in poor societies in the few area of the world in which it is traditionally practiced and it continues to do so today.

The promotion of aquaculture for rural development has had a poor records in many countries especially Africa (Tobor, 1990). This paper shows that aquaculture contributes to the livelihood of the poor particularly in area of Africa where it is traditionally practiced, although a number of constraints prevent its expansion. Recent adoption of new technology suggests that, with adequate support, aquaculture could also contribute significantly to rural development in countries where it is neither a traditional nor widespread practice.

Objective of the study

The general objective of the study is to evaluate the impact of aquaculture on poverty alleviation in Ekiti state. The specific objectives are to:

- Identify socio-economic characteristics of respondents
- Determine the profitability of fish farming
- Examine the relationship between profitability and socio economic characteristics of the respondents
- Evaluate the relationship between the size of fish pond and respondents socio-economic factors.

Scope of the study

This study examined the characteristics, functions, production level and management of fish farms in Ado-Ekiti, Ekiti state, Nigeria. The ultimate goal of development in the fisheries sector (aquaculture) is to meet individual demand and country at large and to replace the imports products. The prospects can be real if a number of strategies could be applied simultaneously. This prospect is however, predicted on availability of:

- Appropriate technology for dissemination
- Adequate supply of fingerlings of fast growing and cultivable species.
- Good quality fish feed at affordable prices and Aggressive research.

METHODOLOGY

Study area

Ekiti-state is one of the 36 states that constitute the Federal Republic of Nigeria. The state was created on 1st October 1996, situated within the tropics. The state enjoys tropical climate with two distinct seasons. These are the rainy season (April-October) and the dry season (November-

March). The temperature ranges between 21⁰C and 28⁰C with high humidity. Ekiti has Kwara and Kogi states as boundary in the north, bounded by Osun state in the West, Edo state to the East and Ondo state to the South. The state covers 16 local Government Areas. For this study, stratified random sampling was used in the selection of the respondents. Ten local government areas were selected out of the 16 local governments that constitute the state. In all, a total of 200 respondents were selected for the study. Secondary data were collected from the Fisheries Department of the Ministry of Agriculture, Ekiti state, Agricultural Development Project (ADP). While primary data are information collected from fish farmers using questionnaires.

Method of data analysis

Data obtained through questionnaire were subjected to descriptive statistics such as use of Tables, frequency counts, mean and percentages. Gross margin analysis was employed to evaluate the profitability of fish farming in the study area, also Pearson correlation co- efficiency was used to study the relationship between gross margin and respondents socio-economic characteristics of the, equally relationship between size of fish farm and some selected socio-economic characteristics of the respondents were evaluated with the use of Pearson correlation coefficient.

RESULTS AND DISCUSSION

This chapter is concerned basically with the analysis of the data collected from the field and the socio-economic characteristics of the respondents. Thou 200 questionnaires were administered but only 176 was recovered back.

Socio-economic analysis of respondents

TABLE 1: Distribution of respondents by sex

	Frequency	Percentage
Male	135	76.7
Female	41	23.3
Total	176	100.0

Result shows that most of the fish farmers are male. This is as a result of the rigorous activities that are involved in fish farming.

TABLE 2: Distribution of respondents by age

Class	Frequency	Percentage
< 24	44	25.0
25-35	75	42.6
36-45	34	19.3
> 46	23	13.1
Total	176	100

The table above implies that the majority of the respondents are in their youthful age and they have the strength to copy with the rigors of fish farming

TABLE 3: Distribution of respondents by marital status:

	Frequency	Percentage
Single	69	39.2
Married	104	59.1
Widow	1	6
Divorced	2	1.1
Total	176	100

Most of the respondent are married, which indicates that the respondents are permanent settlers in the area and their economic activities revolve around the area. Migration is not a factor affecting them.

TABLE 4: Distribution of respondents by educational qualification.

	Frequency	Percentage
WASC/SSCE	9	5.1
NCE/OND	47	26.7
HND/B.Sc.	92	52.3
MBA/M.Sc.	10	5.7
No formal education	13	7.4
Total	176	100.0

Majority of the fish farmers are HND and University graduates because it is known from literature that the more an individual is educated the more likelihood the individual will be able to decode information and the more willing the individual will be to try out new innovations.

TABLE 5: Distribution of respondents by house hold size

Range	Frequency	Percentage
1-5	88	65.9
6-10	11	3.4
11-15	71	29.5
>16	6	1.1
Total	176	100

From the result only 6 respondents had a household size of greater than 16. This is because a large household size translates to higher responsibilities and are more risk averse than those with a smaller household size.

TABLE 6: Distribution of respondents according to the types of occupation

	Frequency	Percentage
Business	28	22.5
Civil-servant	107	50.8
Fish farming	19	10.8
Crop farming	22	15.9
Total	176	100

Majority of respondents are civil servants. This is not very familiar in literature, but nowadays people tend to spread risk hence the issue of multiple profession came up which also translates to additional income for the family.

TABLE 7: Distribution of respondents according to pond size, cost of feeding per month, cost of labour and number stocked:

Pond size (m ²)	Number stocked	Cost of feeding per month (₦)	Cost of labour per month (₦)	Freq.	Percentage
< 15	500	<12,000	<15,000	77	43.7
16-30	1000-1,500	12,100-16,000	15,000-25,000	42	23.8
31-45	1,500-2,500	16,100-20,000	26,000-36,000	30	17.0
> 46	2,500-3,500	21,000-25,000	37,000-47,000	27	15.5

Result shows that, the farmer based their stocking density on the size of the pond and availability of resources to feed them to table size.

TABLE 8: Gross margin analysis:

(A) Average farm size	28.5m ²
(B) Expenditure (₦)	
➤ Average cost of land preparation and maintenance	(₦)78,312.50
➤ Average stocking	(₦)13,732.39
➤ Average costs of fertilizer and liming	
➤ Average costs of feed	(₦)757.67
➤ Average Total Expenditure	(₦)20,757.39
	(₦)113,559.95
(C) Income (₦)	
➤ Average Fish harvested	353.23Kg
➤ Average cost of fish per Kg.	(₦)500
➤ Average total revenue	(₦)176,615
(D) Gross margin	
Average total revenue - Average total Expenditure	(₦)176,615 -(₦)113,559.95 = (₦)63,055.05

The average cost of input, average expenditure, average income and average total revenue were as shown above with an average farm size of 28.5m². The profit is (₦) 63,055.05

TABLE 9: Correlation analysis with fish farm (m²) size as dependent variable:

	Correlation coefficient	t-value
Age of respondents	0.078**	0.302
Sex of respondents	0.073	0.338
Mode of farm operation	0.201**	0.007
Total variable cost	0.010	0.890
Quantity stocked	0.720**	0.007

**correlation is significant at 0.01 level (2-tailed)

TABLE 10: Correlation analysis with Gross margin as dependent variable:

Cost of stocking	Correlation coefficient	t-value
	0.09	0.234
Size of fish pond	0.017	0.812
Sex	0.076	0.315
Age	-0.163*	0.031
Total variable cost	-0.586**	0.000

**correlation is significant at 0.01 level
* correlation is significant at 0.05 level

Source: field survey 2010

SUMMARY OF FINDINGS

This study was carried out to examine the impact of fish farming on poverty alleviation in Ekiti state, a case study of some selected local government in the state. The study revealed the following major findings:

- Majority (76.7 percent) of the respondent are male
- 42.6 percent of the respondent age ranges between 25-35 agile enough to do a lot of fish farm work.
- Majority of the fish farms were owned by individuals and an average fish farm size of 28.5m² was recorded while the gross margin analysis reveals a profit of (₦) 63,055.05
- Equally a negative significant relationship was recorded between Gross margin and initial capital investment, mode of operation and age. Also a significant positive relationship was recorded between size of fish farm, age and mode of farm operation; however a negative significant relationship was recorded between average fish farm size and professional qualification.

CONCLUSION

Fish farming is relatively new and under-developed compared to agriculture and animal husbandry in Ekiti-state. Its positive social and environmental attributes make it an attractive entry point to improve the livelihood of the people in rural areas. These include its exceptional nutritional characteristics to combat under nutrition, relatively

high value and marketability to generate income and the prospects it offers to agricultural diversification. There is a need to raise awareness of the large economic potential of aquaculture as it is unappreciated and ignored by most agricultural and rural development professionals and policy makers. Only then would its potential to contribute more towards elimination of poverty will be realized.

RECOMMENDATION

The ultimate goal of development in fisheries sector is to meet the state's demand for fish and also to alleviate or reduce the level of poverty in the state. The prospects are real if the following tragedies and problems facing production of fish that contribute to low unprofitable yield are met:

The problems are:

- appropriate technology for dissemination
- adequate supply of fingerlings of fast growing and cultivable species
- good quality fish feed at affordable price and
- Aggressive research.

Possible problems that contribute to low income are stated below:

- management lapses
- diseases outbreak
- poaching activities
- Cannibalism, etc.

Possible solutions

- Viable insurance policy coverage should be package by the agricultural insurance companies and other insurance firms for the fish farming project. This will ensure the security of the investors, shareholders and others interested in financing the business.
- In order to reduce causes of disease and parasitic infections, the fish farmer should stock only healthy fish from reliable hatcheries, pond should not be overstocked and quality water free of pathogens should be provide for raising fish.
- Activities of the poachers can be reduced by fencing off the farm and putting up no trespass signs. Routine surveillance of ponds, erection of security tower and government should promulgate fisheries edicts and legislation to guard against poaching activities.

Estimation of genetic parameters of growth traits of local chicken ecotypes, reared in Nsukka

- Cannibalism can be reduced by ensuring proper grading of fish before stocking. This will ensure uniformity of the size of fish stocked and thus reduce the tendency of cannibalism among fish.

REFERENCES

Adamu, A.M. (2007) Integrating irrigation and aquaculture in West Africa: concept practices and potentials, *International Journal of crop science*. Vol. 2, No. 4, pp.117-124.

Ajana, A.A. (2002) Rural aquaculture: overview and frame work for sustainable development. *Journal of Aquatic Science*. Vol. 6, No 5, pp 24-35

Fagbenro, O.A. (2002) Aquaculture Production in Nigeria: Proceedings of the ninth International Biennial Conference of the International Institute of Fisheries Economics and Trade. Tromso, Norway, July 8-11, 2002

FAO (1998) Achievement of small holder aquaculture development in South-Africa. FAO Publication No. 24 FAO Rome. pp 97-98.

FAO (2000) The role of aquaculture on fighting hunger and poverty and promoting rural development. FAO publication No. 8418 pp20-26.

Faturoti, B.A, (1999) History and Status of Nigerian Aquaculture *Journal of Aquatic Research*, Vol. 4, pp10-19

Omitoyin, B.O. (2007) Introduction to Tropical Fisheries, Ibadan University Press. pp 48.

Tobor, J.G (1990) Fishing in Nigeria, status and potential for self sufficiency in fish production. FISON Annual Repoort 1985 pp.78.

Tobor, J.G (1992) Review and Appraisal on fisheries development in Nigeria FISON Annual report 1992 pp 50