Original Research Article

A STUDY OF AUCTION BID VALUE OF FISH PONDS IN ANAND DISTRICT

Abstract

Inland fisheries are commercial fishing operations that take place in freshwater, providing high-quality protein, vital nutrients, and minerals. India is the third-largest fish producer in the world, producing 7.96 per cent of the world's fish. Gujarat produces the most marine fish in India, accounting for 18.80 per cent of the total production and 1.51 per cent of the production of inland fish. Gujarat has the potential to develop the fishery sector due to its massive fishery resources and high trophic level. This study included 80 fish farmers in the Anand district of Gujarat. The majority of the fish farmers were male and in the above 40-year age group. The average pond size was less than 2 ha and the pond depth was less than 10 feet. The majority of the fish farmers were not involved in input marketing and fish harvesting activities. The 35 ponds were connected through local drainage lines in the village. 44 ponds were dry in summer, so they can be filled with tube well, borewells, and canal water sources. Comparing different categorical variables with lease amount per hectare.

Keywords: Lease amount, Fish farmer, Aquaculture, Inland fisheries, Input marketing, Fish harvesting, Auction bid value

INTRODUCTION

Fisheries and aquaculture both play important roles in the global economy and food systems, but it is important to balance economic, environmental, and social considerations in their management and development to ensure sustainability. Inland fisheries are commercial fishing operations that take place in freshwater. People's livelihoods depend heavily on inland fisheries, providing high-quality protein, vital nutrients, and minerals. However, little is known about the condition of inland fisheries resources and the ecosystems that support them. A fish pond is a reservoir or controlled body of water that has been stocked with fish and is used for fish farming, recreational fishing, or aesthetic purposes. The industry saw an overall growth of 1.6 million tonnes between 2004 and 2008, and in 2008, it made a record-breaking contribution of 10.2 million tonnes to the productivity of the world's capture fisheries (FAO, 2022).

In 2020, 179 million metric tonnes of fish were produced worldwide, up from 177.83 million in 2019. 66 million tonnes were harvested in inland waters, with 83 per cent coming from aquaculture and 17 per cent from capture fisheries. 63 per cent was collected in marine waters, with an expected initial selling value of USD 406 billion (FAO, 2022).

India is the third-largest fish producer in the world, producing 7.96 per cent of the world's fish. It is expected to produce 16.25 MMT of fish during the fiscal year 2022-2023, with 12.12 MMT coming from the inland sector and 4.13 MMT from the marine sector. The estimated overall fisheries potential for India in 2018 was 22.31 MMT, made up of 5.31 MMT for marine fisheries and 17 MMT for inland fisheries. 77% of the marine fisheries potential and 71% of the inland fisheries potential will have been utilized by 2021-2023 (Department of Animal Husbandry and Dairying, 2022-23).

Gujarat is the top state in India for producing marine fish, contributing 18.80 per cent of the nation's total production. It also has a 1.51% share in inland fish production, ranking 15th in India. Gujarat has the potential to develop the fishery sector due to its massive fishery resources and high trophic level (Commissioner of Fisheries, Gujarat, 2019-20).

The study was conducted with the objective: To explore determinants of auction bid values for village fishery ponds

RESEARCH METHODOLOGY

This study included 80 fish farmers. Non-probability sampling method was used. The samples were collected purposively from those fish farmers. The semi-structured schedule was used for the survey. The study was conducted in the Anand district of Gujarat. Analytical tools used in this study were graphical presentations.

RESULTS AND DISCUSSION

In this study, 80 fish farmers were selected from the Anand district of Gujarat. The majority of the 81.25 per cent fish farmer were male with the majority being in the above 40-year of age group.

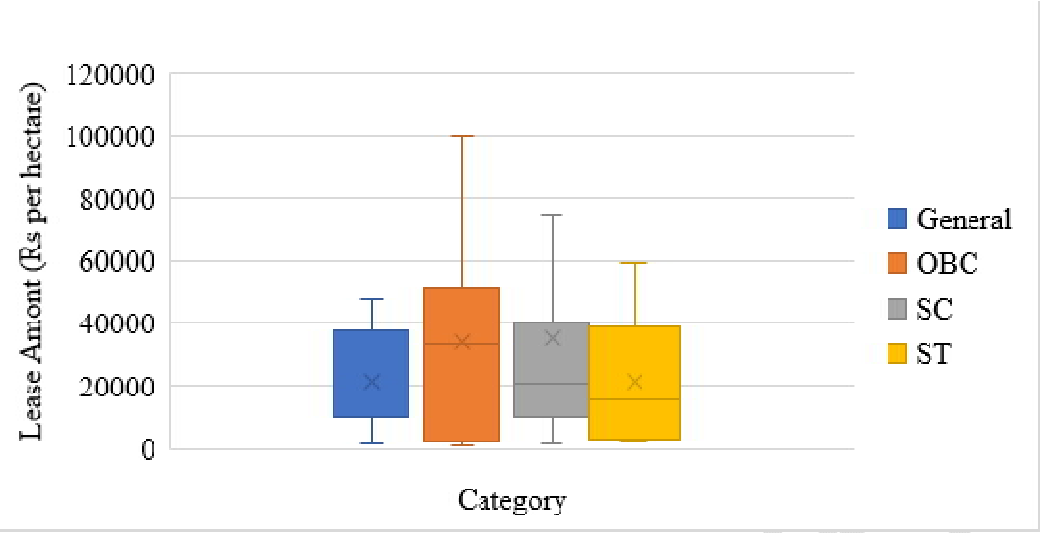

Fig. 1 Lease Charges Across Category

Fig. 1 shows the lease amounts per hectare across different categories. The General category had an average lease of Rs. 21393 per ha, while the OBC category averaged Rs. 33812 per ha. The SC category had an average lease of Rs. 35383 per ha, and the ST category averaged Rs. 21294 per ha. These figures indicate the variations in lease amounts based on different social categories.

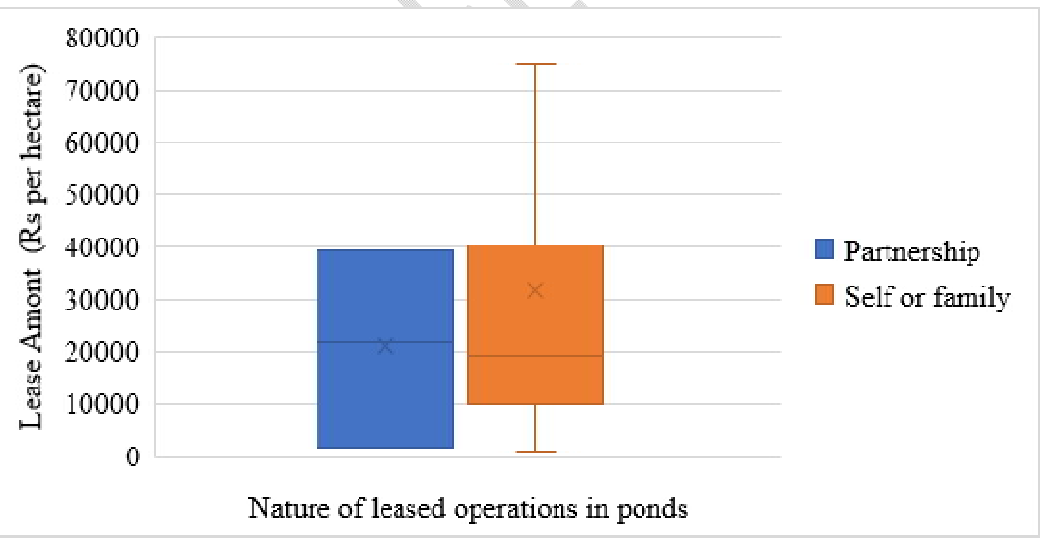

Fig. 2 Lease Charges Across the Nature of the Leased Operation

Fig. 2 shows the relationship between lease amounts and the type of ownership. Fish farmers under partnership arrangements had an average lease of Rs. 20941 per ha, while those operating independently or with family members had an average lease of Rs. 31716 per ha.

Table 1 Farmers Involve in Input Marketing Activities

Input Marketing	Frequency	Percentage
Yes	3	3.75
No	77	96.25
Total	**80**	**100.00**

Table 1 shows that the majority of the farmers 77 (96.25%) were not involved in fishery input marketing activity because these farmers used imported feed or other input, and only 3 (3.75%) farmer was involved with fishery input marketing activity.

Table 2 Farmer Involve in Fish Harvesting Activities

Fish Harvesting	Frequency	Percentage
Yes	2	2.50
No	78	97.50
Total	**80**	**100.00**

Table 2 shows that the majority of the farmers 78 (97.50%) were not involved in fish harvesting activity because they called Bihari people for fish harvesting, and only 2 (2.50%) farmers were involved with fish harvesting activity.

Table 3 Lease Amount of Fish Pond

Lease Amount (in Rs.)	Frequency	Percentage
1000 – 20000	23	28.75
20001 – 80000	31	38.75
80001 – 200000	18	22.50
200001 – 520000	8	10.00
Total	**80**	**100.00**

Table 3 shows that 31 (38.75 %) of the farmer's bid amount was RS. 20001 – 80000, 23 (28.75 %) farmers' bid amount for the fish pond was Rs. 1000 – 20000, 18 (22.50 %) farmers' bid amount was Rs. 80001 – 200000, and 8 (10.00 %) farmers could bid more than Rs. 200001 for the fish pond.

Table 4 Size of the Pond

Size (in ha)	Frequency	Percentage
Up to 2.0	36	45.00
2.1 – 4.0	19	23.75

4.1 – 8.0	20	25.00
More than 8.0	5	6.25
Total	**80**	**100.00**

Table 4 shows that the large no of 36 (45.00 %) farmers size of the pond was up to 2 ha, 19 (23.75 %) farmers' pond size was 2.1 to 4.0 ha, 20 (25.00 %) farmers' pond size was 4.1 to 8.0 ha and only 5 (6.25 %) farmers' pond size was more than 8.0 ha. If the pond size is large, the fish production of fish will be more.

Table 5 Depth of the Pond

Depth (in feet)	Frequency	Percentage
Up to 10.0	38	47.50
10.1 – 15.0	29	36.25
15.1 – 20.0	10	12.50
More than 20.0	3	3.75
Total	**80**	**100.00**

Table 5 shows that a large no of the 38 (47.50 %) farmers' pond depth was up to 10.0 feet, 29 (36.25 %) farmers' pond depth was 10.1 to 15.0 feet, 10 (12.50 %) farmers' pond depth was 15.1 to 20.0 feet and only 3 (3.75 %) farmers' pond depths was more than 20.0 feet. As the depth of the pond increases, the production of fish increases.

Table 6 Farmer Measure the pH of the Pond

Measure	Frequency	Percentage
Yes	16	20.00
No	64	80.00
Total	**80**	**100.00**

Table 6 shows that the majority of 64 (80.00 %) farmers could not measure the pH level before the bidding of the pond and only 16 (20.00 %) farmers could measure the pH of the pond. Farmers who measure the pH of ponds that farmers can produce more quality fish because they know the water quality and maintain water quality.

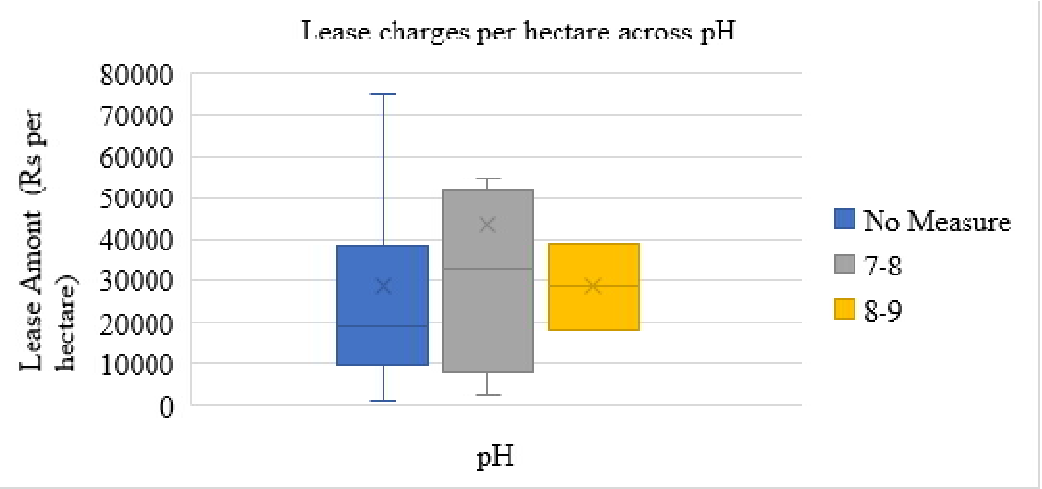

Fig 3 Lease Charges Across pH

Fig. 3 shows that the not measure pH's average Rs. 28665 lease per ha and had a median of Rs. 19099, the 14 farmers, 7 to 8 pH's average Rs. 43784 lease per ha and had a median of Rs. 32690, the 2 farmers, the 8 to 9 pH's averages and the median were Rs. 28718 lease per ha.

Table 7 Pond Connect to Local Drainage Lines

Drainage Line	Frequency	Percentage
Yes	35	43.75
No	45	56.25
Total	**80**	**100.00**

Table 7 shows that 35 (43.75 %) ponds were directly connected to the local drainage lines and it is beneficial for fish production because there is no need to add additional feed to the fish in the pond. 45 (56.25 %) ponds were not connected to the local drainage lines.

Table 8 Pond Dry in Summer

Dry in Summer	Frequency	Percentage
Yes	44	55.00
No	36	45.00
Total	**80**	**100.00**

Table 8 shows that 44 (55.00 %) ponds were dry in the summer season so they can be refilled by the use of the tube well, borewell, and canal water sources and 36 (45.00 %) ponds were not dry in the summer season because these ponds were rainfed ponds.

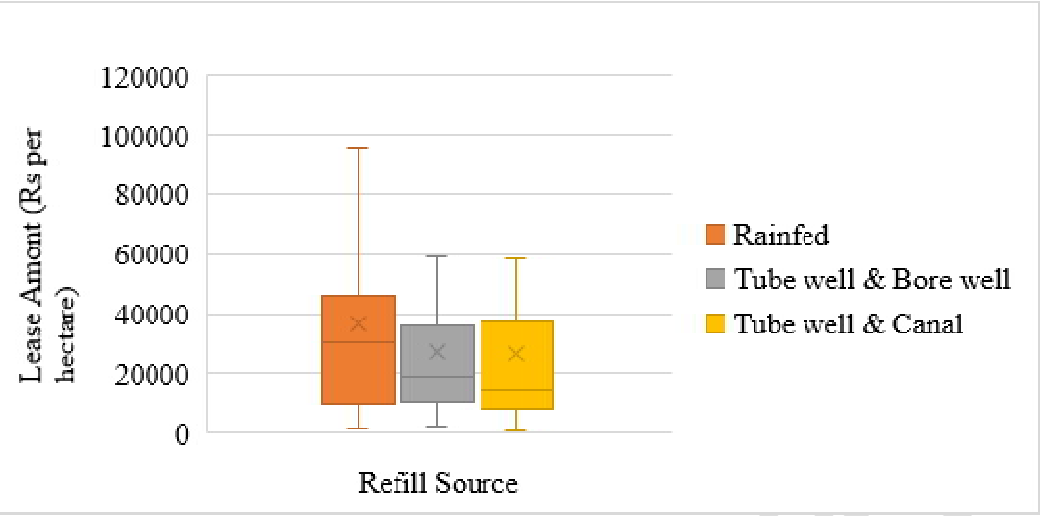

Fig. 4 Lease Charges Across Refill Source

Fig. 4 shows that the Rainfed average Rs. 36798 lease per ha and had a median of Rs. 30402, the 31 farmers, tube well & borewells average Rs. 26981 lease per ha and had a median of Rs. 18759, the 13 farmers, the tube well & borewells average Rs. 26452 lease per ha and had a median of Rs. 14707.

The rainfed average was high compared to others because this pond not required outsourcing of water so this pond's operating cost is less so farmers can more bid on these ponds.

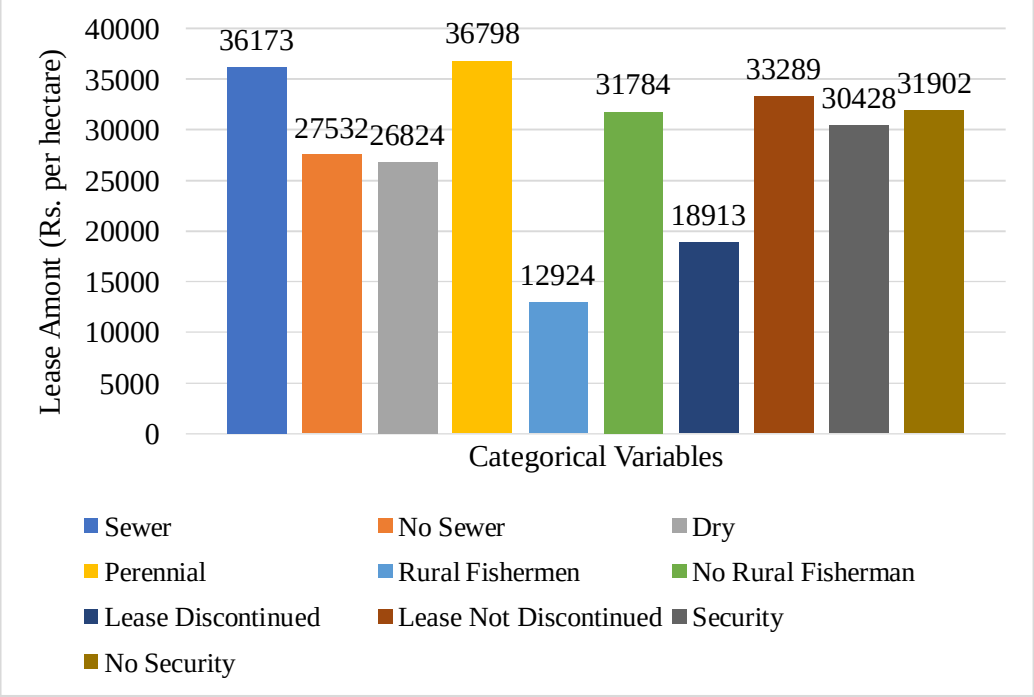

Fig. 5 Lease Charges Across Categorical Variables

Fig. 5 shows the comparison of the different categorical variables with lease amount per ha. Comparing sewer and no sewer, it was found that the lease amount per hectare was higher in the sewer as compared to no sewer. Comparing dry and perennial, it was found that the lease amount per hectare was higher in perennial as compared to dry. Comparing rural fishermen and no rural fishermen, it was found that the lease amount per hectare was higher for no rural fishermen compared to rural fishermen. Comparing lease discontinued and lease not discontinued, it was found that the lease amount per hectare was higher in lease not discontinued compared to lease discontinued. Comparing security and no security, it was found that both lease amount per hectare was nearly the same but higher in no security.

CONCLUSIONS

This study concludes that the majority of the farmers were male and the farmer's age was above 40 years. SC category farmers can bid a high lease amount per ha from the other categories. Ownership structure can influence the lease amounts obtained by fish farmers. The majority of the farmers were not involved with fish harvesting and fish marketing activities. Most of the farmer's pond size was less than 2 ha and pond depth was less than 10 feet. Water pH ranges from 7 to 8, this farmer's average lease amount was higher than other farmers who were not measuring the water pH of the pond. Ponds were dry in the summer season so it can be required to refill through tube wells and canal water so farmers can less bid amount of dry ponds. Sewage-connected ponds attract higher bid values in comparison to other ponds, potentially due to the higher nutrient concentration of sewage water.

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