CONSTRAINTS IN FISH FARMING PRACTICES IN UTTAR PRADESH, INDIA – AN ANALYSIS

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ABSTRACT

Aquaculture can be considered as a rapidly growing sector in many Indian states including Uttar Pradesh. The impressive overall upward trend in fish production is likely to continue in future years as there are plenty of unutilized or underutilized fishery resources in the state. In spite of the growing popularity of aquaculture in the state, fish farmers have been experiencing financial, social and technical constraints in fish farming practices. These constraints are adversely affecting farmers in obtaining expected fish yields and income. In this study, the most common problem areas were identified, analysed and ranked on the basis of farmers' perception.

Keywords: Fish farming, constraints, ranking, credit, seed, input price, subsidy, knowledge

INTRODUCTION

Uttar Pradesh is endowed with rich and varied inland water resources in the forms of ponds, tanks, reservoirs, rivers and lakes which offer great potential for freshwater aquaculture development. The state ranks fourth in the country in terms of inland fish production after West Bengal, Andhra Pradesh and Bihar, and contributes about 7.3% to the Indian inland fish production. Both fish and seed production in the state have been rising steadily in the recent past. The state's average annual growth of fish production was about 10% during the period from 1996-97 to 2001-02, while fish seed production increased by 11% annually during the same period. The average fish production of the state is about 2130 kg/ha/yr, which is marginally lower than the all India average production of about 2180 kg/ha/yr (GOI, 2000).

There is relatively greater scope for the promotion of aquaculture activities in the state from the view point of both increasing production from existing farms and also by the expansion of area under farming as so far only 53% of the suitable area has been brought under aquaculture (UPFD, 2002). Thus, formal credit and other institutional support are expected to play a crucial role in both intensification and extension of aquaculture.

Though it has been revealed that by and large, fish farmers in Uttar Pradesh have been receiving a significant amount of income from the fish farming activity, production and income from fisheries are not as expected due to numerous problems, *viz.*, lack of institutional support, seed related aspects, high costs of inputs, unfavourable price of fish, involvement of middlemen, lack of infrastructure facilities, inactive cooperative societies and pond related issues (Kumar, 1984). A few studies conducted on fish farming business in other Indian states have also revealed similar constraints (Goswami and Sathiadhas, 2000). In view of this, an attempt has been made to examine fish farmers' perceptions about the factors hindering higher fish yields and incomes in Mirzapur district of Uttar Pradesh.

MATERIAL AND METHODS

Fishery in Mirzapur district has been traditionally popular. Mirzapur district has diversified water resources in the form of rivers, reservoirs and ponds, with the Ganges flowing through the entire district (75 km). From the fisheries point of view, the Ganges river system occupies an important position as it is the original habitat of most of the Indian major carp species, *viz., Catla catla, Cirrhinus mrigala, Labeo rohita* and *L. calbasu*, which form the backbone of aquaculture in Mirzapur district. A vast majority of local fisher folk depend for their livelihood on fisheries of the River Ganges in Mirzapur district. Fishing is done in and around the river stretch of Mirzapur, the fish catch being sold in local areas. The river contributes significantly to the overall supply of fish seed in the district and provides scope for aquaculture in the area. The district has a significant number of small and also nine medium reservoirs (above 200 to 5000 ha area), which offer great opportunities for fish production and employment.

The expansion of aquaculture activities started only after the establishment of Fish Farmers' Development Agency (FFDA) in 1982-83 under the World Bank Project resulting in a rise in the level of fish production and extended coverage of water area under fish farming. The average fish production in ponds increased up to 2550 kg/ha/yr in 1999-2000 from less than 500 kg/ha/yr in the early eighties. About 785 ha of ponds have been covered under fish farming by the FFDA in the district till March 2001.

For administrative purposes, Mirzapur district is divided into four tahsils and 12 development blocks (IPRD, 2002). All these blocks are not equally popular in fish farming mainly due to the variation in suitability and potentiality of water bodies in terms of fish production. Considering the limited resources, we have selected a few blocks for primary data collection. All the 12 development blocks were grouped into three categories after taking into consideration the number of finance cases in each block as this also

reflected the potential and development of aquaculture.

The development blocks like Narayanpur, Rajagarh and Jamalpur got major share in financing under the FFDA programme at about 67.6% of the total number of finance cases in Mirzapur. There are six development blocks namely Channbey, Koen, Majhawa, Pahadi, Haliya and Sheekhad which can be considered poor in terms of financing as these blocks together represented only 9.6% of the total number of finance cases. Sadar (City), Lalganj and Madihan are considered to be modest in terms of number of finance cases in fish farming as about 22.8% of the total financed fish ponds belonged to these blocks.

In view of the above consideration and to represent all the four tahsils of Mirzapur district, Rajgarh, Narayanpur, Sadar and Lalganj blocks were selected for the field investigation purpose. Out of a total 290 borrower and 354 non-borrower fish farmers in the district, as many as 50 borrower households and 35 non-borrower households belonging to these selected blocks were approached to know their views about problems in fish farming activities. The size of the sample works out to be 17 and 10% of the reported financed and non-financed fish farmers, respectively.

Tools of Analysis

Garrett ranking technique was applied to analyse and rank various constraints as experienced and unveiled by respondent farmers in performing their fish farming business. The respondents were asked to rank the factors that have probably restrained their performance in obtaining expected outcome in fish farming. The most common problems in fish farming in the region are: lack of institutional support, seed related problems, high cost of inputs, unfavuorable price of fish, involvement of middlemen, lack of infrastructure facilities, inactive cooperative societies and pond related problems. The order of the merit given by the respondents to each problem has been converted into ranks using the following formula:

$$\text{Percent position} = 100 \times (Rij - 0.50) / Nj$$

where, Rij = Rank given for the i^{th} item by j individual

Nj = Number of items ranked by the j^{th} individual

The percent position of each rank was converted into scores by referring tables given by Garrett and Woodsworth (1969).

RESULTS AND DISCUSSION

The block-wise and category-wise rankings of problems and their scores are presented in Table 1. It is quite evident that lack of finance is recognised as the most deterrent factor by both types of respondents. Borrower respondents felt that the amount of loan is inadequate in terms of required investments; non-borrowers also

Table 1: Scoring and ranking of constraints faced by fish farmers in surveyed blocks of Mirzapur District

Sr. no.	Type of constraint	Rajgarh			Narayanpur			Other blocks			All blocks		
		B	NB	Av.	B	NB	Av.	B	NB	Av.	B	NB	Av.
1.	Inadequate*/no finance+	70.9 (2)	66.8 (1)	71.0 (2)	73.3 (1)	74.2 (2)	73.7 (1)	68.2 (1)	68.5 (1)	68.3 (1)	73.2 (1)	71.3 (1)	71.4 (1)
2.	Seed related problems	76.8 (1)	62.5 (2)	73.1 (1)	71.3 (3)	51.0 (6)	63.6 (3)	63.5 (2)	60.7 (3)	61.8 (3)	71.8 (2)	60.2 (3)	67.9 (2)
3.	High price of inputs	59.2 (3)	43.3 (8)	54.4 (4)	71.4 (2)	75.9 (1)	73.1 (2)	51.4 (7)	60.4 (4)	56.8 (7)	62.7 (3)	59.1 (4)	61.2 (3)
4.	Inadequate*/no subsidy+	51.8 (5)	58.2 (3)	55.6 (3)	62.8 (4)	62.3 (3)	62.2 (4)	61.7 (4)	57.8 (6)	59.3 (4)	56.7 (4)	61.1 (2)	58.5 (4)
5.	Lack of knowledge and extension support	49.5 (7)	54.7 (4)	52.7 (5)	58.5 (5)	48.0 (8)	54.5 (5)	59.0 (5)	64.5 (2)	62.3 (2)	53.9 (5)	56.6 (5)	55.0 (5)
6.	Pond related problems	41.2 (9)	49.4 (6)	45.4 (9)	43.1 (7)	43.9 (9)	43.4 (7)	61.8 (3)	55.8 (7)	58.2 (5)	44.3 (7)	50.7 (8)	47.0 (6)
7.	Involvement of middlemen	43.7 (8)	50.8 (5)	47.5 (7)	37.5 (9)	57.1 (4)	45.0 (6)	32.3 (10)	50.3 (8)	43.1 (9)	40.1 (9)	54.1 (6)	45.9 (7)
8.	Multiple use of ponds	32.0 (11)	46.7 (7)	38.4 (10)	34.1 (10)	50.3 (7)	40.2 (8)	55.0 (6)	60.3 (5)	58.2 (6)	35.5 (10)	52.6 (7)	42.6 (8)
9.	Unfavorable price of fish	50.5 (6)	37.8 (9)	46.8 (8)	31.0 (11)	54.2 (5)	39.8 (9)	35.3 (9)	31.7 (10)	33.2 (10)	41.7 (8)	42.5 (9)	42.0 (9)
10.	Lack of infrastructure facilities	55.2 (4)	34.1 (11)	48.3 (6)	40.6 (8)	28.5 (11)	36.0 (11)	29.8 (12)	27.4 (11)	28.4 (11)	46.9 (6)	31.6 (11)	40.6 (10)
11.	Theft/poaching	29.3 (12)	36.8 (10)	32.9 (12)	30.6 (12)	35.5 (10)	32.5 (12)	50.4 (8)	42.2 (9)	45.5 (8)	32.3 (11)	38.8 (10)	35.0 (11)
12.	Non existence/inactive coop. societies	39..4 (12)	22.1 (10)	33.6 (12)	46.8 (12)	19.5 (10)	36.5 (12)	32.0 (8)	21.4 (9)	25.6 (8)	41.2 (11)	21.7 (12)	33.1 (12)

*Borrower respondents; +Non-borrower respondents

Notes: 1. Other blocks include City and Lalganj.

2. Figures shown in parentheses are rankings of an individual constraint based on the scores.

revealed that proper investment cannot be made as bank finance is not available. Misra (1987) and Bhaumick *et al.* (1990) also found that inadequate or no finance is the most important constraint perceived by fish farmers.

Seed is considered to be the most crucial input for fish farming. Therefore, the development of fish farming is highly dependent on adequate, quality and timely availability of the desired seed. The overall perception is that assured supply of quality fish seed at the time of stocking is the second most important problem. Non-availability of quality seed creates greater problems for the development of freshwater aquaculture (Singh and Ahmad, 2003). However, non-borrower farmers of Naryanpur block gave the third rank to seed related problems, while farmers of Rajgarh block considered it as the most important problem (Rank 1). Non-borrowers of Naryanpur block do not feel seed is a major problem (Rank 6) because they had good access to seed collectors and suppliers.

Prices of inputs include seed, feed, manure, fertilizers, harvesting charges and rental value of leased ponds. The high price of inputs was perceived as the third major problem by all the surveyed respondents. However, non-borrowers of all the surveyed blocks ranked high price of inputs as the fourth one, while borrowers have given third ranking. This is probably due to the fact that the non-borrowers' spending are relatively quite lower than those by the borrowers. Among the different surveyed blocks, farmers of Narayanpur feel that high price of inputs is the second most important problem as they invest relatively higher than other blocks towards inputs, while farmers of Rajgarh block experience this as the fourth major problem. Farmers of the other blocks revealed that high price of inputs is not as serious a problem (seventh rank) as felt by the farmers in Rajgarh and Narayanpur blocks.

Incentives, particularly subsidies, help in encouraging and motivating potential farmers to take up fish farming activity. Under the FFDA programme, subsidy is linked with bank loan and given for construction of new ponds at 20% with a maximum ceiling of INR 40,000 per hectare, and for renovation at 20% of INR 60,000 per hectare with a maximum ceiling of INR12,000. Subsidy is also given for the first year inputs like seed, feed, fertilizers, manures and preventive measures for fish disease at 20% with a maximum ceiling of INR 6000 per hectare (unit cost: INR 30,000 per hectare). The beneficiaries who have been granted loans are only eligible for subsidy as per the rates mentioned above. Inadequacy of subsidy amount/no subsidy is perceived to be the fourth important problem. However, non-borrowers who have not availed of any subsidy feel that it is a relatively more serious problem in limiting their performance in fish farming.

The knowledge of modern fish culture technique is an important aspect

to adopt composite fish culture. Besides knowledge, farmers also expect extension support from the FFDA/Fisheries Department in performing fish farming activities in a better way. Invariably, both the FFDA's beneficiaries (borrowers) and non-beneficiaries (non-borrowers) identified the lack of knowledge and extension support as the fifth major constraint in their fish farming business. However, non-borrowers of Sadar and Lalganj blocks stated that it is a more serious problem, and ranked it as the second major problem, which has adversely affected the expansion of higher fish yields and incomes.

Pond related problems such as seepage, excess weeds, etc. have also adversely affected the fish yield of surveyed ponds. Overall, it is ranked as the sixth major problem. Farmers in Sadar and Lalganjs blocks experienced this more than the farmers in Narayanpur and Rajgarh blocks.

The involvement of middlemen is often considered as a factor which restricts the farmer in obtaining a fair price for the fish produce. Though it is overall ranked as the seventh major problem, it is more visible in the case of non-borrowers (sixth rank). It appears that the non-borrowers of Narayanpur are relatively more exploited by the involvement of middlemen (Rank 4). It is quite evident that non-borrowers are relatively more dependent on middlemen for loans in the absence of bank finance than borrowers.

The majority of surveyed ponds are obtained on lease from village panchayats. Even after leasing out such ponds for fish farming purpose, the access for villagers to ponds is continued for cleaning of cloths, utensils and domestic animals. This type of accessibility and multiple uses of ponds adversely affect efficient fish farming. Therefore, it is also considered to be a common problem and ranked at the eighth position. In the case of non-borrowers, it is ranked as the seventh one, while borrowers ranked it at the tenth place. It looks that the problem is more with non-borrowers than borrowers because the former have relatively greater number of leased ponds.

Unfavourable price of fish produce of the respondents may not be considered as a serious problem as it is ranked at the ninth place. However, borrowers of Rajgarh block (sixth) and non-borrowers of Narayanpur (fifth) feel that not getting fair price of fish produce is relatively a greater problem.

Infrastructure facilities like pond's connectivity to road, cold storage, transportation facilities, etc. are important from the view point of taking fish produce to different markets in good condition. The region is lacking in these facilities and, therefore, infrastructure is ranked as the tenth one. It appears that the farmers do not realise this as a major problem as they are more concerned with factors that directly affect them.

Theft and poaching are also considered as major inhibiting factors, particularly for leased pond operators. Poaching or deliberate poisoning due to rivalry, enmity or jealousy is quite observable. In a few cases, it has been seen that villagers are not concerned with the ownership of a pond by someone for fishery purposes. This also influences other villagers for poaching. This problem is ranked as the eleventh one and is more visible in the case of village panchayat ponds.

Respondents revealed that they are not able to make use of the cooperatives, particularly for marketing purposes because of the non-existence or inactive fisheries cooperative societies in the region. Therefore, this has been ranked as the twelfth constraint.

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