



PROBLEMS AND PROSPECTS OF FISH FARMERS WITH SPECIAL REFERENCE TO RANGIA AGRICULTURAL SUB-DIVISION, KAMRUP DISTRICT OF ASSAM

Dr. Ramen Ch Nath

Assistant Professor

Department of Political Science

M.S. Girls' College, Rangia

Abstract

Fish farming has emerged as an important source of livelihood, income and nutritional security for rural households in Assam. This study examines the problems and prospects of fish farmers in the Rangia Agricultural Sub-Division of Kamrup district, Assam. The study is based on primary data collected from 125 fish farmers selected through a multi-stage random sampling method from five ADO circles. Quantitative data were supplemented by observation, focus group discussions and relevant secondary sources. The findings reveal that fish farming plays a significant role in employment generation and household income. However, farmers continue to face serious challenges, particularly inadequate credit facilities, lack of storage infrastructure, high feed costs, flood damage, shortage of quality fish seed, limited technical knowledge and marketing problems. Despite these difficulties, the future of fish farming remains promising, with 64.8% of respondents expressing a positive outlook. The continued dependence of the region on imported fish also indicates considerable scope for increasing local production. The study therefore emphasizes the need for improved institutional credit, scientific training, better extension services, local hatchery development, storage facilities, aquaculture insurance and stronger market linkages to make fish farming more sustainable and profitable for rural communities.

Keywords

Fish Farming, Fish Farmers, Aquaculture, Rural Livelihood, Fisheries Development, Rangia Agricultural Sub-Division

1.Introduction

Fish farming, also called Pisciculture is one of the principal allied sectors of Agriculture. In India 54.6 % of the total workforce is engaged in agriculture and allied sector activities, the agriculture and allied sectors contributed approximately 17.7 % of India's Gross Value Added, (GVA) at current prices during 2023- 24.

(Source: Annual Report 2024-25, Ministry of Agriculture and Farmers welfare, GOI, N. Delhi). As a Agri-allied sector India's fisheries sector supports 28 million people directly and indirectly. The fisheries sector contributes 1.1% to India's GDP and 7.3% to the agricultural GDP. (https://www.galaxyclasses.co.in/details?res_type=ca&res_id=7891) Fisheries constitute an important component of the agricultural economy of Assam. In Assam more than 90% of the state population is fish consumers, having per capita consumption of 15.22 Kg/yr. (source: Economic survey assam 2025-26). The department of Fisheries, Assam, has been implementing various developmental programmes to increase fish production, improve farmers' income, and achieve self-sufficiency in fish production. The area of Rangia Agricultural Sub-Division, Kamrup district of Assam has possessed favourable resources for fish farming, including numerous ponds, wetlands and water bodies. It is however, still people of this area have to depend on imported fish to meet up their demand and it is imported from Andhra Pradesh, west Bengal and even from Brama Desh (Myanmar). It indicates that local farmers are yet to fulfil the demands of the consumers. Nevertheless, Fish farming has become an increasingly important economic activity among rural households in Rangia. It provides employment opportunities, supplements household income, and contributes to nutritional security.

2.Objectives of the study:

The objectives of the study are as follows-

1. To examine the socio-economic importance of fish farming.
2. To identify the major problems faced by fish farmers.
3. To analyse the prospects and opportunities for fisheries development in the region.
4. To suggest measures for improving the condition of fish farmers.

3. Research Questions:

- 1.What role does fish farming play in the livelihood and income generation of rural household and income generation of rural households in Rangia?
2. To what extent do fish farmers have access to institutional credit and financial assistance?
3. How effective are the fisheries extension services and training programmes in improving fish farming practices?
4. What policy interventions are required to address the problems and enhance the prospects of fish farming in Rangia?

4. Terminology Defined:

Fish and Fish Farmer: Fish are cold blooded vertebrates that breathe by means of gills and live in water. Besides being used as food, fish liver is an important source of oil containing vitamin A and D. Body oil from fish is extensively used in soap industry and tanning. (Khanna & Kapoor, 2019. pp 1-2)

Fish farmer is one who is engaged in fish farming (culture) activities- from rearing of fishes to marketing of fishes through human efforts.

5.Methodology:

The researcher has used both the Quantitative and Qualitative methods to obtain and analyse primary data along with data collected from the public domain to get an understanding about the Problems and Prospects of Fish Farmers with special reference Rangia Agricultural Sub-Division, Kamrup district of Assam.

Quantitative Method; As a means of Quantitative method extensive field surveys were carried out by using sampling method.

Selection of sample farmers: Multi-stage random sampling technique was used to select the sample farmers.

1. First stage: (District selection)- Kamrup District was selected.
2. Second stage:(Sub- Division selection)-Out of three existing Agricultural Sub-Divisions in Kamrup District, Rangia Agricultural Sub-Division was selected.
3. Third Stage:(ADO Circle selection) -There are seven Agricultural Development Officer Circle under Rangia Agri Sub-Division. Out of these seven five ADO Circles namely- Rangia, Nakul, Kamalpur, Balisatra and Loch were selected. From each ADO Circle 25 Fish Farmers were randomly selected. Accordingly, 125 fish farmers were found as sample size. Equal size of sample was selected from ADO Circles to get the more accuracy of data. Table 5.1 summarizes the distribution of selected fish farmers across the sampled ADO Circles.

Table 5.1Selected Fish Farmers

District	Agricultural Sub-Division	ADO Circle	Fish Farmers	Total Fish-Farmers
Kamrup	Rangia	Nakul	25	125
		Rangia	25	
		Kamalpur	25	
		Balisatra	25	
		Loch	25	

Collection of Data: The data were collected for a period of four months from April 2026 to July 2026. Data were collected with the help of structured interview schedules. During the time of taking interview from the respondents' researcher had to pacify the nature and purpose of the study.

Processing and Analysis of Data: The collected data were scrutinized and summarized with due care before tabulation. After data entry, the data were analysed with computer programs, Microsoft Excel.

Qualitative Method: Some aspects of research problems are there which cannot be obtained by the use of quantitative methods; therefore, researcher have to use qualitative methods to study the problem. In this context researcher has used the Observation and Focus Group Discussion.

Secondary Data: Secondary data often referred to as public domain data. In this context researcher has used Government reports, Economic Survey, Statistical hand books, published books, theses, published research papers' etc. which has provided a strong foundation for investigation.

6. Data Analysis:

The data collected through surveys from the sample farmers and these are analysed in relation to the specific objectives of the present study.

6.1 Social background of the respondents: The social background of the respondents was analysed taking accounts of the various factors like- age, gender, educational qualification, social categories, religion, language, type and size of the family of the respondents etc. The findings are placed in the following tabular form-

Table-6.1: Social background of the respondents

SL No	Name of Indicator	No of Respondents	Total
I. Age group of the respondent			
1	0-20	Nil	125
2	21-50	64 (51.2%)	
3	51-60	36 (28.8%)	
4	61 to above	25 (20%)	
II. Gender of the respondent			
1	Male	93 (74.4%)	125
2	Female	32 (25.6%)	
III. Educational status of the fish farmers			
1	Illiterate	27 (21.6%)	125
2	Primary (Up to class VIII)	58 (46.6%)	
3	Secondary (9-12)	27 (21.6%)	
4	Graduate	13 (10.4%)	

5	Post Graduate and above	Nil	
IV. Social Category			
1	General	35 (28%)	125
2	OBC/MOBC	53 (42.4%)	
3	SC	18 (14.4%)	
4	ST	19 (15.2%)	
IV. Religion of the respondent			
1	Hindu	57 (45.6%)	125
2	Islam	68 (54.4%)	
3	Christian	Nil	
4	Others	Nil	
V. Language spoken			
1	Assamese	51 (40.8%)	125
2	Bengali	20 (16%)	
3	Bodo	19 (15.2%)	
4	Colloquial language	35 (28%)	
VI Size of the family			
1	Up to 4 members	61 (48.8%)	125
2	5-7 members	33 (26.4%)	
3	8- 10 members	21 (16.8%)	
4	Above 10 members	10 (8%)	

As shown in the above table majority (51.2%) of the farmers fall within the 21-50 age bracket, followed by 28.8% between the age group 51- 60 and 20% between the age group 61 and above. This suggests that most of the farmers are young and physically capable of performing the task of fish farming. Meanwhile, the older age group (20%) are having valuable experience, guide and support the younger ones. Out of 125 farmers 74.4% are male and 25.6% are female fish farmers. It reveals the fact that in our study area male is the dominated workforce where women playing a relatively minor role.

Different strata of the educational attainment of the respondents are found. Data reveal the fact that 21.6% farmers are illiterate, 46.6% have completed primary education, 21.6% have received secondary education and only 10.4% have pursued graduation, no one is found education beyond that. So far as the social category of the respondents are concern 28% fish farmers are belong to general category, followed by 42.4% OBC/MOBC category, 14.4% Sc and 15.2% ST Category. In regard to religion 45.6% fish farmers are found belong to Hinduism, followed by 54.4% Islam.

Most of the respondents i.e. 40.8% use Assamese as their primary language, followed by 16% Bengali, 15.2% Bodo and 28% has used colloquial languages. Fish farming is a joint venture, it required man power, it cannot be run alone. It is however, today most of the family is found nuclear family where size of the family is too small. It is found in survey that 48.8% family having 0-4 members, followed by 26.4% in between 5-7 members, 16.8% in between 8-10 members and only 8% having more than 10 members. Due to the smaller size of their family, they have to depend on hired labour for application of inputs, netting, cleaning of pond etc.

6.2 Fish farming Profile:

6.2.1 Years of engagement in fish farming:

Experience makes man perfect. Years of engagement in fish farming teach the farmers how to enhance the quality production of fish, develop infrastructure, marketing etc. Accordingly, it is found that 19 Nos of farmers have engaged less than 5 years, 63 Nos of respondents have 5-15 years of experience and 43 Nos of them have more than 15 years of experience.

6.2.2 Type of fish farming:

Different type of fish farming is undertaken by the respondents. They have practised composite fish culture, monoculture, integrated fish farming etc. Farmers responses are put as under-

Table- 6.2 (Type of fish farming)

SL NO	Name of indicator	No of respondents
1	Monoculture	15
2	Composite fish culture	69
3	Integrated fish farming	59

6.2.3 Ownership of pond and total water area under fish farming:

Ownership of a pond is important because it ensures direct control over a vital water resource. From the survey report it is found that 81 Nos of fish farmers have their own land/pond whereas 44 Nos of farmers have

performed fish farming in Lease basis. In a query what are the water area for fish farming, responses of the fish farmer were as under-

Table- 6.3 (Total water area)

SL NO	Name of indicator	No of respondents	Total
1	Less than 1 acre	67 (53.6%)	125
2	1 to 5 acres	25 (20%)	
3	Above 5 acres	33 (26.4%)	

Here one acre stands for 3.025 bigha (Assam).

6.2.4 Source of fish seed:

Farmers were asked where from they have to collect fish seed. Their responses were are placed in the following tabular form-

Table- 6.4 (Source of fish seed)

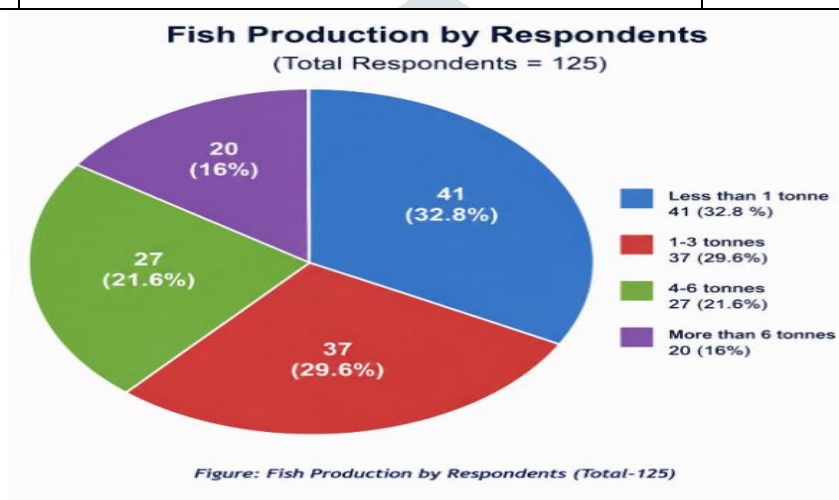
SL NO	Name of indicator	No of respondents
1	Own hatchery	Nil
2	Govt hatchery	15
3	Private hatchery	27
4	Rangia fish seed market	95

6.2.5 Average annual fish production:

Quantity and quality fish production is an important aspect of fish farming. From survey different strata of farmers in terms of fish production are found and it is indicated in the following table-

Figure- 6.1 (Annual fish production)

SL NO	Name of indicator	No of respondents
1	Employment Generation	125
2	Income generation	125
3	Nutritional security	57
4	Rural development	61
5	Cultural importance	31



In fact, growth and production of fish depend on different factors. It is however from focus group discussion it is reveal the fact that a farmer in a year can produce one tonne fish in a pond covering an area of one bigha, if the size of the fish seed (per piece) having 250 gram and regular feed provided. Depending on the size of the pond fish seed should be supplied and it should not be overdose.

6.3 Importance of fish farming and financial aspects:

6.3.1 Importance of fish farming:

Regarding the importance of fish farming different opinion were put forwarded by the respondents. Their opinions are recorded as under-

As shown in the below table all the farmers are of the view that fish farming creates direct and indirect employment opportunities for fish farmers, labourers, seed suppliers, traders, transporters etc. All of them opined that aquaculture provides a regular source of income for rural households. 57 Nos of respondents are of the view that fish serves as a major source of animal protein for the human and contributes significantly to food security. 61 Nos of respondents have pointed out that the development of fisheries encourages investment in rural infrastructure, marketing networks etc., leading to rural development. In addition to these 31

Table -6.5 (Importance of fish farming)

Nos of respondents argued that Fish and its culture is associated with Assamese culture. Community fishing during the time of Bhogali Bihu Uruka (harvesting festival in mid-January) is held every year, a symbol of unity and integrity among different communities, though it is slowly dying out. Fish, especially catfish is sacrificed at Hindu temples. In many tribal societies in Assam in general and Rangia at particular, dried fish is used during ancestor worship as also in post-funeral rites. In Hindu marriage system, the gift of a large fish to the bride's household is a must.

6.3.2 Source of finance:

Table- 6.6 (Source of finance)

Finance is regarded as the fuel of an engine. Regarding the source of finance, primary data collected from the respondents are presented in the aboveS table-

SL NO	Name of indicator	No of respondents
1	Own savings	45
2	Money lender	12
3	Bank loan	23
4	Cooperative Society	Nil
5	Micro Finance	33
6	Gaonlia Sansoy	41
	Total-	154

Here though total sample farmers were 125, the respondents varied to 154 because the same farmers have used multiple sources of finance. Accordingly, we have found 45 Nos of fish farmers have used their savings to run their fish farming. 12 Nos of them has borrowed money from money lender. 23 Nos of them has run their fish farm by taking the loan from Bank. No cooperative society was found in the survey area. 33 Nos of farmers have taken the help from micro finance. However, the *Gaonlia Sansoy*- a community-based fund supported by people's contributions- has recently emerged as a key source of credit for farmers. Accordingly, 41 Nos of fish farmers have benefited from this system.

6.3.3 Financial Assistance from departmental agencies:

Farmers were asked whether they have got any financial assistance while carry out their farming. A tiny section of respondents has replied positively. Their responses were- 11 Nos of them have able to received financial assistance from NABARD with Government subsidy. 5Nos of the have got financial support from Fish

Farmers Development Agency (FFDA) and recently 2024-25 7 respondents are able to receive financial assistance under Pradhan Mantri Matsya Sampada Yojana (PMMSY).

6.3.4 Institutional credit and satisfaction on bank services:

Farmers were asked whether they have easily accessed the benefit of institutional credit. Most of the farmers have answered negatively. Then the researcher tries to know about their feelings about bank services. Their satisfaction in this regard was as stated in the following table-

Table- 6.7 (Satisfaction on bank services)

Data reveal the fact that only 11.2% farmers are satisfied with the bank services and the behaviour of bank personnel. 16.8% of the farmers are neutral in this regard. Apart from that 50.4% were found strongly dissatisfied, followed by 21.6% dissatisfied. They are not satisfied with bank services because of the fact that-

❖ They have faced difficulty in handling the bank documents,

SL NO	Name of indicator	No of respondents	Total
1	Strongly dissatisfied	63 (50.4%)	125
2	Dissatisfied	27 (21.6%)	
3	Neutral	21 (16.8%)	
4	Satisfied	14 (11.2%)	
5	Strongly satisfied	Nil	

- ❖ The rigid nature of Bank terms and conditions and due to
- ❖ Short repayment period etc.

6.3.5 Sell the fish:

SL NO	Name of indicator	No of respondents
1	Wholesaler	22
2	Retailer	87
3	Consumer	22
4	Money lender/ Middle men	21
	Total-	152

Farmers were asked about to whom do they sell the fish. Their responses were-

Table-6.8 (Sell of Fish)

As indicated in the above table only 22 of the farmers sell their produce to the wholesaler. Most of the covering 87 Nos has sold their fishes to the retailers, while 22 Nos of them sold it directly to the consumers. Interestingly some of them numbering 21 Nos have to sold it to the moneylenders or middle men. As part of this informal credit arrangement, farmers often agree to sell the entire harvest of mature fish to the moneylender. The moneylender purchases the fish at a predetermined price, which is generally lower than the prevailing market price, as compensation for the loan and the interest charged.

6.3.6 Annual income from fish farming:

Fish farming is a profitable business. Farmer can earn more income though fish farming and run their family. Survey data reveal the following fact and it is placed in the following table-

Table- 6.9 (Annual income)

SL NO	Name of indicator	No of respondents	Total
1	Below 50,000/-	43 (34.4 %)	125
2	50,000-1,00,000	35 (28%)	
3	1,00,000-2,00,000	29 (23.2%)	
4	Above 2,00,000	18 14.4%)	

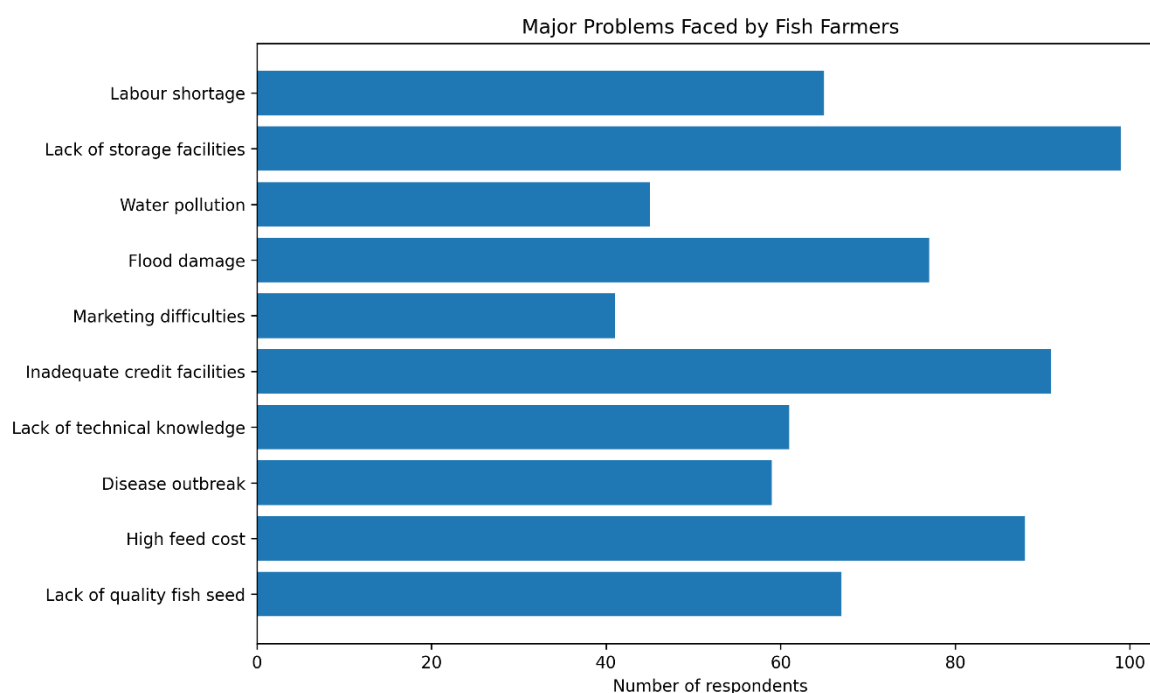
From above data it is clear that by fish farming a farmer can earn more than 2 lakh per annum. However, it required a stable market.

6.4 Problem faced by Fish farmers:

6.4.1 Major problem in fish farming:

Fish farmers have faced different types of problem in their profession. In this regard farmers were allowed to give multiple responses. Accordingly following responses were found and it is placed in the following bar diagram -

Figure- 6.2 (Major problem)



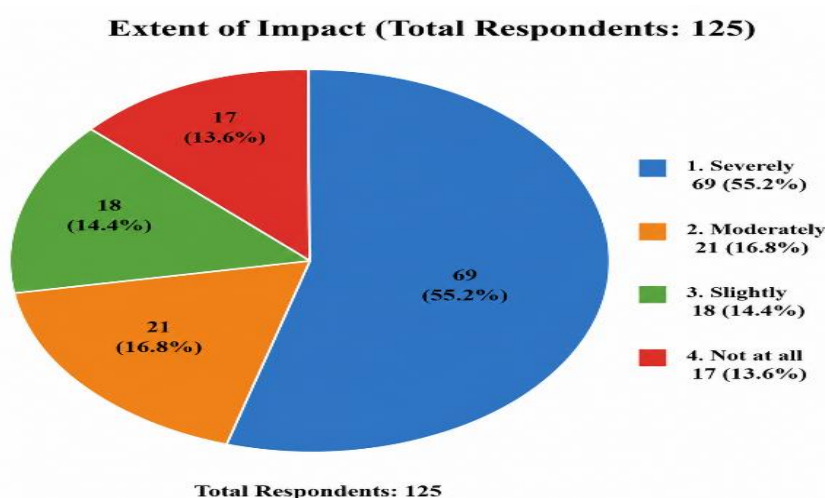
Quality fish seed is the foundation of successful fish farming. It is however, most of the farmers numbering 67 Nos have to suffer from obtaining quality fish seed, resulting low production and income. The importance of the quality fish feed lies in the fact that it caused growth and health of the fishes and make the aquaculture economically successful. It is however in our survey area 88 Nos of fish farmers have to face the problems of high feed cost that hampers the development of their fish farming. 59 Nos of farmers are of the view that some unknown disease has caused havoc in their fisheries. Specially during winter season, they have noticed ulcers in the body of fish, results fish mortality. Technical knowledge for fish farming is the need of the hour because they maximise productivity and profitability, ensure food security and reduce environmental risks. Unfortunately, 61 Nos of farmers are depriving from obtaining technical knowledge. Credit is essential for developing a fish farming, however from primary sources it is come to the light that 91 Nos of the farmers are suffering from inadequate credit facilities. 41 Nos of respondents are of the view that they have faced market challenge. 77 Nos of respondents have pointed out that their fish farming including other pursuits are largely affected by flood, since our study area are surrounded by river like Puthimari, Nona, Baralia. Kalajal etc. With the expansion of urbanization and industrialization, use of pesticides and herbicides etc. water got polluted, resulting the damage of breeding capacity of fishes and affects its respiratory function. Such situation is largely seen in Kamalpur and Rangia ADO circle where industrialization is going on in faster pace. Accordingly, we

have seen that 45 Nos of respondents put their view in support of this phenomenon. Fish are more perishable and their deterioration starts soon after landing. To avoid their spoilage due to death and bacterial action, their preservation is necessary. From primary sources we have come to know that 99 Nos of respondents have faced the problem of the absence of suitable storage facilities. Apart from that according to 65 Nos of respondent's farmers have faced with the problem of labour shortage.

6.4.2 Flood effect on fish farming:

Farmers were asked how far flood caused damaged to their fish farming. Their views were recorded in the following pie diagram-

Figure -6.3 (Flood effect on fish farming)



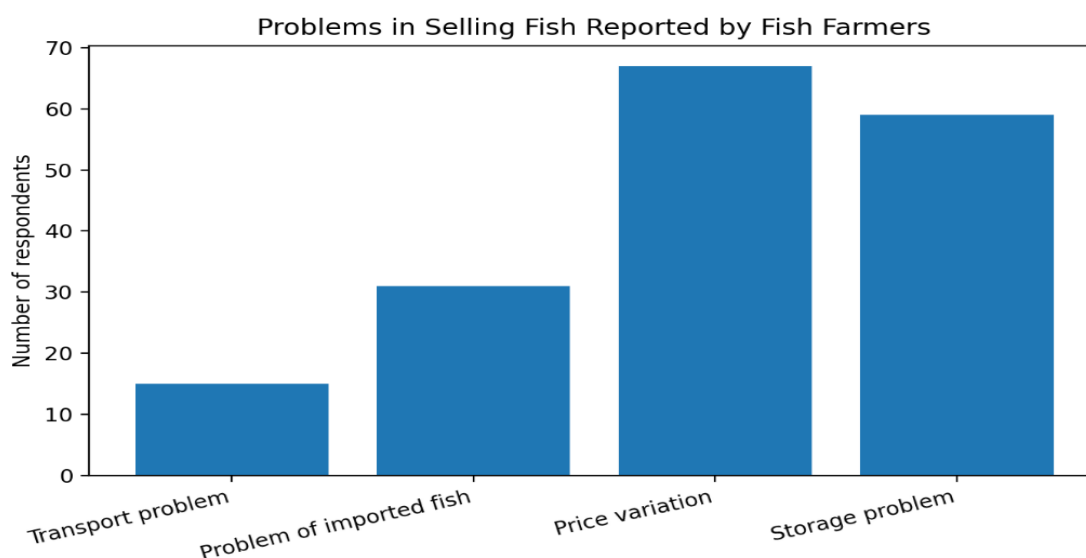
As shown in the above diagram 55.2% of the respondents viewed that flood caused severe loss to their fish farming, followed by 16.8% moderately, 14.4% slightly and 13.6% not affected. Actually, it depends on the amount of rain dropped in the said period. But in case of the study area, it is seen since the area is surrounded by different rivers and often river dyke collapsed it caused lots of damage to the whole community in general and farmer community in particular.

6.4.3 Difficulties in selling fish:

Farmers were interrogated whether they have faced problems in selling fish. Most of them replied positively. The problems and number of respondents were recorded as 15 Nos of them faced the problem of transportation. 31Nos of farmers are of the view that they have to face the problem of market competition from other states i.e. imported fish. Farmers numbering 67 have to face the problem of price variation, followed by storage problem by 59 farmers. It is shown in the following histogram.

Figure- 6.4 Difficulties in selling fish

SL NO	Name of indicator	No of respondents	Total
1	Frequently	13 (10.4%)	125
2	Occasionally	61 (48.8%)	
3	Rarely	27 (21.6%)	
4	Never	24 (19.2%)	



6.5 Government support and extension services

6.5.1 Awareness on government scheme:

Farmers were asked about whether they are aware about different Government scheme on fishery development. 97 Nos of farmers have replied positively, however they have lamented about yet to rip the fruits of Government scheme. Another 28 Nos of farmers are not aware on the same.

6.5.2 Fishery officials visit:

In a query about the nature of fishery officials visit to farmers, farmers responses were as stated in the following tabular form-

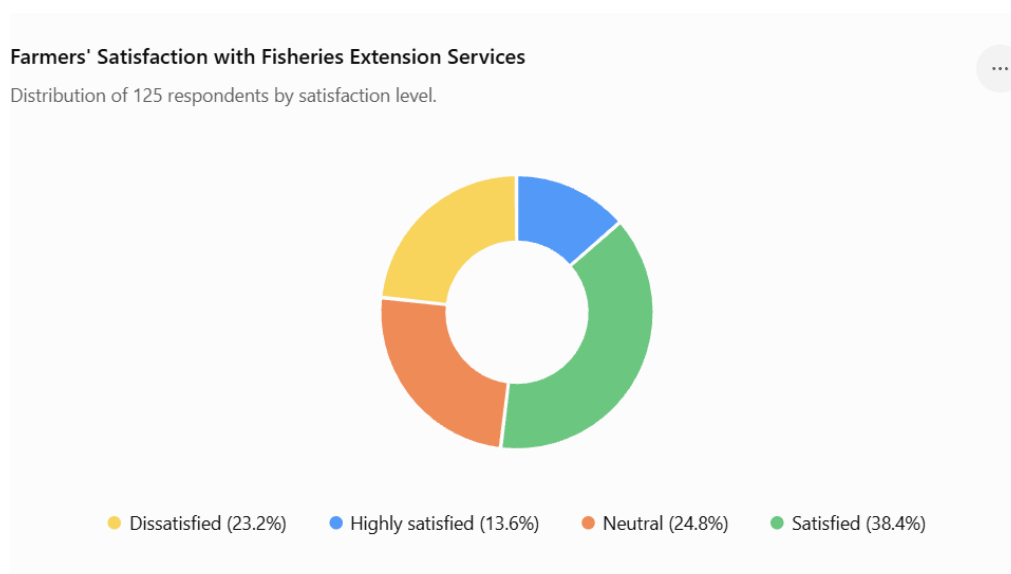
Table- 6.10 (Fishery officials visit)

The table indicates that except 10.4% of farmers, most of the others opined about the poor performance of the fishery officials.

6.5.3 Satisfaction on fisheries extension services:

Fishery extension services are essential for boosting productivity, and ensuring sustainable livelihoods. Therefore, the researcher has tried to gather information from the farmers about their satisfaction about fisheries extension services. Their responses are indicated in the following pie diagram-

Figure-6.5. Satisfaction on fisheries extension services

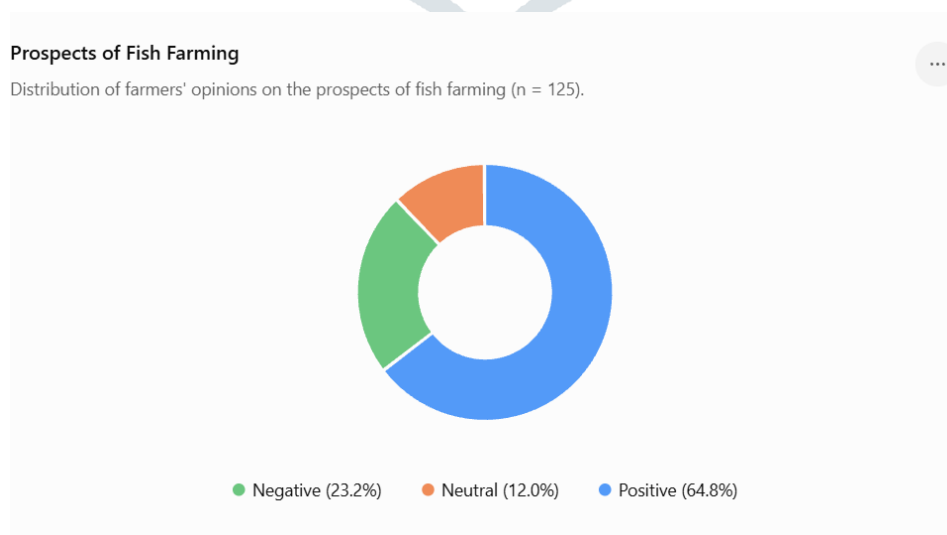


The pie chart shows that the largest proportion of farmers (38.4%, 48 respondents) were satisfied with the fisheries extension services. About 24.8% (31 respondents) expressed a neutral opinion, while 23.2% (29 respondents) were dissatisfied. Only 13.6% (17 respondents) reported being highly satisfied, indicating that although a considerable number of farmers were satisfied, there remains substantial scope for improving the quality and effectiveness of fisheries extension services.

6.6 Prospects of fish Farming

Farmers were asked whether they perceived any prospects for the development of fish farming in the study area.

Figure- 6.6 (prospects of fish farming)



The pie chart shows that a majority of the respondents (81 farmers; 64.8%) expressed a positive opinion regarding the prospects of fish farming, indicating strong confidence in its future development. A smaller proportion (29 farmers; 23.2%) held a negative opinion, while 15 farmers (12.0%) remained neutral. These findings suggest that most fish farmers perceive fish farming as a promising livelihood and believe there is considerable scope for its expansion in the study area.

7. Policy implications:

1. Government should take every possible step to make aquaculture a profitable enterprise and attract farmers to continue farming activities.
2. The current challenges of global warming and climate change bring a plethora of problems in fish farming. Therefore, it is crucial to invest in research and development to produce new fish seed varieties that are short-duration and heat-resistant.
3. Integrated fish farming should be encouraged. Where fish culture is combined with life-stock, agriculture and horticulture on dikes etc.
4. fishery extension services should be strengthened. These services are the only ground -level mechanisms capable of delivering both information and knowledge support to farmers.
5. Efforts must also be intensified to reduce the information gap between farmers and buyers, thereby limiting the influence of middlemen and ensuring that farmers receive fair prices for their produce.
6. Banking service should be strengthened and easily reached to the farmers so that farmers are not fall prey in the hands of money lenders and middlemen.
7. Greater emphasis should be given on aquaculture insurance. It is important because aquaculture farming involves high investment and uncertainty. Insurance reduces financial insecurity and encourages farmers to adopt modern aquaculture practices.
8. Above all, greater emphasis should be placed on the scientific study of indigenous knowledge systems, which should be integrated into strategies for sustainable agricultural development.

8. Findings and Conclusion:

8.1 Findings in relation to objective -1, i.e. To examine the socio-economic importance of fish farming.
The collected data reveals different socio- economic importance of fish farming in Assam in general and Rangia Agricultural Sub-Division, Kamrup District in particular. In this regard some of the important findings are-

- 8.1.1 Fish farming creates employment generation, as highlighted by 125 (100%) respondents.
- 8.1.2 Fish farming is one of the important sources of income generation, as reported by 125 (100%) respondents.
- 8.1.3 57 Nos of respondents are of the view that the underlying importance of fish farming lying in the fact that it is an important source of nutritional security.
- 8.1.4 Fish farming is the key factor that leads rural development, opined by 61 respondents.
- 8.1.5 According to 31 respondents the underlying importance of fish farming is tradition and culture.

8.2 Findings in relation to objective -2, i.e. To identify the major problems faced by fish farmers.

While carry out the fish farming, the farmers have faced number of challenges. In this regard some of the important findings are-

- 8.2.1 According to 65 Nos of respondent's farmers they have faced the problem of labour shortage.
- 8.2.2 Lack of storage facility is one of the important hurdles in the way of fish farming, opined by 99 Nos of respondents.
- 8.2.3 Water pollution has stood and important obstacle in the way of fish farming and it is viewed by 45 Nos of respondents.
- 8.2.4 Flood caused lot of damaged to the fish farmers, 77 Nos of respondents has revealed this fact.
- 8.2.5 Data reveal the fact that 41 Nos of farmers have faced the problem of market. In this context transportation problem, imported fish, price fluctuation are identified as major market related problems.
- 8.2.6 Farmers are suffering from inadequate credit facilities; it is opined by 91 Nos of farmers.
- 8.2.7 Lack of obtaining technical knowledge is another problem in the way of fish farming, it is revealed by 61 Nos of respondents.
- 8.2.8 Outbreak of disease and fish mortality is another problem and this problem is faced by 59 Nos of farmers.
- 8.2.9 The increasing expenditure of fish feed caused problems to the fish farmers, it is revealed by 88 Nos of respondents.
- 8.2.10 Data revealed the fact that 67 Nos of the farmers have faced the problem of quality fish seed.

8.3 Findings in relation to objective -3, i.e. To analyse the prospects and opportunities for fisheries development in the region.

Data reveal the fact that there are good prospects, future and opportunities of fish farming in the study area. 81 Nos of farmers, comprising 64.8% respondents put their argument in favour of this. 29 Nos of farmers have negative response, while 15 farmers remain neutral in this regard.

8.4 Findings in relation to objective -4, i.e. To suggest measures for improving the condition of fish farmers.

Government initiative, invest in research and development, Integrated fish farming, strengthening of fishery extension services, proper information flow between farmers and buyers, improved banking service, aquaculture insurance and scientific study of indigenous knowledge systems etc. are suggested for the improvement of fish farming in the study area.

Conclusion: Despite good future prospect and opportunities, the existing level of fish production in the study area is insufficient to meet the growing consumer demand. A substantial quantity of fish continues to be imported from neighbouring states such as West Bengal and Andhra Pradesh, as well as from Myanmar. This dependence on external sources clearly indicates the considerable scope for increasing local fish production. Similarly, the supply of quality fish seed largely depends on hatcheries located outside the state, particularly in West Bengal, and from districts such as Barpeta and Nalbari. Strengthening local hatchery infrastructure would therefore not only reduce dependence on external suppliers but also support the expansion of scientific fish farming in the region.

Another significant advantage of the study area is its favourable market accessibility. The close proximity of Guwahati, the commercial gateway of Assam, located approximately 40 kilometres from the survey area, provides an excellent opportunity for marketing fresh fish and fish seed. The increasing demand for fish in Guwahati and the surrounding urban centres offers a ready and profitable market for local producers.

References:

- Khanna, S.S & Kapoor, N (2019). *An Introduction to fish Biology and Fisheries*. Delhi: Surjeet Publications.
- Ahsan, J. & Sinha, S.P. (2009). *Economic Zoology*. New Delhi: S. Chand & Company Ltd.
- Tomar, B.S. (2003-2004). *Introduction to Economic Zoology*. Delhi: Emkay Publications.
- Shukla, G.S. & Upadhyay V.B. (2016-2017). *Economic Zoology*. New Delhi: Rastogi Publications.
- Khanna, S.S. (2016). *An Introduction to Fishes*. Delhi: Surjeet Publications.
- Sharma, P. & Kashyap D (2014). *Mas Sangrakshan Aru Mulya Sannjojan (Ass)*. Nagaon, Assam: Ajanta Press.
- Gogoi, A. (2012). *Asomar Matsha Sanskriti (Ass)*. Guwahati: Asom Prakashan Parishad.
- Vaumik, S. et al. (2017). Constraints and prospects of Fish farming in Lalmonirhat District. *International journal of business, social and scientific Research*, 5(2), 201-210.
- Rana, S. et al. (2024). Problems and Prospects of fish farming in the Chattogram Hill Tracts of Bangladesh: Community- based aquaculture might be a right choice. *Aquaculture and Fisheries*, 9(2), 306-313.
- Dey, N. B. (2012). *A study on the problems and prospects of Fish farming in Manipur*. (Unpublished doctoral thesis), Assam University.