

Socio-Economic Vulnerability and Livelihood Challenges of Fisherfolk in Palaverkadu Village, Thiruvallur District, Tamil Nadu

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Abstract—The fishing community constitutes an important part of the coastal economy by contributing to employment, food supply, and household livelihoods. Despite this contribution, many fishing households continue to experience socio-economic difficulties associated with irregular earnings, limited educational opportunities, rising fishing costs, environmental degradation, and inadequate livelihood alternatives. This study investigates the socio-economic conditions of fisherfolk residing in Palaverkadu Village of Thiruvallur District, Tamil Nadu, and examines the major challenges affecting their livelihood. Primary information was collected from 50 fisherfolk through a structured questionnaire using simple random sampling. The collected data were analysed using descriptive statistics, t-test, regression analysis, and ANOVA. The findings indicate that fishing remains the principal livelihood activity of the respondents and that their economic well-being is closely associated with fishing-related expenditure and income. The study also identifies declining fish availability and marine pollution, including pollution arising from industrial and other waste, as important concerns affecting fishing activities. Statistical analysis confirms a significant relationship between fishing expenditure and the income of the respondents. The study suggests that coordinated interventions by government agencies and non-governmental organisations are necessary to improve fishing infrastructure, facilitate access to financial and technological support, strengthen skill development, and promote suitable alternative livelihood opportunities. Effective measures to protect the marine environment are also essential for ensuring sustainable fishing and improving the long-term socio-economic well-being of the fisherfolk community.

Index Terms—Fisherfolk, Socio-economic conditions, Fishing livelihood, Marine pollution, Fishing expenditure, Income, Palaverkadu, Thiruvallur District.

I. INTRODUCTION

The socioeconomic status of Indian fishermen is quite poor. In general, fishermen live in substandard homes and seek less schooling. Because they had to sustain a big family with relatively little money from fishing, fishermen had to dig credits to meet their fundamental demands. The fishermen's income was extremely poor, and they continued to be trapped in a cycle of poverty. India is a nation with a diverse population, and its fishing practices also reflect this variety (N. Selvaraj, 2022). World fish production has increased manifold in the last decade roughly crossing 168,429,000 million tonnes. India has witnessed a higher growth of fishery and ranks 7th among fish producing nations of the world. At present, fishery sector in India is providing gainful employment to 5.97 million people of which 2.40 million are full-time fishermen. Fishery plays an important role in Indian economy, but the economic conditions of the fishermen are very poor. Due to lack of mechanized fishing, socioeconomic condition and technical illiteracy among the fishermen, is lagging behind as compared to other States (Lakshman Nayak, 2008). Tamil Nadu has a coastal length of 1076 km (13% of the country's coastal length) 1.9 lakh sq.km. of EEZ (9.4% of the India's EEZ) and a continental shelf of about 41,412 sq.km and is one of the leading states in marine fish production. The marine fish production of the state is 5.48 lakh tons during 2020-21. The State has an effective fishing line comprise of 5893 mechanized fishing boats and 42337 traditional crafts through which the State could achieve a periodic marine fish product of 5.48 lakhs MT and ranks second with 10

to 12 percent contribution to the total marine fish product of India. The shore infrastructure facilities include 9 major fishing harbours, 3 medium fishing harbours, 53 fish landing centers and 236 fish landing points. The State exported 1.10 lakh MT of marine products and earned foreign exchange of Rs. 5565.46 crore during 2020-21.

Importance of the Study

Fisheries sector contributes significantly to the public frugality while furnishing livelihood thoroughly 14.49 million people in the country. It has been recognized as an important income and employment creator as it stimulates growth of a number of attachment diligences and is a source of cheap and nutritional food besides being a source of foreign exchange earner. The fisheries sector in India has experienced rapid-fire changes over the last six decades to develop from food fishing to the status of a multi-crore fishing industry. As a whole the fishing community not able to get the full attention of the government for their livelihood activities when there is off-season and other health related problems. The present study tries to focus on the socio-economic status of the fisher folks of Palaverkadu village, Thiruvallur district.

II. REVIEW OF LITERATURE

Dheeraj Kumar et. al., (2018) examines the social standing of the fishing families in this area and the locally available fish under catch and pond fisheries from the Gandak River in the Dholi district. The experience of the Sahani community with begun in the Bihar. The majority of fishermen in the state are also members of non-Sahani communities. The primary goal of this essay is to examine the socioeconomic circumstances of the Dholi village's fishing family. The report unequivocally demonstrates the poor state of the Dholi village's fishing family. In terms of educational status, guys dominate girls by a large margin. Nonetheless, women come forward through the reservation process outlined in the Bihar Animal and Fish Resources Department's road map, which permits women to make candidates for fisheries elections. All of these rewards were distributed to the fishing families by the Matshay Jeevi Committee using a survey

conducted by the Bihar Department of Animal and Fish Resources. Additionally, fishing initiatives are set up for both inside and beyond the state of Bihar. By putting these programs into place, people ought to learn about contemporary technology and improve their fishing.

According to Monalisha Chakraborty (2016), there are 589 fishing villages offshore and 3289 inland, Orissa is a coastal state on India's east coast. With a rich past, the Telugu population began maritime fishing in Orissa. The majority of marine fishermen in the state are still non-Oriya. The primary objective of this article is to present the socio-economic status of the fishermen in Bali Nolia Sahi village, Puri. Study finds the socioeconomic circumstances of Bali Nolia Sahi's fishermen are not favorable. The guys' educational standing is far worse than the girls'. Their dwelling circumstances are not too awful, but in terms of fishing they don't get much aid from the Government. Their absence of the essentials for fishing prevented the growth of fishing in the State. Major facilities for fishermen should be given, such as motorized boats and cold storage, and educational initiatives should be put in place to aid in their development as fisherman and to help them comprehend the current fishing technology.

The socioeconomic status of Indian fishermen is quite poor. In general, fishermen live in substandard homes and seek less schooling. Because they had to sustain a big family with little earnings from fishing, fishermen had to dig credits to meet their fundamental demands. The fishermen's income was extremely poor, and they continued to be trapped in a cycle of poverty. India is a nation with a diverse population, and its fishing practices also reflect this variety. In much of India, training programs and technical orientations are offered in a variety of ways. Finally results shows that, good fisheries management laws, efficient input delivery, and social and technical assistance may enhance fishermen's quality of life, which would eventually raise India's total fisheries production (Bijayalakshmi and Ajit Kumar (2014)).

Shivaji Bhagwan Ubarhande and Manisha Ghonge (2022) illustrated the socioeconomic situation of the fishermen in the Deulgaon Raja District of Buldhana is the focus of the study. The Deulgaon Raja Fish Market is a tiny, dirty, disorganized market with poor

conditions, and the fishermen there live below the poverty line. The Buldhana area is endowed with enormous potential for aquatic resources. The family's only source of income is fishing, and they work all day long to make less than 3 lakh every year. Ten percent of schooling is up to graduation, while the remaining forty percent is post-graduate. Cooperative societies' and nongovernmental organizations' interventions are not operating at maximum effectiveness. The goal of the initiative is to create a database on the socioeconomic state of fishermen and strive to alleviate their current situation.

Selvaraj (2022) exemplifies that the primary method of cultivation is fish farming; however marine culture may involve other approaches. It entails commercially rearing fish, usually for food, in enclosures or tanks. A facility that releases young fishers into the wild for fishing activity or to restore a species' natural population is typically referred to as a fish property. Bharat is one of the nations where a sizable portion of the landmass is submerged beneath the ocean. Because of this, the majority of people living in such areas are solely focused on fish farming and fish harvesting. The socioeconomic status of those people is highly dependent on the income from this line of work. Even with their meager incomes, the fishing community is not very strong economically. They understand that handling the family is difficult when their income is inconsistent and they have poor spending habits. Poverty is the result of this. The majority of fish farmers lack formal education. In light of this, the research focused on issues that are now important for the advancement of both regular and Madras fisherman.

Lakshman Nayak and Ajit Kumar Mishra (2008) says that, coastline covering 60 km and a population of 37,715 across 27 settlements, the Ganjam region is endowed with abundant aquatic resources. They rely on the sea for their livelihood. There are two different kinds of fishermen: Kaibarta and Nolia. 19,504 men and women are married overall. Only 21.5% of people in the population graduated from primary school, and 15.9% have completed upper elementary school. In contrast, 57.8% of people are illiterate. Their yearly earnings range from Rs. 18,000 to Rs. 20,000. While inland fisherman also participate in culture, marine fishermen only participate in capture

fishing. Fishermen are able to get boats and nets from the Orissa Fishermen Cooperative Society.

III. OBJECTIVES OF THE STUDY

- To understand the socio-Economic status of the fisher folks in the study area.
- To identify the problems faced by the respondents in the study area.

Hypotheses of the Study

H0: There is no significant relationship between income and expenditure incurred by the respondents in the study area.

H1: There is significant relationship between income and expenditure incurred by the respondents in the study area.

IV. METHODOLOGY

The study analysis mainly constructed with the help of primary data. A well-organized questionnaire was developed to know the socio-economic status of the respondents in the study area. A total of 50 samples were collected with the help of simple random sampling method to collect the required study related information.

V. ANALYSIS OF THE STUDY

The following analysis illustrates the mean value of the selected variable in the study area.

The below Table 1.1 of the study, illustrates the socio-economic characteristics of the fisherman in the study area. The table reveals that the average age of the sample respondents was 35, with a deviation of 7.7. The mean values of the education level of the respondents were 3.66, with SD of 1.67. The community is represented with a mean value of 3.2 which shows that most of the respondents are belongs to MBC in the study area. The mean value (1.06) on religion of the fisherman's following Christian religion with the SD of 0.24. The family type of the respondents mostly with nuclear family system with the mean value of 1.78. The decision making condition of the family relies on male members with the mean value of 1.78. The number of hours used by the fisherman in the study

area to catch the fish were 7.64 and it may varied with SD of 6.02. The average expenses made by the fisher man to catch fish were Rs.1300 with the deviation of Rs.1378. The minimum quantity of fish caught during a visit is 2.5 kg, and it will vary with a deviation of 0.5. The reason for the fall in the

quantity of fish is polluting the marine environment with industrial waste and other kinds of waste, and it was accepted by all the fishermen with a mean value of 1.62. The average monthly income of the fishermen in the study area was Rs.53780, with an SD of Rs.22958.

Table 1.1: A descriptive analysis on Socio-Economic status of fisher folks

Variables	N	Mean	Std. Deviation	Std. Error Mean
Age	50	35.34	7.689	1.087
Education	50	3.66	1.673	0.237
Community	50	3.2	0.67	0.095
Religion	50	1.06	0.24	0.034
Type of family	50	1.78	0.418	0.059
Decision maker of the family	50	1.78	0.616	0.087
Time spend on fish catching	50	7.64	6.023	0.852
Expenses incurred for fish catching	50	1302	1378.477	194.946
Quantity of fish	50	2.52	0.505	0.071
Reason for fall in quantity of fish	50	1.62	1.028	0.145
Income	50	53780	22958.961	3246.887

Source: Calculated value

Table 1.2: The t-test statistics on Socio-Economic status of fisher folks

Variables	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Age	32.498	49	0.01	35.34	33.15	37.53
Education	15.465	49	0.01	3.66	3.18	4.14
Community	33.769	49	0.00	3.2	3.01	3.39
Religion	31.244	49	0.00	1.06	0.99	1.13
Type of family	30.079	49	0.02	1.78	1.66	1.9
Decision maker of the family	20.44	49	0.00	1.78	1.6	1.96
Time spends on Fishing	8.97	49	0.00	7.64	5.93	9.35
Expenditure incurred on fish catching	6.679	49	0.06	1302	910.24	1693.76
Quantity of fish	35.308	49	0.00	2.52	2.38	2.66
Reasons for fall in fish population	11.143	49	0.04	1.62	1.33	1.91
Income	16.564	49	0.00	53780	47255.1	60304.9

Source: Calculated value, Note: @5% level of significance

The basic idea behind a t-test is to compare the sample mean with the hypothesized population mean and determine if the difference between the two is large enough to be statistically significant. The test assumes that the data are normally distributed and the population variance is unknown, but can be estimated from the sample. Estimated t-value Age (32.49),

Education (15.46), Community (33.76), Religion (31.24), Family Type (30.07), Family Decision Maker (20.44), Fishing time (8.97), fishing costs (6.679), Amount of fish (35.30), causes of decline in fish stocks (11.14), income (16.56) show very significant and desirable differences to justify the collected data at 5% level of significance.

The below table 1.3 shows the statistical significance of the model with the R-value of 0.507.

Table 1.3: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.507 ^a	.257	.240	18506.47626	.257	14.873	1	43	.000	1.368

a. Predictors: (Constant), Expenses, b. Dependent Variable: Income

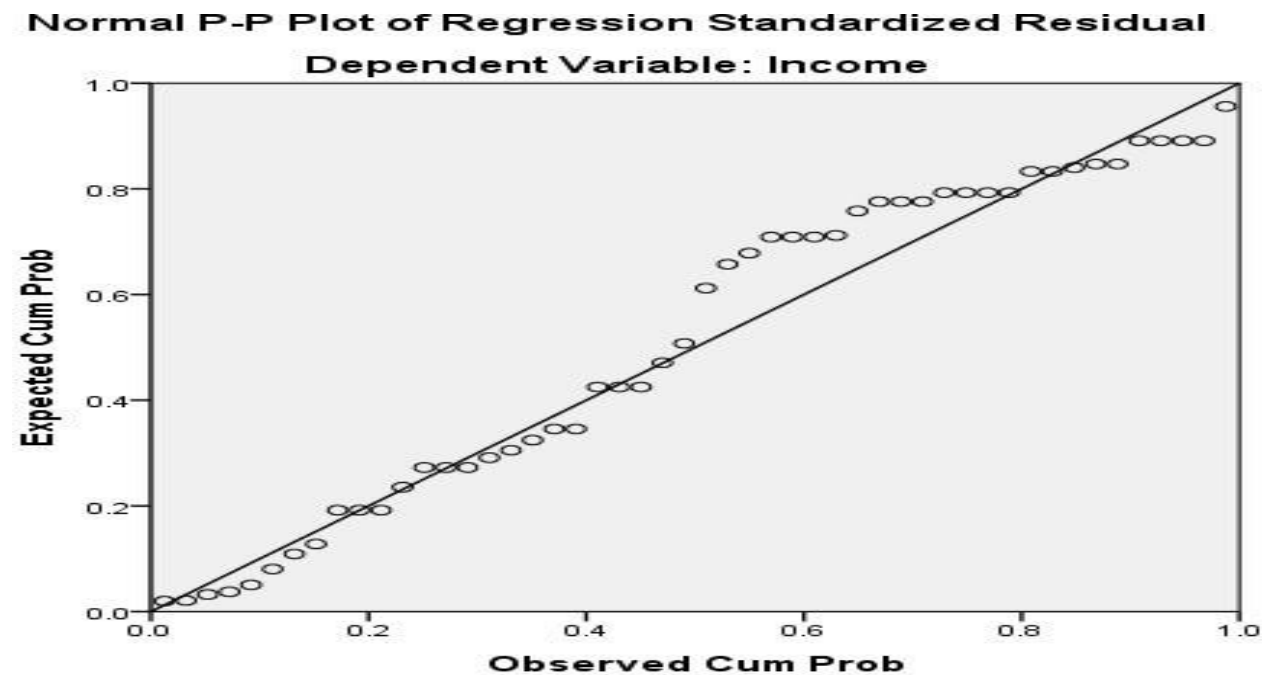


Chart 1.1: Relationship between the variables.

Table 1.4: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Correlations		
	B	Std. Error				Zero-order	Partial	Part
(Constant)	27670.059	13154.428		2.103	.041			
1 Expenses	2.755	.832	.431	3.310	.002	.431	.431	.431

a. Dependent Variable: Income

The estimated β coefficient in the above table 1.4 shows the average expenses incurred by the respondents in the study area. The average expenditure incurred by the fisher folks in the study

area per month is Rs.27670. The slope coefficient is 2.755 are statistically significant at 5% level.

H0: There is no significant relationship between income and expenditure incurred by the respondents in the study area.

Table 1.5. ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	4881599722.030	1	4881599722.030	10.954	.002 ^b
1	Residual	21391905277.970	48	445664693.291		
	Total	26273505000.000	49			

a. Dependent Variable: Income

b. Predictors: (Constant), Expenses

The above analysis (Table 1.5) clearly illustrates the significant relationship between expenditure and income level of the respondents in the study area. The calculated F-value is more than the table value the null hypothesis is rejected. The study analysis shows that the expenditure creates more impact on income of the respondents.

VI. CONCLUSION

From the present study, it is clear that the fishermen of the study area are very fond of fishing as their main source of income to support their families. The enforcement of the ban, climate change issues and the marine pollution due to industrial waste are leading to a decrease in the quality of life. The government and NGOs need to work together to create a growth-oriented policy for the fishermen by providing them an appropriate alternative livelihood.

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