

A study of perception of members about Fish Farmer Producer Organizations (FFPOs) in Purba Medinipur district of West Bengal

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Abstract

Assessing farmers' perceptions of Fish Farmers' Producer Organizations (FFPOs) is an important aspect of determining their effectiveness. This study was conducted in the Purba Medinipur district of West Bengal. Of the four purposefully selected FFPOs, 120 respondents were chosen using simple random sampling without a replacement technique. A descriptive research design was used for the present study. The collected data were analysed using suitable statistical tools. The motivating factors for joining FFPO were identified as the easy availability of inputs at a lower cost through bulk purchases (94.17%), financial support from the government, and loans from banks at a lower interest rate (80%). By working in a collective mode, farmers can access better bargaining power for their produce (70.83%), hope to receive a better price for their aquaculture produce (68.33%), train in various aspects of scientific fish culture (67.5%), and the FFPO platform can remove market intermediaries (65%), motivating them to a greater extent. So, it can be said that the respondents perceived Fish Farmers Producer Organizations (FFPOs) as a great way to increase their income and improve their livelihoods. FFPOs facilitate the collective marketing of fish, allowing farmers to benefit from economies of scale, better access to markets, and better pricing.

Keywords: Collective mode, Farmers' perception, Fish Farmers Producer Organizations (FFPOs), Livelihood, Motivating factors

Highlights

- The FFPO is predominantly comprised of small-scale and marginal fish farmers facing financial constraints and expressing a strong desire for improved benefits.
- Small-scale fish farmers form groups like FFPO to reduce production costs, access credit at a lower interest rate, and sell their products at a fair price.
- Farmers can achieve these benefits through a collective approach via the FFPO platform.
- FFPO benefits farmers by providing bulk purchasing, training, lower interest rate loans, and proficient marketing.

INTRODUCTION

The fisheries sector in India plays a pivotal role in both its economy and food security, serving as a vital source of livelihood for millions (Rajeev and Bhandarkar, 2022). Recognizing the significance of this sector, the Indian government has been actively pursuing strategies to enhance production and productivity, particularly among small and marginal fish farmers. Central to this endeavour is the promotion of Fish Farmers Producer Organizations (FFPOs) as a distinct entity within the fisheries value chain. Under the Pradhan Mantri Matsya Sampada Yojana (PMMSY), launched in May 2020, the formation and support of FFPOs have emerged as a key strategy to empower fish farmers economically and double their incomes (Saha *et al.*, 2023). FFPOs, as legal entities representing associations or groups of fisheries stakeholders, are essential for fostering sustainable fisheries management

and ensuring the long-term viability of local fisheries (Pati, 2022). Understanding the perceptions of fish farmers towards FFPOs is crucial in evaluating their effectiveness and identifying areas for improvement. This assessment entails exploring farmers' demographic characteristics, their motivations for joining producer organizations, and their perceptions of FFPOs' services, and empowerment resources. Understanding farmers' perceptions of FFPOs is critical for shaping policies and interventions that support the sustainable growth of the fish farming sector. By identifying areas of strength and potential improvement within FFPOs, this research aims to contribute to the overall enhancement of aquaculture and fisheries development.

MATERIALS AND METHODS

This study was conducted in the Purba Medinipur district of West Bengal. A total of 14 Fish Farmers

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Producer Organizations (FFPO) were operating in the district (District Controller, Food & Supply, Purba Medinipur, 2022), of which four FFPOs were purposively selected for the study based on criteria such as having been in operation for more than 3 years successfully, having a sizeable membership (more than 400 members), having a turnover of more than Rs. 1 crore (FY 2021-2022), as indicated by their audit report, and having a good business model of produce as marketing done with better profit. The four FFPOs were namely Tamralipta Fish Producer Company Limited, Global Moyna Farmers Producer Company Limited, Divinius Farmers Producer Company Limited, and Patashpur-II Farmers Producer Company Limited. A sample of 120 respondents was chosen from these FFPOs using simple random sampling without replacement. A descriptive research design was employed, and primary data were collected through pre-tested semi-structured interview schedules and secondary sources like research reports. Analysis was conducted using statistical tools such as frequency, percentage, mean, and standard deviation. The demographic characteristics of the respondents, including age, education, farming area, and annual income, were assessed. Additionally, the study investigated the motivations behind fish farmers joining

FFPOs, which were determined through a set of statements ranked according to their significance, developed after a pilot study.

RESULTS

The present study aimed to investigate the motivating factors of fish farmers to join in the producer organization with respect to their socio-economic profile and different activities carried out by the FFPOs.

Demographic characteristics of the respondents: The age of the respondents in this study was analysed and divided into three groups: young, middle, and old age. The result revealed that the majority of respondents (68.33%) belonged to the middle-age group, followed by 19.17 per cent in the young-age group and 12.5 per cent in the old-age group (Table 1).

The formal education level of the respondents in this study was categorized into six groups, ranging from primary school to graduate and above. The data revealed that a significant number of respondents (31.66%) had a secondary level of education, followed by 25.83 per cent with a middle school level of education and 24.16 per cent with a higher secondary level of education. Additionally, 10.83 per cent of

Table 1. Demographic characteristics of the respondents (N = 120)

Variables	Category	Frequency (Nos.)	Percentage (%)	Mean	Standard deviation
Age (chronological year) Range = 25 years to 72 years	Young (Up to 30 years)	23	19.17	43.29	11.67
	Middle (30 to 60 years)	82	68.33		
	Old (Above 60)	15	12.5		
Education (class)	Up to Primary (Up to 4 th standard)	13	10.83	—	—
	Middle school (Up to 8 th standard)	31	25.83		
	Secondary level (Up to 10 th standard)	38	31.66		
	Higher Secondary level (Up to 12 th standard)	29	24.16		
	Graduate and above (College level and above)	9	7.5		
Farming area (Acre) Range = 0.1 acre to 22 acres	Marginal (Up to 2 acres)	41	34.16	4.05	3.36
	Small (2 to 5 acres)	53	44.17		
	Large (More than 5 acres)	26	21.67		
Annual income (Rs.) Range = Rs. 20 thousand to 15 lakhs	Low annual income (Rs. <1 lakh)	21	17.5	3.16	2.35
	Medium annual income (Rs. 1 lakh to 3 lakhs)	61	50.83		
	High annual income (Rs. >3 lakhs)	38	31.67		

respondents were educated up to the primary level, and only 7.5 per cent were graduated.

In the study, the fish culturable land holdings of the respondents were analysed in terms of the fish farming area they possessed. The farmers were classified into three categories based on their farming area holdings: marginal farmers (up to 2 acres), small farmers (2 to 5 acres), and large farmers (over 5 acres). In the study area, the majority of respondents were engaged in fish farming on up to 5 acres of land, with 34.16 per cent having a farming area of up to 2 acres, 44.17 per cent having 2 to 5 acres, and 21.67 per cent having more than 5 acres.

The annual income of the respondents was found to be in a range from a minimum of Rs. 20 thousand to a maximum of Rs. 15 lakhs. Respondents were classified into three categories: low, medium, and high-income group. The majority of respondents (50.83%) were in the medium annual income category (Rs. 1 lakh to 3 lakhs), 31.67 per cent were in the high annual income category (>3 lakhs), and 17.5 per cent were in the low-income category (<1 lakh).

Motivating factors to join in FFPOs: Motivation is a fundamental driver of human behaviour, especially in the context of work and productivity. In the realm of rural fish farming, persuading farmers to adopt a group-mode approach can be challenging due to entrenched

traditional methods and skepticism about collective ventures. However, showcasing successful instances of group collaboration, highlighting improved profitability, and demonstrating efficient marketing strategies through platforms like the Fish Farmers Producer Organization (FFPO) can serve as powerful motivators. By offering tangible examples of profitable outcomes and illustrating the benefits of collective action, such as reduced input costs and access to fair market channels, traditional fish farmers can be incentivized to participate in group endeavours. The FFPO, functioning as a conduit for enhanced benefits and opportunities, becomes a pivotal entity in motivating farmers to embrace new modes of operation. In analysing motivational factors, the data collected from the pilot study was examined using frequency and percentage analysis to identify key drivers influencing farmer participation (Table 2). This approach provides insights into the most effective strategies for fostering motivation and promoting collaborative practices within the rural fish farming community.

The most common reason for the popularity of the FFPO platform is the easy availability of inputs such as feed, seed, fertiliser, and medicine at lower costs through bulk purchases to minimise risk, which has been ranked as the number one reason and represents 94.17 per cent of the responses. This is followed by the ability of the FFPO platform to offer financial support

Table 2. Distribution of the respondents according to the motivating factors (N = 120)

Reasons	Percentage (%)	Rank
Easy availability of inputs (feed, seed, fertilizer, medicine) at lower cost through bulk purchase to minimize risk	94.17	I
Can get financial support from government and loans from banks at lower interest rate through the platform of FFPO	80	II
This is reliable and trustworthy platform for doing business	70.83	III
Collaborative farming enhances farmers' bargaining power, leading to better prices for aquacultural produce. Establishing storage and processing infrastructure further supports their economic prospects	68.33	IV
Can get training of various aspects for scientific fish culture	67.5	V
FFPO platform can remove market intermediaries	65	VI
Producer organization can offer a good marketing platform and reduce the production and marketing risk	62.5	VII
It can lower transportation costs through collective purchasing.	61.7	VIII
Members can get incentives, dividends, and other benefits from the organization	60.83	IX
By this FFPO platform, farmers can create the value of produce, differentiate their products in order to maximize the price of the raw produce	56.67	X
Can avail extension support, advisory support	55.83	XI
Handling common issues, political interference, and opportunities	51.67	XII
By adopting new technology, small-holder fish farmers can increase production and productivity	48.33	XIII

from the government and loans from banks at lower interest rates through the platform, which has been ranked as number two with 80 per cent of the responses.

The reliability and trustworthiness of the FFPO platform (70.83%) have been ranked as the third most common reason, followed by the hope of receiving better prices for their aquacultural produce (68.33%), which has been ranked as reason number four. The ability to get training on various aspects of scientific fish culture (67.5%) has been ranked as number five, followed by the FFPO platform's ability to remove market intermediaries (65%), which has been ranked as number six reason to join in FFPO of the farmers.

The Farmer Producer Organisation can offer a good marketing platform and reduce production and marketing risk (62.5%), which has been ranked as number seven, while the ability to lower transportation costs through collective purchasing (61.7%) has been ranked as number eight, followed by the members' ability to get incentives, dividends, and other benefits from the organisation (60.83%), which has been ranked

as number nine.

The FFPO platform can also help farmers create value from their produce, differentiate their products, and maximise the price of raw produce (56.67%), which has been ranked as number ten. Members can avail of extension support and advisory support through FFPO (55.83%), which has ranked eleven, followed by the ability to handle common issues, political interference, and opportunities (51.67%), which has been ranked number twelve. Lastly, by adopting new technology via FFPO, small-holder fish farmers can increase production and productivity (48.33%) has been ranked as number thirteen reason to join in FFPO of the farmers.

Different activities performed by FFPOs: Fish Farmers Producer Organizations (FFPOs) demonstrated engagement in a variety of activities tailored to their specific environments and efforts. A comprehensive study encompassing four FFPOs shed light on their diverse range of activities, as outlined in Table 3 below.

Table 3. Different activities carried out by FFPO (N = 4 FFPOs) (Yes - 1, No - 0)

Different activities	Tamralipta FPC	Global Moyna FPC	Divinius FPC	Patashpur-II FPC
Only freshwater fish farming (IMC, exotic carp, catfish, and other freshwater species)	1	1	1	0
Shrimp culture and other brackish water fish farming	0	0	0	1
Fish breeding unit and hatchery operation	0	1	0	1
Fish seed supply	1	1	1	1
Commercial fish feed supply	1	1	0	0
Fish feed raw materials supply by bulk purchase (fish meal, mustard oil cake, DORB)	1	1	1	0
Fish medicine supply	1	1	1	1
Other custom hiring input supply of fish farming	0	0	0	0
Fish feed production within the FFPO itself	1	1	0	0
Value addition of produce or creating of value of the produce and processing	0	0	0	0
Post-harvest activities	0	0	0	0
Collection of produce and sell it to market or marketing of produce	1	1	1	1
Training and extension related activities	1	1	1	1
Fish transport to other districts and states	0	1	0	1
Members welfare related activities (providing credit, incentives, loan, insurance)	1	1	1	1
Other income generating activities:a) Agricultural activities	0	0	1	1
b) Animal Husbandry	0	0	1	0
c) Poultry farming	0	0	1	0
d) Plant nursery	0	1	0	0
e) Own outlet for selling different products (fertilizer, pesticide, lime, seeds, feed, mustard oil cake, etc.)	1	0	0	1

FFPOs engaged in various activities were assessed with yes and no responses for their involvement until FY 2022–23.

Each activity was assessed with a binary response: yes (1) indicating involvement by the FFPO, and no (0) indicating non-involvement. Tamralipta, Global Moyna, and Divinius Farmer Producer Companies (FPCs) were solely engaged in freshwater fish farming, whereas Patashpur-II FPC focused on shrimp culture and other brackish water fish farming. Both Tamralipta and Patashpur-II FPCs operated fish breeding units and hatcheries. All four FPCs supplied fish seeds and fish medicine. Tamralipta and Global Moyna FPCs also provided commercial fish feed and produced fish feed within their facilities, while Tamralipta, Global Moyna, and Divinius FPCs participated in the bulk purchase of fish feed raw materials. However, none of the FPCs engaged in customs hiring, input supply, value addition or processing of produce, or post-harvest activities. Despite this, all four FPCs were active in the collection and marketing of produce, as well as training and extension-related activities. Global Moyna and Patashpur-II FPCs transported fish to other districts and states. Each FPC also engaged in members' welfare-related activities. In terms of other income-generating activities, Divinius and Patashpur-II FPCs were involved in agricultural activities. Additionally, Divinius FPC engaged in animal husbandry and poultry farming, while Global Moyna FPC operated a plant nursery. Lastly, Tamralipta and Patashpur-II FPCs had their own outlets for selling various products.

DISCUSSION

With regard to the demographic characteristics of the respondents, it was found that most fish farmers (68.33%) in the study area were in the middle age group. The young farmers participation in fish farming was limited in that area, as they intended to complete their formal education first. After completion of formal education, it is expected that young people will be more interested in this venture.

It was evident that in the study area, all fish farmers had formal education, with the majority having secondary education, followed by higher secondary education. Additionally, it was also found that people with higher education were starting a fish farming business using the FFPO platform.

It is clear from the study that, apart from large farmers (farming areas greater than 5 acres), small and marginal fish farmers were dominant in the organisation. As most of the farmers were doing fish farming in leased areas, they were unable to increase their landholding, and if anyone was able to increase their landholding, it was done slowly due to the high cost of the lease.

Most respondents in the study area had an annual income ranging from the medium income category (Rs. 1 lakh to 3 lakhs) to the high-income category (Rs. >3 lakhs). It was also seen that some respondents had huge farming areas, like more than twenty acres of leased land, as obviously they got profits of more than Rs. 10 lakhs. It was also reported by the member respondents that if a natural calamity or disease occurs, then businesses generally face several losses, though they still need to pay a lease amount to the owner of the land and labour costs and other costs.

It is clear from the Table 2 that most of the respondents (94.17%) replied that by joining the FFPO, they would get inputs supply (feed, seed, fertilizer, and medicine) at a lower cost through bulk purchase to minimise risk, and 80 per cent of the respondents replied they got financial support from the government and loans from banks at a lower interest rate through the platform of the FFPO. Farmers generally face several problems when they deal with their business individually because they are marginal and small farmers. Individually, they cannot solve their problems. As a result, some farmers formed groups first, and then others also joined in the group. The government provides a generic name for FFPO, which small-holder fish farmers can form to alleviate their problems and promote sustainable development. They have indicated various reasons for joining the FFPO. Similar result of getting input at lower cost was the most important factor, which was also found by Njera *et al.* (2012), Khandave *et al.* (2019) and Rao *et al.* (2022). In the study, it was found that 68.33 per cent of respondents agreed with the statement, that is fish farmers joined the FFPO in the hopes of receiving a better price for their aquaculture produce, which gets the fourth rank, but Singh *et al.* (2022) concluded that this is the main motivation for joining the Producer Organization, which is not in line with my study because there were huge price fluctuations and fish is highly perishable produce. Members can get incentives and handle common issues and political interference, were the last ranking statements of motivating factors, and it is contrary to the findings of Karadzic *et al.* (2014). Recently, huge advancements have been made in every aspect of fish farming techniques, huge government investment has been made, and from PMSSY it was objectified that to double the income of fish farmers, not all fish farmers can avail of those techniques and processes, so it is clear from the study result that fish farmers really seek a better platform to gain more profit as, because most fish farmers are marginal, FFPO emerged as the vehicle to leverage the economy of

fish farmers.

From Table 3, it is clear that the selected four FFPOs were engaged mainly in fisheries activities, that is, freshwater fish farming (IMC, exotic carp, catfish, and other freshwater species), collection of produce and selling it to the market or marketing of produce, training and extension-related activities, and similar observations were made by Govil *et al.* (2020). Fish medicine supply, feed supply, fish seed supply, credit, and loan provision to members were all performed by all selected FFPOs, and this result is in consonance with Abokyi (2013), Latynskiy and Berger (2016), Adhikari (2020) and Krishnan *et al.* (2021). In those FFPOs, the value addition of the produce or the creation of value from the produce and processing had the lowest response activity because this has not been fully started till now, and this result is dissimilar from the result of Govil *et al.* (2019). The study area revealed substantial opportunities for integrated aquaculture farming, along with a significant demand for fish products. These factors contribute to the conducive environment for fisheries businesses to thrive. Moreover, with favourable political and governmental interventions, there is a promising outlook for substantial income generation among fish farmers. Such interventions can play a pivotal role in facilitating the sustainable engagement of FFPO members in fish farming, ensuring they derive significant economic benefits while adhering to sustainable practices.

In the Purba Medinipur district, fish farmers are spearheading advancements in fish farming, leveraging the region's abundant water resources and the extensive scope of a fishery-based economy. Members of Fish Farmers Producer Organizations (FFPOs) are typically forward-thinking individuals, aiming for enhanced profitability beyond traditional methods. They see the FFPO platform as a means to potentially double their income if utilized effectively. However,

it's important to note that not all fish farmers in the area are FFPO members; some prefer to conduct their own businesses, while others may lag behind in adopting collective strategies. The allure of FFPO membership lies in its ability to provide inputs at lower prices through direct procurement from companies. Additionally, members can avail themselves of various government supports, including financial assistance, advisory services, and training, enabling them to adopt improved farming practices. Despite the relative novelty of the FFPO concept, there remains significant potential to enhance its sustainability. Positive interventions from members, officials, government support, and policymakers are essential in bridging existing gaps and fostering the growth of FFPO businesses. Evidently, fish farmers who are members of FFPOs believe in the transformative potential of these organizations. They view FFPOs as platforms that provide access to broader networks, enable advocacy for their rights, and facilitate collaboration towards a brighter future for their communities through better business management.

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Author's contributions: AHM: Carried out the data collection and analysis; SSD: Participated in the design of the study; SS: Helped to draft the manuscript; MRS: Contributed in collection of references.

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REFERENCES

- Abokyi MG, 2013. Exploring the Farmer Based Organisation (FBO) extension approach. A case study of an NGO in Northern Ghana. MSc Research Project. Van Hall Larenstein University of Applied Sciences, Wageningen, Netherlands. Available In: <https://edepot.wur.nl/279023> (Accessed on 18.05.2023)
- Adhikari BB, 2020. Community based seed production through IRR/IAAS projects in western mid hills of Nepal: A review. *J Agric Nat Resour*, 3(1): 320-332, doi: 10.3126/janr.v3i1.27184
- District Controller, Food and Supply, Purba Medinipur, 2022. West Bengal, Memo No.1310(4)/DCM/Purba/2022
- Govil R, Neti A and Rao MR, 2020. Farmer producer companies: Past, present and future. Available In: https://www.researchgate.net/publication/340621777_Farmer_Producer_Companies_Past_Present_and_Future_-_Full_Report
- Karadzic V, Grin J, Antunes P and Banovic M, 2014. Social learning in fish producers' organizations: how fishers perceive their membership experience and what they learn from it. *Mar Policy*, 44: 427-437, doi: 10.1016/j.marpol.2013.10.007
- Khandave S, Shaik MSR and Dedun VS, 2019. Backward and forward linkages developed by farmer producer organisations in Western Maharashtra. *J Krishi Vigyan*, 7(2): 28-31

- Krishnan R, Yen P, Agarwal R, Arshinder K and Bajada C, 2021. Collaborative innovation and sustainability in the food supply chain, evidence from farmer producer organisations. *Resour Conserv Recycl*, 168: 105253, doi: 10.1016/j.resconrec.2020.105253
- Latynskiy E and Berger T, 2016. Networks of rural producer organizations in Uganda: what can be done to make them work better? *World Dev*, 78: 572-586, doi: 10.1016/j.worlddev.2015.10.014
- Njera D, Chonde C, Kambewa D, Dzanja J and Kayambazinthu D, 2012. Analysis of critical factors influencing performance of fish farmer organisations in Dowa and Mchinji district in central Malawi. University of Malawi, pp 1-6
- Pati TK, 2022. Fish Farmer Producer Organizations (FFPO) and its role in increasing productivity. In: eBook- Minimal Water Exchange Technologies to Develop Aquaculture Entrepreneurship. Chapter 8, pp 55-61
- Rajeev M and Bhandarkar S, 2022. Fisheries Sector in India- An overview. *Springer Briefs in Economics*, in: *Unravelling Supply Chain Networks of Fisheries in India*, Chapter 4, Springer, pp 47-59, doi: 10.1007/978-981-16-7603-1_4
- Rao AND, Lakshmi SBR and Darekar A, 2022. Management of Farmer Producer Companies (FPCs) - issues and challenges. *J Agric Ext Manage*, 23(1): 83-101
- Saha GS, De HK, Sahoo B, Mohanty SK and Rath DP, 2023. Fish farmer producers organisations- its genesis and growth. *Aqua Int*: 50-56
- Singh M, Tiwari D and Rana RK, 2022. Role of organizational structure and behaviour for ensuring sustainability of farmer producer organisations in Punjab. *J Krishi Vigyan*, 10(2): 283-289, doi: 10.5958/2349-4433.2022.00050.2