

Use of communication media by the fish farmers in commercial fish culture in Mymensingh district of Bangladesh

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Abstract: The purposes of the study were to determine the extent of use of communication media in commercial fish culture and to explore the relationships between the extent of use of communication media by the fish farmers and their selected characteristics. The majority of the respondents (52 percent) had medium use of communication media and 48 percent having high use of communication media. Out of eleven selected characteristics, the fish farmers' level of education, annual family income, social mobility and knowledge on commercial fish culture showed significant positive relationships with their extent of use of communication media; while fish farmers' age showed negative significant relationships. On the other hand, household size, farm size, size of fish farm, training exposure, fish culture experience, and organizational participation had no relationships with their extent of use of communication media in commercial fish culture. Majority of the respondents preferred model farmer as communication media against six fish farming practices such as cut of trench, fertilization, liming of pond, release of fry, harvesting and marketing.

Key words: Use; communication media; fish farmers; commercial fish culture; Mymensingh.

Introduction

Bangladesh is endowed with vast water resources. Fish and fisheries are the indispensable part of life and livelihood of the people of the country since immemorial time. It is an element of our cultural heritage. Fisheries sector has been playing a vital role in alleviating protein shortage, providing jobs for unemployed youth, earning foreign currencies and socioeconomic development of Bangladesh. Fisheries sector contributes 4.43% to the national GDP and 22.21% to the total agricultural GDP. The country's export earnings from this sector are 2.73% in 2010-11 (BER, 2014).

Bangladesh has an excellent aquaculture potential because of its vast water resources. These resources are in the form of pond, beel, lake, canals, small and large rivers and estuaries. The inland water resources of the country consist of an area of 4.7 million ha. In Bangladesh there are two sources of fisheries like inland and marine fisheries. This sector supports livelihood to about 12 million people of the country directly and indirectly (DoF, 2014). Commercial fish culture means culture of fish for commercial purpose. Commercial fish farming is highly profitable business. It is done mainly to improve the livelihood status of the fish farmers, earning foreign exchange, meet nutritional requirements etc. Mymensingh, Khulna, Comilla, Barisal, Bagerhat, Satkhira are considered as the best place for commercial fish farming in Bangladesh. The demand of fish is increased due to increase in population. Annual total fish demand is 32.72 Lac MT and per capita fish requirement is 20.44 Kg per year. But the current consumption is 16.69 kg, this has got a negative impact on the health condition of the people (DoF, 2014).

Total amount of fish needed to fulfill the demand of Mymensingh is 68,031 MT (DoF, 2013). People here consume more of cultured carps as rui, katla, mrigel, and silver carp, Thai koi, tilapia, puti and captured indigenous fish as carps, koi, shing, magur, hilsha etc. Muktagachha, Trishal, Fulbaria, Fulpur and Gouripur have already embraced fishery as one of their livelihoods. More people are coming into this business very rapidly. Marginal farmers are higher in number among the newcomers as they have seen that fish farming is more profitable than

cultivating crops on land. But communication media is a major problem for the fish farmers. Commercially cultured farmers are now facing various problems. Among these problems, communication media is one of them. As it were found that more than 90% of the farmers felt low to medium use of communication media (Islam, 2012 and Akhter, 2013). More than half (53.90 percent) of the respondents had medium use of mobile phone (Barman, 2014) and majority (91.11 %) of the farmers fell in the rarely use of communication media in practicing rice cum fish culture (Hossain, 2013). This is insufficient for successful practice of fish culture. Basically, most of the fish farmers were afraid to accept new communication media because they were not fully aware in use of communication media. They thought that, fish culture is God gifted. Some fish farmers also follow the traditional culture method.

Extension services are essential for the fish farmers. They can help farmers to culture fish commercially by giving different information, training on fish culture. Govt. should also develop different projects, steps and give microcredit to the fish farmers to develop commercial fish culture. Hence, this study was undertaken to investigate the use of communication media by the fish farmer towards commercial fish farming.

Materials and Methods

The study was conducted in the two unions namely Kherujani and Kumarghata of Muktagachha upazila in Mymensingh district to analyze the use of communication media by the fish farmers in commercial fish culture. Micro-data from a farm-level survey conducted by the first author was the main source of data. Data were collected during the period of September 2015 to November 2015 using interview schedule. A total of 102 fish farmers were face to face interviewed with interview schedule. SPSS and MS-Excel computer soft wares were used to aid the data analysis and presentation.

Measurement of dependent variable: Extent of use of communication media was the dependent variable of the study. Seventeen (17) communication media of different nature were selected to measure the extent of use of communication media in commercial fish culture. Extent

of use of communication media was determined by using a 4-point rating scale such as frequently, occasionally, rarely

and not at all and the respective weights were assigned as 3, 2, 1 and 0.

Measurement of independent variables

Variables	Way of Measurement
Age	Score
Education	Actual year of schooling
Household size	No. of members
Farm size	Hectares
Size of fish farm	Hectares
Annual family income	Thousand Taka
Training exposure	Days
Fish culture experience	Years
Social mobility	Score
Organizational participation	Score
Knowledge on commercial fish culture	Score

Thus, the Communication Media Use Index (CMUI) was calculated by the following formula: Communication Media Use Index (CMUI) = CMf x 3 + CMo x 2 + CMr x 1 + CMnot x 0; Where, CMf = Number of respondents with 'frequently use', CMo = Number of respondents with 'occasionally use', CMr = Number of respondents with

'rarely use', CMnot = Number of respondents with 'not at all use'.

Results and Discussion

Selected Characteristics of the Fish Farmers

The composite findings of the selected characteristics of fish farmers are presented in Table 1.

Table 1. Salient features of the fish farmers

Characteristics	Observed Range (possible)	Categories	Respondent		Mean	SD
			Number	Percent		
Age	20-65 (unknown)	Young (<30)	42	41.2	34.5	9.32
		Middle (31-50)	49	47.9		
		Old (>50)	11	10.9		
Education	3-16 (unknown)	can sign only(0.5)	0	0	8.92	2.97
		Primary (1-5)	25	24.6		
		Secondary (6-10)	47	46.07		
		Higher secondary (11-12)	23	22.5		
		Above H.S (>12)	7	6.9		
Household size	2-13 (unknown)	Small (2- 4)	73	71.6	5.15	1.71
		Medium (5-6)	24	23.5		
		Large (above 6)	5	4.9		
Farm size	0.18-2.92 (unknown)	Marginal (0.021-0.2)	42	41.1	0.97	0.46
		Small (>0.2-1.0)	49	47.9		
		Medium (1 -3)	11	10.7		
Size of fish farm	0.5-4.5 (unknown)	Small (>1.0)	41	40.20	1.30	0.78
		Medium (1-3)	55	53.92		
		Large (above 3)	6	5.88		
Annual family income	104-790 (unknown)	Medium (<350)	65	63.1	353.92	147.65
		High (350-550)	24	23.9		
		Very high(>550)	13	12.7		
Training exposure	0-11 (unknown)	Short-term(<5.0)	17	16.7	6.57	2.17
		Mid-term(5-10)	69	67.6		
		Long-term(>10)	16	15.7		
Fish culture experience	3-15 (0-21)	Short-term(≤4)	9	8.8	6.62	2.12
		Mid-term(5-8)	88	86.2		
		Long-term(>8)	5	4.9		
Social mobility	5-15 (0-15)	Low(<6.0)	4	3.9	10.09	2.26
		Medium(6-10)	56	54.8		
		High(>10)	42	41.3		
Organizational participation	1-6 (0-21)	Low(<7.0)	33	32.4	3.18	1.16
		Medium(7-14)	66	64.7		
		High(>14)	3	2.94		
Knowledge on commercial fish culture	19-24 (0-24)	Low(<8.0)	0	0	22.05	1.67
		Medium(8-16)	57	55.9		
		High(>16)	45	44.1		

Table 2. Distributions of the fish farmers based on their communication media use

Categories	Fish farmers		Mean	SD
	Number	Percent		
Low communication media use (<17)	0	0	29.71	4.34
Medium communication media use (17-34)	53	52		
High communication media use (>34)	49	48		

Fish Farmers' Use of Communication Media: The combined calculated communication media score of the fish farmers ranged from 17 to 39 against the possible range of 0 to 51 with an average score of 29.71 and standard deviation 4.34. The distribution of the fish

farmers according to the communication media score has been shown in Table 2. Data presented in Table 2 reveals that, 52% of the fish farmers had medium communication media use, 48% had high communication media use and

no respondents were found under the category of low communication media use.

In case of some commercial fish farmers, they were not fully aware in use of communication media. They thought that, fish culture is God gifted. Some fish farmers also follow the traditional culture method. They use rice bran, mustard oil cake and organic manure which is not fully effective for modern culture method.

Communication media score for each communication media was calculated by using the Communication Media Use Index (CMUI). The mean score of each communication media was also calculated. The CMUI for

each communication media has been arranged in rank order according to their extent of use which appears in Table 3. CMUI was found to vary from 19 to 277 against the possible range from 0 to 306.

Table 3 shows the communication media use index score, their mean and the ranking of the use of communication media. In a simple way, the communication media having mean score 3 indicate very frequently use of communication media by the fish farmers. The communication media having mean score 2, 1 and 0 respectively indicated that fish farmers had occasionally, rarely and not at all communication media use.

Table 3. Extent of communication media use (N=102)

Type of media	Items	Extent of Use of Communication Media				CMUI	Mean	Rank	
		F	O	R	N				
Individual Media	Personal localities	Neighbours /week	34	63	5	0	233	2.28	6
		Relatives / year	3	71	26	2	177	1.73	12
		Fish farm/month	80	15	7	0	277	2.65	1
		Friends/week	10	74	15	3	193	1.89	8
	Personal Cosmopolite	Upazila Fisheries Officer/3 months	49	43	10	0	243	2.31	4
		Assistant Fisheries Officer/3 months	50	50	2	0	252	2.47	3
		Fish feed trader/3 months	35	64	3	0	236	2.38	5
		Extension Agent for Fisheries/month	69	30	3	0	270	2.72	2
		NGO field worker/3 months	4	71	27	0	181	1.77	11
		Private company staff/3 months	10	69	23	0	191	1.87	9
Group Media	Group discussion meeting/year	31	45	26	0	209	2.05	7	
	Method demonstration meeting/year	0	13	28	61	54	0.53	15	
	Result demonstration meeting/year	0	3	13	86	19	0.19	17	
	Group discussion meeting/year	31	45	26	0	209	2.05	7	
Mass Media	Daily news paper/week	17	38	23	24	150	1.47	13	
	Agricultural radio program/week	1	17	77	7	114	1.12	14	
	Agricultural TV program/week	0	85	16	1	186	1.82	10	
	Magazine/week	0	6	36	60	48	0.47	16	

F=Frequently; R=Rarely; O= Occasionally; N= Not at all; CMUI= Communication Media Use Index;

The Table 3 shows that ‘Local model/commercial fish farmer (per month)’ got the 1st highest rank among all the communication media. It was found that 78.43% of the fish farmers had frequently communication media use, 14.71% of the fish farmers had occasionally communication media use and 6.86% of the fish farmers had rarely communication media use. In that case the total CMUI was 277.

‘Local Extension Agent for Fisheries (LEAF) (per month) got the 2nd rank among all the communication media. It was found that 67.65% of the fish farmers had frequently communication media use, 29.41% of the fish farmers had occasionally communication media use and 2.94% had rarely communication media use. On this aspect the total CMUI was 270.

‘Assistant Fisheries Officer (AFO) (per 3 months)’ obtained the 3rd highest CMUI and stood third in the rank order. ‘Result demonstration meeting (per year)’ obtained the least score and got the last position in the rank order. It

was found that 2.94% of the fish farmers had occasionally communication media use, 12.75% of the fish farmers had rarely communication media use and 84.31% of the fish farmers had no communication media use. On this aspect the total CMUI was 252.

Majority of fish farmers had medium communication media use in commercial fish culture. They were very highly agreed with the local model/commercial fish farmer (per month). But their extents of use of communication media were not enough with the result demonstration meeting (per year), magazine and method demonstration meeting (per year) and were not aware of this component.

Relationship between the Selected Characteristics of the Fish Farmers and their Use of Communication Media: The relationship between the selected characteristics of the fish farmers and their use of communication media towards commercial fish culture is presented in Table 4.

Table 4. Coefficient of correlation (r) between the selected characteristics of the fish farmers and their use of

Dependent variable	Independent variable	Coefficient of correlation (r) with 100 df	Tabulated r value with 100 df.	
			0.05 level	0.01 level
Use of Communication Media by the Fish Farmers in Commercial Fish Culture	Age	-0.210*		
	Education	0.428**		
	Household size	-0.105		
	Farm size	0.168		
	Size of fish farm	0.140		
	Annual family income	0.220*	0.195	0.254
	Training exposure	0.154		
	Fish culture experience	-0.054		
	Social mobility	0.429**		
	Organizational participation	0.156		
	Knowledge on commercial fish culture	0.259**		

* Correlation is significant at 5% level of probability, **Correlation is significant at 1% level of probability

Table 5. Preference for use of communication media

Practices of fish farming	Communication media preferred	No. of citations (N=102)	Percentage	Rank order
Selection of pond/ Fish farm	Upazila Fisheries Officer (UFO)	60	58.82	1
	Assistant Fisheries Officer (AFO)	27	26.47	2
	Local Extension Agent for Fisheries	6	5.88	6
	Model farmer	25	24.51	3
	NGO field worker	12	11.76	4
Preparation of pond/ Fish farm	Fish feed trader	7	6.86	5
	Upazila Fisheries Officer (UFO)	40	39.22	2
	Assistant Fisheries Officer (AFO)	51	50.0	1
	Local Extension Agent for Fisheries	7	6.86	5
	Model farmer	19	18.63	3
Practices of fish farming	NGO field worker	7	6.86	5
	Fish feed trader	9	8.82	4
	Upazila Fisheries Officer (UFO)	4	3.92	5
	Assistant Fisheries Officer (AFO)	21	20.59	2
	Local Extension Agent for Fisheries	10	9.81	3
Cut of trench	Model farmer	60	58.82	1
	NGO field worker	5	4.90	4
	Fish feed trader	3	2.94	6
	Upazila Fisheries Officer (UFO)	3	2.94	5
	Assistant Fisheries Officer (AFO)	9	8.82	4
Fertilization	Local Extension Agent for Fisheries	35	34.31	2
	Model farmer	55	53.92	1
	NGO field worker	13	12.75	3
	Fish feed trader	2	1.96	6
	Upazila Fisheries Officer (UFO)	5	4.90	5
Liming of pond	Assistant Fisheries Officer (AFO)	11	10.78	4
	Local Extension Agent for Fisheries	32	31.37	2
	Model farmer	53	51.96	1
	NGO field worker	23	22.54	3
	Fish feed trader	2	1.99	6
Release of fry	Upazila Fisheries Officer (UFO)	4	3.92	5
	Assistant Fisheries Officer (AFO)	12	11.76	3
	Local Extension Agent for Fisheries	31	30.39	2
	Model farmer	49	48.04	1
	NGO field worker	31	30.39	2
Disease management	Fish feed trader	6	5.88	4
	Upazila Fisheries Officer (UFO)	8	7.84	5
	Assistant Fisheries Officer (AFO)	4	3.92	6
	Local Extension Agent for Fisheries	14	13.73	4
	Model farmer	18	17.65	3
Water quality management	NGO field worker	77	75.49	2
	Fish feed trader	28	27.45	1
	Upazila Fisheries Officer (UFO)	34	33.33	2
	Assistant Fisheries Officer (AFO)	6	5.88	6
	Local Extension Agent for Fisheries	15	14.71	5
Harvesting	Model farmer	20	19.61	3
	NGO field worker	63	61.76	1
	Fish feed trader	19	18.63	4
	Upazila Fisheries Officer (UFO)	6	5.88	3
	Assistant Fisheries Officer (AFO)	17	16.67	5
Marketing	Local Extension Agent for Fisheries	29	28.43	2
	Model farmer	64	62.75	1
	NGO field worker	11	10.78	4
	Fish feed trader	2	1.96	6
	Upazila Fisheries Officer (UFO)	14	13.73	4
Marketing	Assistant Fisheries Officer (AFO)	52	50.98	2
	Local Extension Agent for Fisheries	12	11.76	5
	Model farmer	71	69.61	1
	NGO field worker	19	18.63	3
	Fish feed trader	4	3.92	6

Preferences of Use of Communication Media: Data presented in Table 5 indicate that model farmer played a vital role as a major source of information. Among ten fish farming practices, model farmer was highly preferred by the majority of fish farmers for six fish farming practices such as cut of trench, fertilization, liming of pond, release of fry, harvesting and marketing. NGO field workers were preferred by the fish farmers for disease management and water quality management. Another communication media such as Upazila Fisheries Officer (UFO) and Assistant Fisheries Officer (AFO) were preferred by the fish farmers for selection of pond/ fish farm and preparation of pond/ fish farm respectively as a source of information on commercial fish culture. The findings indicate that the majority (52 percent) of the fish farmers had medium use

of communication media, and 48 percent had high use of communication media and no respondents were found to have low use of communication media. Individual contact sources such as neighbours, relatives, local model/commercial fish farmer, friends, Upazila Fisheries Officer (UFO), Assistant Fisheries Officer (AFO), fish feed trader, Local Extension Agent for Fisheries (LEAF), NGO field worker and private company staff were commonly used as sources for receiving information on commercial fish culture. Fish farmers' use of communication media on commercial fish culture varied with the variation of their education and it was found that the level of education had positive and significant relationship with their use of communication media. Most of the fish farmers preferred model farmer as their sources

of information for majority of the practices of commercial fish farming. They have vast knowledge and experiences on fish farming. They were also early adopter of new technology because they have frequent contact with various media of communication. Therefore, it can be concluded that giving proper importance to model farmers for implementing extension program can ensure the success of that program.

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