

Profitability Analysis of Fish Farms in Mymensingh

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Abstract

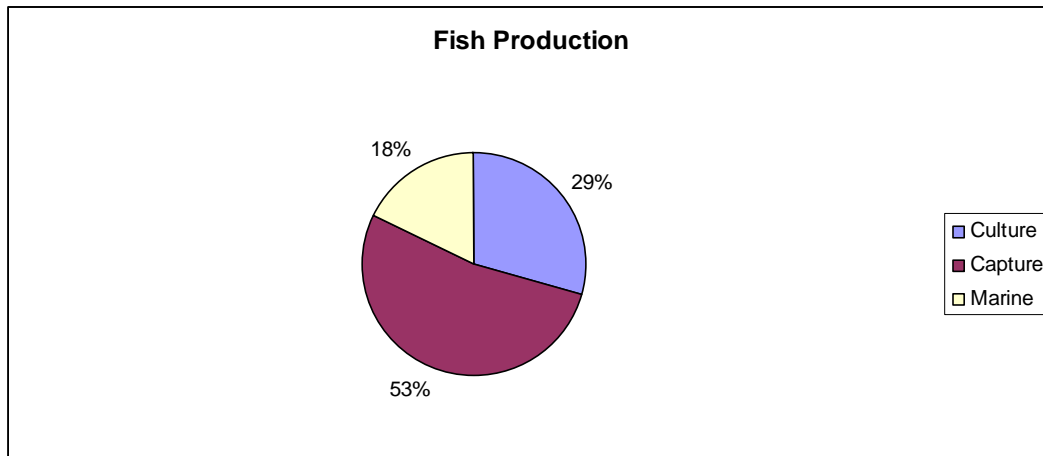
The objective of this study is to examine the impact of various factors of fish production. This study is based on primary data. Primary data is collected through the structured questionnaire. The descriptive analysis shows that a large proportion of fish farmers had formal education and finance their fish production through personal saving. The multiple regression result shows that fish output is determined by the cost of labour, feeds, fertilizer and pond size. The coefficient of determination R^2 is 0.473 which indicates that 47.3% of the variation in the value of fish output was explained by pond size, cost of labour, cost of fertilizer, cost of feeds. Lack of capital, volatile market price are some major problems of fish production in Bangladesh. Government should take essential measures to solve these problems.

1. Introduction and Background

Bangladesh is an agriculture based country. The contribution of agricultural sector in Gross Domestic Product (GDP) was 19.95 percent in 2010-11. The contribution of fisheries to GDP was estimated 4.43 which is higher than other agricultural sub sectors such as crop, livestock and forestry. The fish and fish product export of Bangladesh was 4703 crore Tk in 2012 which is 2.46% of total export earning. That is fisheries sub sector play an important role to the national economy. In addition to this daily fish consumption was 44 gram in 1995. Fish is an important source of animal protein. This indicates that fish cultivation and fisheries sector has an important contribution to national economy. The demand for animal protein has been increasing in Bangladesh with the rapid increase of population in Bangladesh. Per head protein consumption in Bangladesh isin 2013. Bangladesh is a developing country and malnutrition and starvation are common phenomenon in developing country like Bangladesh. The low protein intake is an indication of shortage of high quality protein food in Bangladesh. The protein deficiency causes poor health, low efficiency, low productivity, and poor standard of living. Fisheries sector has important contribution to build up healthy and productive manpower. The objective of Bangladesh government is to increase fish production. To fulfill this purpose, government has taken a number of steps including community based aquacultural programme. The total fish production is 32.62 lakh metric ton (MT) in Fiscal Year 2011-12. This production is smaller than the demand of fish during the fiscal year. This is why it is necessary to increase fish production for the growing population of Bangladesh. In addition to this health condition depends on the balanced diet and animal protein. Fish is essential for good health. Good health will increase productivity of labour of Bangladesh. So fish production is to be increased. This requires to find out the problem of fish production and how to increase production to satisfy the protein requirement and good economic situation of fish farmers. Fisheries sectoral growth rate in GDP was 6.18 in 2012-13 (BER, 2014). Fisheries sectoral share in GDP was 3.68 in 2012-13 (BER, 2014).

Bangladesh is a developing country and 30% people live below the poverty line. The poverty of Bangladesh is multidimensional. The level of living of the people of Bangladesh is low. They do not get the proper facility of education and health. The major causes of poverty is lack of access to productive resources such as land and water and public resources such as education and health service along with the inadequate supply of social safety net. Some important features of poverty are malnutrition, poor access to sanitation and low adult literacy rate. Fish cultivation can play an important role to alleviate poverty.

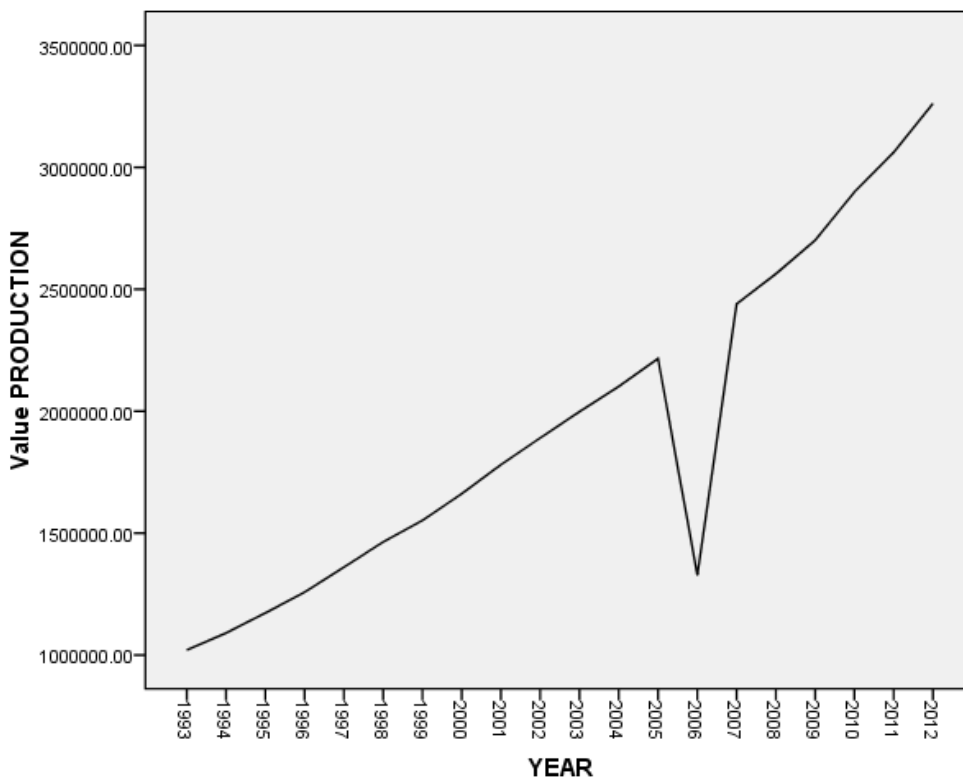
In 2011 fish production was 32.62 lakh Metric ton of which 52.94% was obtained from Culture, 29.34% from capture and 17.74% from marine fisheries (DoF, 2012).



Our main focus is on culture fisheries. There are 260 species of freshwater fish in Bangladesh of which 143 species have been classified as Small Indigenous Species (SIS), (Mondal, 2012) . The most common SIS are Mola, Puti , Koi , Shing , Magur etc.

The fisheries sector contribution is much because it provide 60 % animal protein intake and more than 11 % of total population directly and indirectly involve with this sector for their livelihood . Bangladesh is a leading fish producing country . Figure-1 shows that fish production is consistently increasing over the years .The fish production trend over the years is given by the following figure .

Figure: 1 : Fish Production Trend in Bangladesh



In the above figure it is seen that fish production is increased over the years except 2006 .

Akerele, D. et al (2010) conducted a research in Ogun state in Nigeria using primary and secondary data. Using multiple regression model they show that fish output was significantly determined by pond size, labour used, cost of feeds, cost of line and cost of fingerlings, fish production in study area is profitable and it helps to create employment, augments income and improve standard of living. It uses normal technique to analyse the results. Bakhtiar (2011) shows the socioeconomic impacts aquaculturing in Mymensingh districts. This compares between fish and paddy farming along with some social sectors such as health and education. Fish farmers expenditure on health and education are higher than paddy farmers. Increased earning play significant role to alleviate poverty. Lack of hasel-free and low interest credit is major problem of fish cultivation.

2. Objectives

The specific objectives of the study are as follows

1. to examine the socio-economic conditions of fishing community of the study area.
2. to examine the employment opportunity of Fishing household

3. Methodology

For the purposes of the study we will collect data from the primary and secondary sources. In case of necessary we will collect data from the secondary sources. To collect primary data we have selected 3 villages from Trishal Upazila. These villages are selected because these villages are near to the researchers service centre. In addition to this area is famous for fish cultivation. This study will present the variable using tables and graphs to get a clear picture of the status of the people in the village. As some of the data will qualitative in nature.

The study is empirical and descriptive in nature. Both qualitative and quantative data will be presented in this report. The types of data collection tools will be determined on the basis of field situation and nature of informants. The information obtained from both primary and secondary sources will be used to complement each other.

Information collected from both secondary and primary sources will be used in this study. Secondary sources of information include books, documents from Trisal pourashava, news and reports published in national print media, and documents collected from websites. Primary sources of information include interviews with key informants and candidates who directly involve with fish production.

Measures like spot- checking, re-interview and consistency checking were followed to ensure quality of data. The survey team, as well as the questionnaire survey will be closely monitored and clinically supervised during the survey.

The multiple regression model is used to examine the influence of socio-economic factors on the fish output level. The model is specified as follows

$$Q = f(p, L, Z, F, , e)$$

Where

Q= Output in Taka

P = pond size measured in square measure

L = lab our measured in taka

Z = Cost of feeds

F = Fertilizer measured in taka

Descriptive Analysis Socio Economic Characteristics of fish farmers

Education	Frequency	Percentage
primary	3	11.11
Secondary	22	81.48
Tertiary	2	7.40
Total	27	100
Age		
10-20	0	
21-30	5	18.51
31-40	10	37.03
41-50	8	29.62
> 50	4	14.81
	27	100
Marital Status		
Married	22	81.48
Single	05	18.51
Total	27	100

Household size		
1-4	8	29.62
5-8	18	66.66
>8	1	3.70
Farming Experience		
< 5 years	7	25.92
5- 10 years	14	51.85
11-15 years	06	22.22
> 15 years	0	0
	27	100
Sources of Finance		
personal Saving	24	88.88
Friends		
Relative		
Cooperatives		
Bank loan	03	11.11
Total	27	100
Sources of Feed		
Purchase	25	92.59
Household wastage		
Others	02	7.40
Total	27	100

Source: Estimated from field survey, 2013

Results and discussion

Descriptive Analysis

The fish farmers whose age falls between 31- 40 years constitute the majority. On the whole, 84.19 % fall into the economically active group of 20-50 years . The result of the marital status shows that 81. 48 % fish farmers are married. A large proportion of fish farmers (81 %) had formal education . They finance their fish production by the personal saving. The farmers are literate because a small portion of the

farmers are illiterate. The most of the farmers purchase food. About 50 % farmers are experienced between 5 to 10 years. About 66 % family is ranged between 5 and 8 .

Problems of Fish Cultivation in the Study Area

There are lots of problems regarding the fish cultivation in Bangladesh. These are includes lack of capital. People do not get sufficient loan due to institutional obstacles. Market price of fish is volatile which influence over the decision of fish cultivation of fishermen. Diseases of fish can not be cured and appropriate treatment is not available. Another problem is natural calamities. There is a lack of qualitifil fish feed. Pond is over flooded during the rainy season. Lack of good fish fry and fish fry do not get during the season.

Results and Discussion

Multiple Regression Result

Table 2 The regression result of the determinants of fish output in the study area (Using Log)

Variables	Coefficient	Beta	T	Significant	VIF
Constant	7.581	-.019	2.655	.014	
LnL	-.027	.436	-.107	.916	1.368
LnP	.290	.420	2.241	.035	1.580
LnF	.398	-.090	1.850	.078	2.147
LnZ	-.117	-.019	-.437	.666	1.787

Dependent Variable: LnQ , $R^2 = 0.473$, DW = 2.37

Source: Computed from field survey data 2013

The regression result is carried out to examine the determinants of factors affecting fish production . The regression result shows that fish output is determined by the cost of fertilizer , cost of feeds, cost of labour and pond size

Conclusion

The study shows that most of the farmers improve their socio-economic condition through the fish cultivation . This help them to increase their income, improve their education and fish farmers enjoy better health facility. The major source of fisher's man cultivation is personal saving . The regression results show that fish cultivation is influenced by the pond size , cost of feeding, cost of fertilizer and cost of labor and and so on . Fish cultivation is associated with some problems such as lack of capital and district fishery office do not capable to help the fisherman . In addition to this market price is volatile . If this obtackles can be reduced fish production will be increased and employment opportunity will generated which contribute to alleviate poverty .

Reference

- D. Akerele, I.A. Ayinde and S. A. Adewuyi (2010) “ Analysis of Profitability of Fish Farming in Ogun State, Nigeria” Journal of Humanities and Economics 31(3) pp. 179-184
- M. U. Bakhtiar (2011) “ Aqua Culturing in Mymensingh District: A Socio- Economic Impact Analysis” Development Compilation, Vol.6 , No.1
- Bangladesh Economic Review, 2011 , Ministry of Finance , Government of Bangladesh.
- A.S.Yemi and A. Deji (2012) “ Measuring Profitability in Small Scale Aquaculture Enterprises in South West Nigeria” IIFET2012 Tanzania Proceedings .
- An Evaluation of Small Scale Fresh Water Rural Aquaculture Development for Poverty Reduction, Asian Development Bank, 2005.
- M.K., Alam, M. A. H., Mondal, M. M., Ali., and P. K., Sarma, (2012) “ Assessment of Aquaculture as a means of Sustainable Livelihood Development in Fulpur Upazila Under Mymensingh District” Journal of Bangladesh Agricultural University , Vol. 10 , No .2 pp 391-402.
- D. L., Darrel (2002) “ Update on Aquaculture: Small Scale Freshwater Fish Culture in South Asia” Bangladesh Economic Review, 2014, Ministry of Finance, Government of Bangladesh.

Fisheries Statistical Yearbook of Bangladesh, 2002-03, Department of Fisheries, Ministry of Fisheries and Livestock, GOB.

Fisheries Statistical Yearbook of Bangladesh, 2011-12, Department of Fisheries, Ministry of Fisheries and Livestock, GOB.

M. A. Sarker., A. H. Chowdhury, I., Yoshihito, (2006) “ Entrepreneurships Barriers of Pond Fish Culture in Bangladesh- A Case Study from Mymensingh District” Journal of Social Science, Vol. 2, No. 3, pp.68

Bangladesh Fisheries Sector Review , 1991, Agriculture Operation Divisions, Asia Country Division, World Bank Annual Report, 2012, Department of Fisheries, Government of Bangladesh .

C. R. Kothari, (2001) , Research Methodology, 2nd Edition , New Delhi.

D.N. Gujarati (2003) , Basic Econometrics, Third Edition , McGraw- Hill Book Co, Singapore

Appendix

Output	Labour	Pond Size	Feeds	Fertilizer
156000	48000	52	800000	3000
52000	12000	26	20000	8000
449982	40000	1578	350000	2800
3150000	98000	12139	3000000	17500
1529440	40000	7102	750000	26000
1500000	60000	6050	700000	5800
4508000	256000	25060	2800000	24608
401700	90000	1578	280000	2400
313500	120000	1315	210000	2800
731000	120000	2368	600000	4000
3300000	312000	121394	1.50E+07	165000
650000	120000	2014	480000	2400
1235000	47000	617.5	500000	6000
877500	80000	97.5	300000	2400
600000	30000	250	45000	2800
263650	160000	29.25	2500000	25000
4241250	55000	487.5	1200000	18000
2730000	90000	195	2500000	6000
107000	45000	975	225000	19000
1755000	22000	975	1750000	29000
16790	13000	115	390000	3000
2340000	55000	390	150000	2000
325000	42000	130	100000	8000
1300065	42000	435.5	5000000	20000
81250	112500	32.5	100000	5000
789750	5000	169	500000	5000
591500	5000	292.5	200000	5000

Source: Field Survey 2013

output(TK)	Ln (Output)	Labour (TK)	Ln (Labour)	Pond Size(Sm)	Ln Pond	Feeds (Tk)	Ln Feed	Fertilizer(Tk)	Ln Fertilizer
156000	11.96	48000	10.78	52	3.95	800000	13.59	3000	8.01
52000	10.86	12000	9.39	26	3.26	20000	9.90	8000	8.99
449982	13.02	40000	10.60	1578	7.36	350000	12.77	2800	7.94
3150000	14.96	98000	11.49	12139	9.40	3000000	14.91	17500	9.77
1529440	14.24	40000	10.60	7102	8.87	750000	13.53	26000	10.17
1500000	14.22	60000	11.00	6050	8.71	700000	13.46	5800	8.67
4508000	15.32	256000	12.45	25060	10.13	2800000	14.85	24608	10.11
401700	12.90	90000	11.41	1578	7.36	280000	12.54	2400	7.78
313500	12.66	120000	11.70	1315	7.18	210000	12.25	2800	7.94
731000	13.50	120000	11.70	2368	7.77	600000	13.30	4000	8.29
3300000	15.01	312000	12.65	121394	11.71	1.50E+07	16.52	165000	12.01
650000	13.38	120000	11.70	2014	7.61	480000	13.08	2400	7.78
1235000	14.03	47000	10.76	617.5	6.43	500000	13.12	6000	8.70
877500	13.68	80000	11.29	97.5	4.58	300000	12.61	2400	7.78
600000	13.30	30000	10.31	250	5.52	45000	10.71	2800	7.94
263650	12.48	160000	11.98	29.25	3.38	2500000	14.73	25000	10.13
4241250	15.26	55000	10.92	487.5	6.19	1200000	14.00	18000	9.80
2730000	14.82	90000	11.41	195	5.27	2500000	14.73	6000	8.70
107000	11.58	45000	10.71	975	6.88	225000	12.32	19000	9.85
1755000	14.38	22000	10.00	975	6.88	1750000	14.38	29000	10.28
16790	9.73	13000	9.47	115	4.74	390000	12.87	3000	8.01
2340000	14.67	55000	10.92	390	5.97	150000	11.92	2000	7.60
325000	12.69	42000	10.65	130	4.87	100000	11.51	8000	8.99
1300065	14.08	42000	10.65	435.5	6.08	5000000	15.42	20000	9.90
81250	11.31	112500	11.63	32.5	3.48	100000	11.51	5000	8.52
789750	13.58	5000	8.52	169	5.13	500000	13.12	5000	8.52
591500	13.29	5000	8.52	292.5	5.68	200000	12.21	5000	8.52

Source: Field Survey 2013

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