



Livelihood Status Of The Fish Farmers In Srikakulam District Of Andhra Pradesh

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Abstract

The fishing and aquaculture sub-sector has seen significant growth, with output increasing from about Rs 80,000 crore in 2011-12 to approximately Rs 1,95,000 crore in 2022-23 in Andhra Pradesh. This includes the entire output of marine fishing and prawn production. Fish farming (culture), also called pisciculture is the principal form of aquaculture. It involves raising fish commercially in tanks or enclosures, usually for food. The discipline of Fisheries and Aquaculture is science, art, business rolled into one. It is science as far as the techniques of fish breeding and production are concerned; an art as far as managing the work skilfully is concerned and a business as far as trading in fish and other aquatic products is concerned. Fishery is the occupation or industry of catching, processing or selling fish or shell fish. Fish farming offers an alternative solution to the increasing market demand for fish and fish protein. More than half of the sample fish farmers are below 50 years age in all the sample mandals in the study area. More than 30 years fishing experience are more in Kaviti mandal 11.5 percent and the remaining three mandals reported very less figures. It is seen in the table that more than half of the fish farmers (65.5%) earn income below Rs. 1,50,000. We can see that saving made by fish farmers in the study area is very less.

Keywords : fish farmers, Income, Saving, literacy, fishing, consumption, rural, marketing

Introduction

Nine out of thirteen districts of Andhra Pradesh are along the coastline and the total length of the coast is around 974 KM. The total continental shelf is more than 33,227 Sq.km. The total marine fishermen population in the state is around 6.05 lakh and sea going fishermen are around 1.5 lakh. The total fishing crafts in the state are around 29,195 with around 12,747 motorized crafts, 1771 Mechanized and 14677 traditional crafts. There are 4 fishing harbors 353 fish landing centers and 555 fishing villages. The State has large marketing potential for fish products in urban areas within the state and in other states of India. In India, 60% of population is non-vegetarians and hence there is demand of fish consumption. At Present the national fish consumption is 11 Kgs and in AP it is estimated at 7.4 Kgs. The world fish consumption is 21.0 Kgs. Hence, there is a huge gap in consumption which can be filled up by A.P by promoting domestic market.

Fish farming consists of all the activities from raising of fishes to marketing of fishes through human efforts. In particular, it includes fish seed stocking, rearing, harvesting and marketing of fish raised in freshwater (ponds/tanks) and brackish water. Fish culture in tanks, though in a limited scale, has been practiced in India since as early as 350BC. India rank third among the largest producers of fish in the world.

This is growing by leaps and bounds and has considerable employment opportunities. Fish are cultured for several economic values. As a source of human food, the importance of food is as old as human civilization.

India has abundant resources for fish production. In the case of marine fisheries, India has 20.2 lakh sq. km. of Exclusive Economic Zone, including 5.3 lakh sq. km of continental shelf and 8118km of coastline. The inland fisheries resources include a length of 195210 kilometers rivers and canals, 29.07 lakh ha of reservoir area, 24.14 lakh ha area of ponds and tanks and 7.98 lakh ha of beels, oxbow and derelict water. The brackish water area for fish production is estimated to be 12.40 lakh hectares. The inland resources however, have not been tapped fully. Only about 16 per cent of the fresh water area and 10 per cent of the brackish water area are being utilized for fish culture. Working group on Fisheries, Planning Commission, Government of India, 2021 rightly said that “Fisheries is a sunrise sector of our economy”. India’s economy encompasses traditional village farming, modern agriculture, handicrafts, a wide range of modern industries and a multitude of support services. Fisheries sector in India has witnessed an impressive growth from a subsistence traditional activity to a well-developed commercial and diversified enterprise. The fisheries sector has been playing an important role in the Indian economy by its contributions to employment generation, income augmentation, foreign exchange earnings, providing food and nutrition security. Over the last two decades, fisheries issues have emerged from being merely an obscure sectoral concern to an important growth sector with an expanding role in economic development and food security. Fishing as an occupation has been in vogue since time immemorial.

Fish farming is an old age occupation in the country. It has progressed from stocking and harvesting of single species to composite culture like pen culture, cage culture, etc. Some studies have been conducted in this regard in India but a very few has been conducted in Andhra Pradesh. There is a huge potential of fish farming or cultivation in the state which is still yet to be exploited. Andhra Pradesh has 56,461.05 hectares of the total area of water and only about 15,000 hectare of water which constitute about 27% of the total water resources have been brought under fish culture. In most of the cases, fish cultivation is under taken to meet the domestic demand whatever little surplus is left out is sold in the market. Commercial cultivation of fish, although undertaken by the farmers in Andhra Pradesh is not up to the expected level to meet the demand of fish in the state of Andhra Pradesh. The government is trying to develop fish farming in the state by launching various programmes of fish farming like fishery extension, training, research etc. however despite the efforts made by the government the production of fish in the state are yet to increase upto the desired level. Therefore, attention should be given by policy makers so as to increase the production and hence increase employment opportunities.

Objectives:

The main objective of the present study is to review the present status, constraints and prospects of fish farming in Srikakulam district.

- To assess the socio-economic conditions of fish farmers in Srikakulam district.
- To examine the income and saving of the fish farmers in the study area.

Methodology

The present study is based on descriptive research design, as it was not possible to control all the variables directly to realize the objective of the study, The first step in developing any sample design is to clearly define the universe. The universe of the present study consists of all the fish farmers of Andhra Pradesh. A sampling has to be decided properly before selecting sample. The sampling unit of the present study is the fish farmers of the High fish farming mandals in Srikakulam district of Andhra Pradesh viz. Etcherla, Gara, Mandasa and Kaviti. It is also known as sampling frame. It contains the name of all the items of a universe. The list of fish farmer is collected from the Department of Fisheries, Government of Andhra Pradesh. Sample size is calculated using sample size calculation software at 95 % confidence level with 5% precision. Sample size thus taken is 370 fish farmers.

Review of Literature

Nandeesha et al., (1994) points out that Cambodia, women make up more than 65 per cent of the adult population. They play an important role in all spheres of social and economic activities. In small-scale aquaculture, women have been found to contribute more than men in all most all activities. Most of the housewives play a major role in fish culture and the success rate and maintenance of data are better wherever there is any involvement of the housewives. In almost all cases, the wives of the fishermen manage ponds.

Veenakumari (1998) explains the socio-economic status of women in India. The status of women is intimately connected with their economic position, which depends upon the opportunities for participation in economic activities. Moreover the traditional economic activities which provide employment to women have suffered in the competition with the more advanced technologies.

Surapa Raju, S (2008) conducted a detailed census survey in Gilakaladindi village of Krishna district in Andhra Pradesh. The highest average number of earners is in the traditional craft owner households and the least in the Sona-I type craft owner households i.e 1.62 earners . More dependents (3.15) are in the Sona-I type craft owner households and the least (2.38) in the traditional craft households.

Unal. V and R. Franquesa (2010) focused on status of small-scale fishermen and fishing operations, using socio-economic indicators and economic viability estimates in six selected fishing areas of Turkey during the 2002-2003 fishing season. Fifty-six percent of all small-scale fishing boats investigated achieved a positive net profit, fully recovering their operational and investment costs. Considering the viability of the fishery, 56% can be considered as economically viable. Percentage of negative gross cash flow (GCF) for each of the vessels in the district was 56% in Foca, 57% in Karaburun, 15% in Mordogan, 16% in Akyaka, 65% in Akcapinar, and 44% in marmaris.

Ishita Samajdar & Surjya Kumar (2014) Traditional fishing survey was Birbhum district of West Bengal has six tribes out of which sandals are dominated. The tribe has been traditionally practicing fishing with their indigenous gears and fishing techniques. A study has been performed to document the detail feature of such fishing gears along with their mode of operation. A total of 23 indigenous fishing gears were recorded from the district of which total 9 gears are bamboo made, 2 hooks with metal made, 6 gears made up of bamboo and nylon net together and 3 exclusively made of nylon as well as mosquito net. Four fishing pots made up of bamboo were also recorded.

Biswarup Saha, Rajita Devi, Dipanjan Kashyap (2015) A total of 26 traditional fishing practices in Nagaon district of Central Assam were selected. Scientific rationality and adoption among fishers regarding these Indigenous Technical Knowledge (ITKs) were analysed and five ITKs were identified as not rationale or unsustainable practices which should not be promoted.

Geetha R, E. Vivekanandan, Joe K. Kizhakudan (2015) Climate change will have strong impact on fisheries with far-reaching consequences on food and livelihood of a sizeable section of the population. The frequency and intensity of extreme climate events is likely to have a major impact on future marine fisheries production. Fishermen have excellent knowledge on the relationship between climatic, oceanographic factors and fish catch. This knowledge enables them to switch their fishing activities with respect to species exploited, location of fishing grounds and gear used. Based on this backdrop, a survey was conducted to collect primary data on Indigenous Technical Knowledge (ITK) from 200 fishermen in and around Chennai with a structured questionnaire.

Age and Gender of sample fish farmers:

The age of entrepreneur plays an important role in the growth and expansion of business because the adoption of new methods and techniques of production, progressive outlook, innovative spirit, risk taking are closely related to the age factor of the entrepreneur. The distribution of sample fish farmers at the time of survey reveals that fish farming were mainly taken up mainly by the age group of 40-50 years with 51.4% of the total population. The study also reveals that 24.6% were in the age group of 30-40 years and 17% were in the age group of 50-60 years. Data reveals classification of sex groups of the sampled respondents. However, 40- 50 years age fish farmers are more than half of the sample respondents in Gara mandal 86(55.1%),

followed by Etcherla 49 (51%), Mandasa 46(50%) and very low fish farmers recorded 34.6 per cent in Kaviti mandal respectively. It is observed that more than half of the sample fish farmers are below 50 years age in all the sample mandals in the study area.

The data reveals that 93.5% of the respondents belonged to male groups and only 6.5% of the sampled respondents belonged to the female groups. Majority of the respondents belonged to males and females respondents are negligible. Patriarchal type of society exists in Andhra Pradesh society, property of the family is in the name of the father, so most of the fish farmers are male (Table-1). The standard of living and earning of fish farmers depends on their occupation. The study depicts distribution of respondents according to occupation. The table shows that whether fish farming has been conducted both as primary and secondary occupation. The study reveals that of 370 samples, 331 samples performed fish farming as their primary occupation which accounts for 89.5% of the total respondents. The remaining 10.5% respondents performed fish farming as their secondary occupation. Fish farming activities is associated with other activities. Respondents did not perform single activities. Other activities like agriculture, business, artisans, handlooms and handicrafts, services are performed simultaneously.

Table 1:

Age and Gender of the Fish Farmers in the Study Area

Age	Srikakulam District								Grand Total	
	Etcherla		Gara		Mandasa		Kaviti			
	No.	%	No.	%	No.	%	No.	%	No.	%
20-30	1	1	6	3.8	1	1.1	1	3.8	9	2.4
30-40	29	30.2	37	23.8	21	22.8	4	15.4	91	24.6
40-50	49	51.0	86	55.1	46	50.0	9	34.6	190	51.4
50-60	12	12.6	23	14.7	18	19.6	10	38.6	63	17.0
60-70	4	4.2	4	2.6	6	6.5	1	3.8	15	4.1
70-80	1	1	0	0	0	0	1	3.8	2	0.5
Total	96	100.0	156	100.0	92	100.0	26	100.0	370	100.0
Gender										
Male	95	99	135	86.5	90	97.8	26	100	346	93.5
Female	1	1	21	13.5	2	2.2	0	0	24	6.5
Total	96	100.0	156	100.0	92	100.0	26	100.0	370	100.0
Occupation										
Primary	79	82.3	146	93.6	84	91.3	22	84.6	331	89.5
Secondary	17	17.7	10	6.4	8	8.7	4	15.4	39	10.5
Total	96	100.0	156	100.0	92	100.0	26	100.0	370	100.0

Source: Field survey

Educational and Ownership Status

Table 2 reveals the classification of respondents according to educational qualifications and Ownership status. Education is said to be an important variable which influence the supply and performance of entrepreneurs. There is enough evidence to show the importance of education as a factor in economic development. As Authur Lewis rightly observed that the basic reason why poor countries remain poor is unquestionable because they lack knowledge, i.e., education. Business growth depends on the literacy of the entrepreneur and it influences the decision of the business. The present study reveals that fish farmers with graduate have the highest percentage of education with 27.8% of the total respondents. Among the sample farmers 3.5% of the respondents have no education, another 3.5% have education upto primary, 20.8% have education up to matric, 15.4% respondents have education up to higher secondary and 4.6% respondents have

education up to post graduate. Thus, it can be said that maximum sampled fish farmers are educated. The study reveals that 86.6% respondents have their own fish farm while 13% of the total respondents work in co-operative fish farm.

It is found that Graduate fish farmers are more in Etcherla mandal 47.9 per cent, while Under matriculate are higher in Gara 35.3 per cent and Mandasa mandals 29.3 per cent, and in Kavita mandal major proportion of sample fish farmers reported their educational qualifications i.e., Higher secondary and graduates each 26.9 per cent. Illiterates are more in Kaviti mandal 7.7 per cent, next in order to Mandasa mandal 4.3 per cent, Etcherla mandal 3.1 per cent and only 2.6 per cent in Gara mandal in the study area.

Table 2
Educational and Ownership Status of the Fish Farmers in the Study Area

Educational Status	Srikakulam District								Grand Total	
	Etcherla		Gara		Mandasa		Kaviti			
	No.	%	No.	%	No.	%	No.	%	No.	%
Illiterate	3	3.1	4	2.6	4	4.3	2	7.7	13	3.5
Upto primary	0	0.0	10	6.4	3	3.3	0	0.0	13	3.5
Under matriculate	5	5.2	55	35.3	27	29.3	3	11.5	90	24.3
Matriculate	22	22.9	25	16.0	24	26.1	6	23.1	77	20.8
Higher secondary	19	19.8	22	14.1	9	9.8	7	26.9	57	15.4
Graduate	46	47.9	27	17.3	23	25.0	7	26.9	103	27.8
Post graduate	1	1.0	13	8.3	2	2.2	1	3.8	17	4.6
Total	96	100.0	156	100.0	92	100.0	26	100.0	370	100.0
Ownership Status										
Owned	63	65.6	141	90.4	91	98.9	26	100	321	86.7
Leased	0	0	1	0.6	0	0	0	0	1	0.3
Co-operatives	33	34.4	14	9	1	1.1	0	0	48	13.0
Total	96	100.0	156	100.0	92	100.0	26	100.0	370	100.0

Source: As ex Ante

Years of Experience in Fish Farming

The table 3 shows the distribution of fish farmers according to the experience of fish farming. In Gara mandal, 83.3 per cent of the fish farmers below 10 years of the experience while 10-20 years' experience are 16 percent reported. The data reveals that 10-20 years' experience fish farmers are more in Etcherla mandal 58.3 percent, followed by Mandasa mandal 48.9 percent and 38.5 percent are reported Kaviti mandal respectively in the study area. More than 30 years fishing experience are more in Kaviti mandal 11.5 percent and the remaining three mandals reported very less figures. On the whole, the study reveals that 172 respondents (46.4%) of the total respondents have an experience of fish farming for less than 10 years, followed by 10-20 years of experience represented by 36.8% and respondents with 20-30 years of experience accounts for only 14.9% in the study area.

Table 3
Years of Experience in fish farming of the sample respondents

Years	Srikakulam District								Grand Total	
	Etcherla		Gara		Mandasa		Kaviti			
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 10	0	0.0	130	83.3	36	39.1	6	23.1	172	46.5
10-20 year	56	58.3	25	16.0	45	48.9	10	38.5	136	36.8
20-30 year	38	39.6	0	0.0	10	10.9	7	26.9	55	14.9
More than 30	2	2.1	1	0.6	1	1.1	3	11.5	7	1.9
Total	96	100.0	156	100.0	92	100.0	26	100.0	370	100.0

Source: As ex Ante

Level of Production

The table 4 shows the distribution of fish farmer according to production of fish in kgs. per hectare. The study reveals that 34.1% respondents produce 1001-2000 kg. of fish, while 31.4% respondents produce fish between 0-1000 kgs. Remaining 34.6% of the total respondents produce fish ranging from 2000 kgs and more per hectare. In Mandasa mandal 73.9 percent of the fish farmers below 1000 kgs. fish production per ha. 20.7 percent of them 1001-2000 kgs, 3.3 per cent are 2001-3000 kgs and each 1.1 per cent 3001-4000 and 4000 and more reported, while these figures in Etcherla mandal 9.4, 37.5, 41.7, 5.2 and 6.3 percent, Gara mandal 16.7, 41, 41, 0 and 1.3 percent and 50, 26.9, 3.8, 7.7 and 11.5 percent in Kaviti mandal respectively in the study area.

Table 4
Classification of respondents according to level of production

Production per ha. (kgs)	Srikakulam District								Grand Total	
	Etcherla		Gara		Mandasa		Kaviti			
	No.	%	No.	%	No.	%	No.	%	No.	%
0-1000	9	9.4	26	16.7	68	73.9	13	50.0	116	31.4
1001-2000	36	37.5	64	41.0	19	20.7	7	26.9	126	34.1
2001-3000	40	41.7	64	41.0	3	3.3	1	3.8	108	29.2
3001-4000	5	5.2	0	0.0	1	1.1	2	7.7	8	2.2
4000 and more	6	6.3	2	1.3	1	1.1	3	11.5	12	3.2
Total	96	100.0	156	100.0	92	100.0	26	100.0	370	100.0

Source: As ex Ante

Net Income of the Fish Farmers

The table 5 shows the distribution of annual income of fish farmers in the study area. It is seen in the table that more than half of the fish farmers (65.5%) earn income below Rs.1,50,000. Only 29.2 % fish farmers earn annual income from Rs. 1,50,000 to 2,50,000 and remaining 5.4% fish farmers earn annual income from Rs. 2,50,000 and more. The data reveals that majority of the fish farmers have Rs.50000-100000 annual income registered 73.9 percent in Mandasa mandal while Rs. 250000 and more income fish farmers 14.6 percent in Etcherla mandal. Rs.100000 to 200000 income gatherers are more in Gara mandal 62.2 percent compared to counterparts in the study area.

Table 4
Net income of Fish Farmers

Annual Income (Rs.)	Srikakulam District								Grand Total	
	Etcherla		Gara		Mandasa		Kaviti			
	No.	%	No.	%	No.	%	No.	%	No.	%
50,000-1,00,000	10	10.4	27	17.3	68	73.9	11	42.3	116	31.4
1,00,000-1,50,000	36	37.5	65	41.7	19	20.7	6	23.1	126	34.1
1,50,000-2,00,000	20	20.8	32	20.5	2	2.2	4	15.4	58	15.7
2,00,000-2,50,000	16	16.7	30	19.2	2	2.2	2	7.7	50	13.5
2,50,000 and more	14	14.6	2	1.3	1	1.1	3	11.5	20	5.4
Total	96	100.0	156	100.0	92	100.0	26	100.0	370	100.0

Source: As ex Ante

Saving of Fish Farmers

Table 5 shows the distribution of fish farmers according to their saving. It can be seen from the table that 42.2% respondents save from `10,000-15,000 only and only 16.5 respondents save from `15,000-20,000. Only 7.6 % respondents save from `40,000 and more. Here we can see that saving made by fish farmers in the study area is very less.

Table 5
Saving of Fish Farmers

Yearly Saving (Rs.)	Srikakulam District								Grand Total	
	Etcherla		Gara		Mandasa		Kaviti			
	No.	%	No.	%	No.	%	No.	%	No.	%
10,000-15,000	30	31.3	84	53.8	31	33.7	11	42.3	156	42.2
15,000-20,000	14	14.6	19	12.2	21	22.8	7	26.9	61	16.5
20,000-25,000	12	12.5	17	10.9	5	5.4	1	3.8	35	9.5
25,000-30,000	6	6.3	2	1.3	6	6.5	2	7.7	16	4.3
30,000-35,000	4	4.2	11	7.1	5	5.4	3	11.5	23	6.2
35,000-40,000	23	24.0	9	5.8	18	19.6	1	3.8	51	13.8
40,000 and more	7	7.3	14	9.0	6	6.5	1	3.8	28	7.6
Total	96	100.0	156	100.0	92	100.0	26	100.0	370	100.0

Source: As ex Ante

Conclusion

The study also helps to understand the socio-economic conditions of fish farmers. By studying the prospects of fish farming, it can encourage people to take up fish farming as a source of their livelihood and can also encourage farm entrepreneur. The government is trying to develop fish farming in the state by launching various programmes of fish farming like fishery extension, training, research etc. however despite the efforts made by the government the production of fish in the state are yet to increase up to the desired level.

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