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## ECONOMIC SURVEY OF HOMESTEAD FISH FARMING IN SELECTED COMMUNITIES OF BAYELSA STATE

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### ABSTRACT

The paper surveyed the economics of Homestead Fish Farming in selected communities in Bayelsa State. The study was conducted in selected communities in Ogbia and Yenagoa Local Government Areas of Bayelsa State, based on the availability of fish farmers as a result of its suitable soil and climatic nature, as well as the easy access of road and market. The two LGAs both existed before the creation of Bayelsa State on 1<sup>st</sup> of October 1996. A three-stage sampling technique was used in collecting the data for this study between January –April, 2009 through structured questionnaire, personal interview, observation and focus group discussion. Average estimated output was 1, 200 table size fish of an average weight of 1kg each sold at N690/kg. Total fixed cost and total operating cost was estimated at N377, 150 and N332, 910 respectively; net return was estimated at N117, 940. Farmers can be encouraged to invest in HSFF in that it returns N1.17 to every N1.00 invested. Peculiar problems associated with all the respondents include the following: No access to credit facilities by genuine farmers; low quality fingerlings due to lack of reliable source of fingerlings/hatchery; steady rise in price of fingerlings as suppliers are outside the state; high cost of labour with average labour cost of ₦1,700 per man day; high cost of fish feed; lack of storage facilities; inadequate electricity; inadequate land; flooding on earthen ponds; and lack of political will by government in encouraging the fisheries subsector.

**Keywords:** *Homestead Fish Farming (HSFF), Economic Survey.*

### INTRODUCTION

In many developing countries aquaculture which is the culture of fish and other aquatic organisms is gaining popularity as a means of augmenting fish protein supply. In Nigeria and particularly Bayelsa State, prices of alternative meat protein source are soaring, coupled with dwindling nature of catches from capture fisheries. Price of fish may rise beyond the reach of the rural poor and even some segments of the urban population (Oyatoye 1982). The state is relatively at its nascent stage of growth and development, and one major area of concern is the increasing demand in both restaurants and markets. Thus consumption of fish products is rapidly increasing. Fish farming has been an ancient practice that provides many profitable opportunities (Louis, *et al* 1997). In the same vein aquaculture can bridge the gap between fish demand and supply in Nigeria especially with developed technology and strong evidence of government participation (Adeyemo and Adeyemo, 2008). Subsistence fish farming in the State involves digging seasonal ponds in the well developed fresh water flood plains and swamps to retain fish at the recession of the flood water with little or no management with subsequent low yields (Sikoki and Otobotekere 1999). Consequently, Ozo (2008) affirmed that fish products should not be confined to the coastline areas and cities near the major

rivers and lakes. That we must learn from countries which have well developed fishing cultures and improve on our status quo. Though fish farming has been proven to be economically successful if well managed, there is still dearth of studies on the economics of aquaculture activities in the State. Moreover, ascertaining the economics of fish farming can not be overemphasized as there is urgent need to bridge the demand and supply gap. For instance, while total fish demand was 1.5 million metric tonnes, supply was estimated at 1.1 million metric tonnes (Dada, 2003; Ezenwa, 2006). Again fish farming is yet to substantially contribute to the domestic fish production (Jim, *et al* 2006). However, Kainga and Adeyemo (2008) noted that fisheries development depends on improved production, processing technology and effective marketing system. Studies like this could guide investors and would be investors in aquaculture activities vis-à-vis HSFF in relation to their limited capital. It could also guide research, financial institutions, NGOs and policy decisions on the part of government on her fisheries programmes.

This paper seeks to examine the economics of HSFF in selected communities of Bayelsa State.

## **METHODOLOGY**

The study was conducted in selected communities in Ogbia and Yenagoa Local Government Areas of Bayelsa State, based on the availability of fish farmers as a result of its suitable soil and climatic nature, as well as the easy access of road and market. The two LGAs both existed before the creation of Bayelsa State on 1<sup>st</sup> of October 1996. The state is located between latitude 04<sup>0</sup>15" North, 05<sup>0</sup>23" North and longitude 05<sup>0</sup>22" West and 06<sup>0</sup>45" East; with an area of about 21,110 square kilometers, out of which more than three-quarter is occupied by water, with moderately low land (BYSG, 2008). A three-stage sampling technique was used in collecting the data for this study between January -April 2009 through structured questionnaire, personal interview, observation and focus group discussion. The first stage involved purposive selection of the various clans in the two LGAs. Thus in Ogbia and Yenagoa the three and seven clans respectively were selected for the study. A total of ten clans were selected. The second stage involved random selection of one community from each clan making a total of 10 communities. This was based on a sample frame of 170 homestead fish farmers in the state (MARD,2004). The third stage involved random selection of six fish farmers from each of the communities making a total of 60 homestead fish farmers. The clans so chosen include Emeyal, Oloibiri and Ayanma in Ogbia LGA and Epie, Atissa, Zarama, Okordia, Ekpetiama, Gbarain and Biseni in Yenagoa LGA. Data for this study was analysed using descriptive statistical tools and budgetary analysis was used to measure the return to naira invested in HSFF. Returns can be expressed as  $NR = TR - TC$ , Where NR = Net Returns, TR= Total Returns and TC=Total Cost (Olukosi and Erhaboh 2004).

## **RESULTS AND DISCUSSION**

All the 60 respondents were males (Table 1). The zero percent of females can be attributed to the fact that HSFF is time consuming and tasking. Nevertheless women in the study area need to be encouraged to be involved in HSFF provided adequate funds can be loaned to them; after all they are noted to be generally engaged in the fishery industry (Sikoki, 2000).

Majority of the respondents are between 41 and above 51 years of age. This is attributed to the fact that civil servants go into HSFF as a means of livelihood on retirement. Though HSFF appear to be a male activity, it requires dedication and support. For instance all respondents were married, majority (63.33%) with household size of 6 -11. All the fish farmers surveyed acquired tertiary education. None of them were illiterates which imply that HSFF require special knowledge and skill. The level of involvement of fish farmers in the area showed that majority (80%) operate HSFF on part time basis, majority of them are civil servants (77.08%). This was attributed to the fact that savings from salaries were used to develop and operate HSFF with the intention for commercial production in preparation for retirement as other sources of funds are elusive. The foregoing thus limit the number of ponds owned as majority (70%) owned between 1-2 ponds, coupled with (33.33%) 3-4 years experience. Yet returns analysis showed that HSFF in the area is profitable. Average estimated output was 1, 200 table size fish of an average weight of 1kg each sold at N690/kg. Total fixed cost and total operating cost was estimated at N377, 150 and N332, 910 respectively; net return was estimated at N117, 940. Farmers can be encouraged to invest in HSFF in that it returns N1.17 to every N1.00 invested. Peculiar problems associated with all the respondents include the following: No access to credit facilities by genuine farmers; low quality fingerlings due to lack of reliable source of fingerlings/hatchery; steady rise in price of fingerlings as suppliers are outside the state; high cost of labour with average labour cost of ₦1,700 per man day; high cost of fish feed; lack of storage facilities; inadequate electricity; inadequate land; flooding on earthen ponds; and lack of political will by government in encouraging the fisheries subsector.

**CONCLUSION**

The potential for growth is very high in the aquaculture sector; it also offers a number of opportunities for reducing poverty and hunger ranging from affordable technologies for small-holder farmers to commercial production for domestic, regional and international markets. Homestead fish farming is profitable in the state. However, exploiting these potentials hinges on quality/reliable source of fingerlings, availability/affordable fish feed, effective management and genuine political will by government in creating the enabling environment.

**Table 1: A. Socio-economic characteristics of the homestead fish farmers.**

<b>Variable</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Sex</b>		
Male	60	100.00
Female	-	-
<b>Total</b>	60	100.00
<b>Age (Years)</b>		
20 – 30	3	5.00
31 – 40	5	8.33
41 – 50	27	45.00

51 and above	25	41.67
<b>Total</b>	60	100.00
<b>Marital status</b>		
Single	-	-
Married	60	100.00
<b>Total</b>	60	100.00
<b>Educational level</b>		
No formal Education	-	-
Primary Education	6	10
Secondary Education	18	30
Tertiary Education	36	60
<b>Total</b>	60	100
<b>Household size</b>		
1 – 5	22	36.67
6 – 11	33	55.00
12 – 15	5	8.33
<b>Total</b>	60	100.00
<b>Category of Fish Farmers</b>		
Full-time	12	20.00
Part-time	48	80.00
<b>Total</b>	60	100.00
<b>Other Occupations of Part-time Fish Farmers</b>		
Civil Servant	37	77.08
Trading	4	6.25
Farming	16	12.5
Others	3	4.16
<b>Total</b>	60	100
<b>Number of ponds</b>		
1 – 2	42	70.00
3 – 4	11	18.33
5 and above	7	11.66
<b>Total</b>	60	100.00
<b>Experience in Fish Farming</b>		
1 – 2	15	25.00
3 – 4	20	33.33
5 – 7	12	20.00
8 – 10	6	10.00
11 and above	7	11.67
<b>Total</b>	60	100.00

**B. Farming systems/practices**

<b>Variable</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Fish type</b>		
Tilapia	3	5
Heterobranchus	30	50
Only Clarias	9	15
Clarias/Heterobranchus	18	30
<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>Pond type</b>		
Earthen	48	80
Concrete	3	5
Earthen/Concrete	9	15
<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>Type of farming</b>		
Monoculture	42	70.0
Polyculture	15	25.0
Integrated	3	5.0
<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>Source of fingerlings</b>		
Intermediaries (not fisheries experts)	49	81.67
Own pond	1	1.67
Direct sourcing e.g ARAC, other farmers)	10	16.67
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Source of capital</b>		
Personal Savings	58	96.67
Bank	2	3.67
Cooperative	-	-
Ministry of Agric./ Commerce	-	-
Relatives	-	-
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Type of labour</b>		
Both hired & family labour	60	100
<b>Capital requirement</b>		
10, 000 - 100, 000	35	58.33
101, 000 - 191, 000	10	16.67
192, 000 - 282, 000	9	15.00
283,000 - 373, 000	4	6.67
374, 000 and above	2	3.33
<b>Total</b>	<b>60</b>	<b>100</b>

*Field Survey Data, 2009*

**C. Costs and Return associated with Homestead fish farmers:**

<b>Fixed Cost</b>		<b>Operating Cost</b>	
Land	320,900	Transport	18,700
Nets	4,150	Labour	42,950
Shovels	3,800	Fertilizer	5,400
Machetes	4,500	Feed Cost	108,010
Pumping Machine	38,500	Fingerlings	90,200
Baskets	1,750	Machine Operator	8,400
Buckets	3,550	Fuel	15,900
		Depreciation	43,340
<b>Total fixed cost</b>	<b>377,150</b>	<b>Total operating cost</b>	<b>332,910</b>
<b>Total Cost</b>	<b>710,060</b>	<b>Total return</b>	<b>828,000</b>
<b>Net return</b>	<b>117,940</b>	<b>Benefit/cost ratio</b>	<b>1.17</b>

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