SOCIO-ECONOMIC STUDY OF FISHERFOLK HOUSEHOLDS IN RAMANATHAPURAM DISTRICT

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ABSTRACT

Socio-economic assessment of fisher folk households in the Ramanathapuram District of Tamil Nadu, a region heavily reliant on marine resources was studied. Despite their crucial role in the coastal economy, these communities often face multifaceted challenges, including declining fish stocks, environmental degradation, impacts of climate change, limited access to modern technology, and inadequate market infrastructure. This study aimed to comprehensively analyzed the prevailing socio-economic conditions of these households. We're focusing on key indicators such as income levels, livelihood diversification strategies, educational attainment, health access, and housing quality. Furthermore, the study identified specific vulnerabilities and constraints impeding their sustainable development. Utilizing a mixed-methods approach, primarily through structured surveys and in-depth interviews with a representative sample of fisherfolk, the study seeked to generate empirical insights. The major findings, from research conducted between December 2024 and May 2025, revealed that while fisherfolk in Ramanathapuram's Mandapam block universally had own homes, nearly half lack electricity, and a significant 57% were illiterate. Moderate monthly incomes peaked at Rs.2000-Rs.2500. Crucially, 66% of fishermen faced operational problems, 61% borrowed money, and 41% had no savings, despite high income equality Gini ratio of 0.1573. Primary data were gathered from 150 respondents through structured surveys and in-depth interviews, complemented by extensive secondary data. Suggestions for the study area include enhancing education, improving infrastructure, fostering livelihood diversification, developing financial literacy, strengthening welfare schemes, and addressing operational and expenditure burdens. The findings are expected to inform policymakers and development agencies, facilitating the design of targeted interventions and sustainable livelihood programs to enhance the resilience and well-being of coastal fisher folk communities in Ramanathapuram District.

(Key words: Fisher folk, livelihoods, coastal communities, marine resources, sustainable development and economic growth)

INTRODUCTION

Building on the work of Bavinck *et al.* (2017), this study undertook a comprehensive socio-economic assessment of fisherfolk households in the Ramanathapuram District of Tamil Nadu. Coastal communities across India, particularly in states like Tamil Nadu, have historically played a vital role in the national economy, acting as crucial hubs for maritime trade, cultural exchange, and significant providers of the country's fish supply. Their livelihoods were intrinsically linked to the health of marine ecosystems. Ramanathapuram, profoundly dependent on its rich marine resources, saw fishing as the primary livelihood for generations. Despite their integral contribution, these communities increasingly faced complex and escalating challenges that threatened their existence. Geethalakshmi and Jayalakshmi (2019) identified these multifaceted impediments to well-being as a critical area requiring urgent investigation. Among the significant issues, Jeeva and Kumanan (2021) observed declining fish stocks, often attributed to overfishing, unsustainable practices, and broader environmental changes. Pervasive environmental degradation, pollution, and climate change impacts like erratic weather and rising sea levels further posed direct threats. Jentoft and Chuenpagdee (2009) noted limited access to modern technology, hindering efficiency and safety. Concurrently, inadequate market infrastructure, including poor storage and transportation, restricted fair prices and wider market access. Given these complex challenges, this research, as inspired by Kumar and Senthilnathan (2017) was meticulously designed to thoroughly analyze the socio-economic conditions within these vulnerable households. It also paid close attention to educational attainment, evaluating schooling opportunities and barriers, and access to health services, recognizing their link to human capital. As Palanichamy and Kumar (2020) emphasized, our primary objective was not just to describe these conditions, but to identify specific vulnerabilities impeding sustainable development. To achieve this, a mixed-

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methods approach was employed, primarily through structured surveys and in-depth interviews with a representative sample of fisherfolk, echoing Paramasivam and Mahendran (2025).Butle *et al.* (2022) investigated the dietary wheatgrass-induced behavioral responses of freshwater fish. This area of study is crucial, given that feeding is one of the most important factors in commercial fish farming. A well-managed feeding regime can profoundly affect both growth performance and minimize feed wastage. Ultimately, successful aquaculture production will surely help farmers to improve their financial status. This combined quantitative data with qualitative narratives for a holistic understanding. The anticipated findings were intended to serve as a vital resource for policymakers, providing actionable data to facilitate targeted interventions and sustainable livelihood programs, ultimately enhancing the resilience and well-being of Ramanathapuram's coastal fisherfolk for a more secure future.

MATERIALS AND METHODS

Fishing communities in Ramanathapuram's Mandapam block, deeply rooted in marine resources, faced a complex web of challenges that threatened their well-being and traditional way of life. The study revealed that these fishermen, whether boat owners or laborers, encountered significant issues during fishing operations and when selling their catches. These problems, combined with limited family resources and inconsistent awareness of welfare schemes, led to a precarious existence. There was a clear lack of detailed understanding about these compounded effects on their livelihoods and income. Therefore, a crucial need existed to empirically investigate these specific challenges, assess their socio-economic conditions, and analyze welfare scheme effectiveness to inform targeted interventions for sustainable development. The main objectives of the present study were to analyze the house hold characteristics of fishermen families in the study area like education, housing, income, expenditure and saving, to explore the problems faced by fishermen during fishing and marketing and to suggest suitable measure to improve the conditions of fishermen families. Mandapam block, in Ramanathapuram, was a coastal area where fishing had long been the primary livelihood. Located at roughly 9.28°N and 79.12°E, it boasted essential fisheries infrastructure like boatyards and ice plants. This study explored the fishing work here, categorizing fishermen as motorized boat owners or laborers. It delved into their family details, education, and financial burdens. The highlighted the significant challenges they faced both during fishing and when marketing their catches, also analyzing their awareness and use of welfare schemes.

This study relied on both primary and secondary data. Primary data were collected directly from 150 respondents between December 2024 and May 2025 through individual personal interviews, using a pre-designed schedule. We gathered detailed family information, including employment, income, occupation, borrowings, savings, and expenditure, by visiting their villages and the seashore. For secondary data, we consulted published and unpublished sources like books, journals, magazines, pamphlets, and research from various organizations and government offices. To specifically analyze the socio-economic conditions of fishing households in Mandapam block of Ramanathapuram district, primary data were systematically collected. Within Mandapam block, six villages were randomly selected for the survey, and from each of these villages, 25 fishermen households were randomly chosen, culminating in the 150 respondents for primary data collection.The period of the study, based on the information provided in the research methodology, was from December 2024 to May 2025. This is when the primary data were collected from the respondents. The formula for the Gini coefficient, as used in your study, is:

$$G = n \sum x_i \sum (2i - n - 1)x_i$$

where: G: Gini Coefficient - i: Rank of the income when sorted in ascending order (from 1 to n) - n: Total number of respondents/observations - x_i : Individual income of each respondent - $\sum x_i$: Sum of all individual incomes $\sum (2i - n - 1)x_i$: Sum of the products of weighted incomes (where $(2i - n - 1)$ is the weighting factor).

RESULTS AND DISCUSSION

Table 1 provided a comprehensive overview of the demographic profile of the 150 surveyed fisherfolk households in Mandapam block, Ramanathapuram District. The data categorized respondents based on various indicators, offering insights into the social structure and living conditions of the community. Regarding religion, the largest proportion of fisherfolk identified as Muslim, accounting for 39% (59 respondents). Hindu households constituted 35% (52 respondents), while Christian families made up 26% (39 respondents) of the surveyed population. This indicated a diverse religious composition within the fishing community. In terms of family type, nuclear families were predominant, representing 59% (88 respondents), while joint families accounted for 41% (62 respondents). This suggested a shift towards smaller family units within the community. Sankareswari (2024) showed striking finding related to housing status was that all 150 respondents (100%) lived in their own houses, with no reported rented accommodations. However, the housing type varied, with tiled houses being the most common at 51% (77 respondents), followed by hut-type dwellings at 29% (43 respondents), and concrete houses at 20% (30 respondents). This indicated a significant portion of the population resided in less permanent or traditional housing. Regarding electricity facilities, slightly more than half of the households, 53% (79 respondents), had access to electricity, leaving 47% (71 respondents) without it, which suggested a notable gap in basic infrastructure. Analyzing age groups, the community was relatively young, with the largest segment, 50% (75 respondents), falling within the 20-30 years' age bracket. The 30-40 years' group comprised 34% (51

respondents), while older groups (40-50 years and above 40 years) made up 13% (20 respondents) and 3% (4 respondents) respectively. This age distribution pointed to a youthful workforce in the fishing sector. Finally, concerning education level, a significant majority, 57% (86 respondents), were illiterate, highlighting a substantial educational disadvantage. Among those with some schooling, 19% (28 respondents) reached the secondary level, 12% (18 respondents) completed middle school, 10% (15 respondents) attained primary education, and only a minimal 2% (3 respondents) had college-level education. This low literacy rate posed a considerable challenge for social and economic upliftment within these communities. Bodhe *et al.* (2022) revealed the prevalence of important bacterial diseases in fish, which has been a significant area of study. Infrastructure development in Chandrapur and Gadchiroli, though currently limited, could bring about substantial socio-economic development in many parts of these tribal districts. This development would help improve not only aquaculture practices but also the financial status of fish farmers.

Table 2 presented a detailed socio-economic and livelihood profile of the 150 surveyed fisherfolk households in Mandapam block, offering crucial insights into their occupational structure, income, expenditure patterns, and financial behaviors. Regarding their occupational roles, the majority of respondents were laborers, accounting for 67% (100 individuals), while boat owners constituted 33% (50 individuals). In terms of fishing equipment, all 150 respondents (100%) utilized motorized boats, indicating a complete reliance on modern mechanized fishing methods, with no non-motorized boats reported. Analyzing Income, the largest segment of fishermen (34% or 51 respondents) earned between Rs.2000–2500, followed closely by those earning Rs.2500–3000 (30% or 45 respondents). A smaller proportion (17% or 25 respondents) earned Rs.1000–1500, with only 6% (9 respondents) making above Rs.3000. This suggested a relatively moderate income bracket for the majority. For Investment for fishing, the most common range was Rs.2000–3000, accounting for 57% (86 respondents), followed by Rs.3000–4000 (23% or 35 respondents) and Rs.1000-2000 (9% or 13 respondents). Investments above Rs.4000 were reported by 11% (16 respondents). Daily earnings per trip were most frequently in the Rs.100–150 range (37% or 55 respondents), with Rs.150–200 accounting for 33% (50 respondents) and Rs.200–250 for 30% (45 respondents). No respondents reported earnings above Rs.250 trip^{-1}. A significant finding was that 66% (99 respondents) reported facing problems in their fishing activities, highlighting widespread operational difficulties. In terms of working days, 65% (98 respondents) fished for 24 days month^{-1}, indicating a high frequency of engagement, while 35% (52 respondents) fished for 15 days. Borrowing was prevalent, with 61% (91 respondents) reporting that they borrowed, and 39% (59 respondents) did not. Expenditure patterns revealed that food expenses were highest in the Rs.400–500 range (43% or 65 respondents),

with Rs.300–400 (23% or 35 respondents), Rs.500–600 (27% or 40 respondents), and above Rs.600 (7% or 10 respondents). For Education Expenditure, 54% (81 respondents) spent between Rs.40–60, followed by Rs.60–80 (33% or 49 respondents). Medical expenses were considerably high, with 47% (71 respondents) spending above Rs.250. Finally, the saving pattern indicated that a significant 41% (61 respondents) engaged in non-saving, with home savings (27% or 40 respondents) and post office savings (15% or 23 respondents) being more common than bank (9% or 14 respondents) or LIC (8% or 12 respondents) savings. Understanding poverty and inequality theory, as discussed by Singh (2024), was crucial. It provided a framework for effective policy design to reduce poverty and inequality. Applying these theories in our research helped explain the observed income patterns, expenditure burdens, and the challenges faced by the fisherfolk. This insight was vital for informing targeted interventions and promoting sustainable development.

Table 3 presented the detailed calculation for the Gini ratio among the 150 surveyed fisherfolk, differentiating between boat owners and laborers, to assess income inequality within this group. The Gini ratio, or Gini coefficient, was a widely used measure of statistical dispersion intended to represent the income or wealth distribution of a nation's residents, and was the most commonly used measurement of inequality. It ranged from 0 to 1, where 0 represented perfect equality (everyone had the same income) and 1 represented perfect inequality (one person had all the income). The table included several columns necessary for this calculation: 'i' which represented the rank of each respondent's income when sorted in ascending order; 'xi' which was the individual income of each respondent (assumed to be sorted for this calculation); and '$2i - n - 1$', a weighting factor derived from the rank and total number of respondents (n=150). The final column, '$(2i - n - 1) xi$', was the product of the income and its respective weighting factor. The sums provided at the bottom were crucial for the Gini coefficient formula. The total sum of individual incomes ("xi) was Rs.328,450, and the sum of the weighted incomes ("$(2i–n–1)xi$) was Rs.7,751,050.

Using the formula for the Gini coefficient, G=n"xi "$(2i–n–1)xi$, where n was the number of respondents (150): G=150×328,4507,751,050 =49,267,5007,751,050 H"0.1573

The computed Gini ratio for the fisherfolk households in Mandapam block was approximately 0.1573, or 15.73%. This value was remarkably low, indicating a relatively high degree of income equality among the surveyed boat owners and laborers. A Gini coefficient closer to 0 signified a more equitable distribution of income. In this specific context, it suggested that income disparities between motorized boat owners and laborers, while present, were not extremely wide during the period of the study. This finding implied that despite the differing roles and potential variations in daily earnings, the overall income distribution among these fisher folk was fairly concentrated around the average, rather than being skewed towards a

few high earners. Sekhar and Suresh (2018), examined why some individuals or groups possessed significantly fewer resources or opportunities than others, and the systemic factors that perpetuated these disparities. Poverty referred to a state where individuals lacked the financial resources and necessities for a minimum standard of living.It was defined as a condition where individuals could not afford basic needs for survival, such as food, safe drinking water, shelter, and healthcare. It was often measured against a fixed poverty line. Inequality referred to the uneven distribution of resources (income, wealth, assets), opportunities (education, healthcare, jobs), and social standing within a population.Income Inequality described the extent to which income was distributed unevenly among a population.Wealth inequality was the uneven distribution of assets (e.g., property, savings, investments) across a population.This tended to be more concentrated than income inequality.

This study conclude that comprehensively assessed the socio-economic conditions of fisher folk households in Mandapam block, Ramanathapuram District, shedding light on their intricate livelihood dynamics. The demographic analysis revealed a predominantly young and largely illiterate workforce, residing and with uneven access to electricity. The livelihood profile indicated a strong reliance on motorized fishing, predominantly as laborers, with the majority falling into a moderate income bracket. Despite these varied roles, the computed Gini ratio suggested a relatively high degree of income equality within the community, indicating that disparities were not extreme. However, the research underscored significant challenges faced by these fisher folk. Subramanian (2015) inferred that the substantial majority reported persistent problems in their fishing activities, frequently engaged in borrowing, and bore considerable burdens from high food and medical expenditures, often with limited savings. These findings collectively painted a picture of a community resilient yet vulnerable, striving within a traditional livelihood system that confronted increasing pressures. The study concluded that while a degree of income homogeneity existed, the overall socio-economic well-being of Mandapam's fisher folk necessitated targeted interventions to enhance education, improve infrastructure, diversify livelihoods, alleviate financial burdens, and strengthen welfare support for a truly sustainable future.

$$\bar{X} = \frac{\Sigma x_i}{N} = \frac{328450}{150} = 2189$$

$$\sum_{i=1}^{N} (2i-n-1)\, x_i = 7751050$$

$$G = \frac{1}{2 \times 150^2 \times 2189}$$

$$= \frac{7751050}{98505000} = 0.07$$

Table 1. Demographic profile of fisherfolk households

Indicators	Cluster / Grouping	Frequency	% distribution
Religion	Hindu	52	35
	Muslim	59	39
	Christian	39	26
Family type of fishermen	Joint family	62	41
	Nuclear family	88	59
Housing status	Own house	100	100
	Rented house	—	—
Housing type	Hut	43	29
	Tiled	77	51
	Concrete	30	20
Electricity facilities	Electricity facilities	79	53
	Non – electricity facilities	71	47
Age groups	20 – 30	75	50
	30 – 40	51	34
	40 – 50	20	13
	Above 40 years	4	3
Education level	Primary	15	10
	Middle	18	12
	Secondary	28	19
	College	3	2
	Illiterate	86	57

Source: Survey Data

The demographic profile of fisherfolk households revealed a diverse community. Muslims constituted the largest religious group (39%), followed by Hindus (35%) and Christians (26%). Nuclear families were more prevalent (59%) than joint families (41%). All surveyed households owned their homes, predominantly tiled (51%). Just over half (53%) had electricity access. The majority were aged 20-30 years (50%), while a significant portion (57%) were illiterate, with few (2%) having college education.

Table 2. Socio-economic and livelihood profile of Mandapam fisherfolk households

Indicators	Cluster / Grouping	Frequency	% distribution
Owner/Labour	Owner	50	33
	Labour	100	67
Types of boats	Motorized	150	100
	Non-motorized	-	-
Income (in Rs.)	1000 – 1500	25	17
	1500 – 2000	20	13
	2000 – 2500	51	34
	2500 – 3000	45	30
	3000 above	9	6
Investment for fishing (in Rs.)	1000 – 2000	13	9
	2000 – 3000	86	57
	3000 – 4000	35	23
	4000 – above	16	11
Per trip (in Rs.)	100 – 150	55	37
	150 – 200	50	33
	200 – 250	45	30
	250 – above	-	-
Problems of fishermen	Fishermen problems	99	66
	Fishermen non-problems	51	34
Number of days for fishing month^{-1}	15 days	52	35
	24 days	98	65
Borrowing	Borrowing	91	61
	Non- borrowing	59	39
Food (in Rs.)	300 – 400	35	23
	400 – 500	65	43
	500 – 600	40	27
	600 – above	10	7
Education expenditure (in Rs.)	40 – 60	81	54
	60 – 80	49	33
	80 – 100	12	8
	100 – above	8	5
Medical expenditure (in Rs.)	100 – 150	16	11
	150 – 200	32	21
	200 – 250	31	21
	250 – above	71	47
Saving pattern	Bank	14	9
	Post offices	23	15
	Home	40	27
	L I C	12	8
	Non-saving	61	41

Source: Survey Data #

The Mandapam fisherfolk largely operate as laborers (67%) on motorized boats (100%). A significant portion earn between Rs. 2000-2500 monthly (34%), with most investing Rs. 2000-3000 per fishing trip (57%) and earning Rs. 100-150 per trip (37%). Nearly two-thirds reported experiencing problems (66%), and similarly, 61% relied on borrowing. Daily food expenses often ranged from Rs. 400-500 (43%), with education and medical costs also notable. A majority (41%) had no savings.

Table 3. Fishermen of boat owners and labours - computation of Gini ratio

i	xi	2i −n−1	(2i−n−1) xi	i	xi	2i−n−1	(2i −n−1) xi	i	xi	2i −n−1	(2i −n −1) xi
1.	1000	-149	-149000	51.	2000	-49	-98000	101.	2500	51	127500
2.	1000	-147	-147000	52.	2000	-47	-94000	102.	2500	53	132500
3.	1000	-145	-145000	53.	2100	-45	-94500	103.	2500	55	137500
4.	1000	-143	-143000	54.	2100	-43	-90300	104.	2600	57	148200
5.	1000	-141	-141000	55.	2100	-41	-86100	105.	2600	59	153400
6.	1000	-139	-139000	56.	2100	-39	-81900	106.	2600	61	158600
7.	1100	-137	-150700	57.	2100	-37	-77700	107.	2600	63	163800
8.	1100	-135	-148500	58.	2100	-35	-73500	108.	2600	65	169000
9.	1100	-133	-146300	59.	2100	-33	-69300	109.	2600	67	174200
10.	1150	-131	-150650	60.	2150	-31	-66650	110.	2600	69	179400
11.	1150	-129	-148350	61.	2150	-29	-62350	111.	2650	71	188150
12.	1200	-127	-152400	62.	2150	-27	-58050	112.	2650	73	193450
13.	1200	-125	-150000	63.	2200	-25	-55000	113.	2650	75	198750
14.	1200	-123	-147600	64.	2200	-23	-50600	114.	2700	77	207900
15.	1200	-121	-145200	65.	2200	-21	-46200	115.	2700	79	213300
16.	1200	-119	-142800	66.	2200	-19	-41800	116.	2700	81	218700
17.	1300	-117	-152100	67.	2200	-17-	-37400	117.	2700	83	224100
18.	1300	-115	-149500	68.	2250	-15	-33750	118.	2700	85	229500
19.	1300	-113	-146900	69.	2250	-13	-29250	119.	2700	87	234900
20.	1300	-111	-144300	70.	2250	-11	-24750	120.	2750	89	244750
21.	1400	-109	-152600	71.	2300	-9	-20700	121.	2750	91	250250
22.	1400	-107	-149800	72.	2300	-7	-16100	122.	2750	93	255750
23.	1400	-105	-147000	73.	2300	-5	-11500	123.	2800	95	266000
24.	1450	-103	-149350	74.	2300	-3	-6900	124.	2800	97	271600
25.	1450	-101	-146450	75.	2300	-1	-2300	125.	2800	99	277200
26.	1500	-99	-148500	76.	2300	+1	+2300	126.	2800	101	282800
27.	1500	-97	-145500	77	2350	3	7050	127.	2800	103	288400
28.	1500	-95	-142500	78.	2350	5	11750	128.	2800	105	294000
29.	1500	-93	-139500	79.	2350	7	16450	129.	2800	107	299600
30.	1500	-91	-136500	80.	2350	9	21150	130.	2850	109	310650
31.	1500	-89	-133500	81.	2350	11	25850	131.	2850	111	316350
32.	1550	-87	-134850	82.	2350	13	30550	132.	2850	113	322050
33.	1550	-85	-131750	83.	2350	15	35250	133.	2850	115	327750
34.	1600	-83	-132800	84.	2400	17	40800	134.	2900	117	339300
35.	1600	-81	-129600	85.	2400	19	45600	135.	2900	119	345100
36.	1600	-79	-126400	86.	2400	21	50400	136.	2900	121	350900
37.	1600	-77	-123200	87.	2400	23	55200	137.	2900	123	356700
38.	1600	-75	-120000	88.	2400	25	60000	138.	2900	125	362500
39.	1700	-73	-124100	89.	2400	27	64800	139.	2900	127	368300
40.	1800	-71	-127800	90.	2400	29	69600	140.	2950	129	380550
41.	1800	-69	-124200	91.	2450	31	75950	141.	2950	131	386450
42.	1800	-67	-120600	92.	2450	33	80850	142.	3000	133	399000
43.	1900	-65	-123500	93.	2450	35	85750	143.	3000	135	405000
44.	1900	-63	-119700	94.	2450	37	90650	144.	3100	137	42470
45.	1900	-61	-115900	95.	2450	39	95550	145.	3100	139	430900
46.	2000	-59	-118000	96.	2450	41	100450	146.	3200	141	451200
47.	2000	-57	-114000	97.	2500	43	107500	147.	3200	143	457600
48.	2000	-55	-110000	98.	2500	45	112500	148.	3200	145	464000
49.	2000	-53	-106000	99.	2500	47	117500	149.	3400	147	499800
50.	2000	-51	-102000	100.	2500	49	122500	150.	3400	149	506600
							328450				7751050

Source: Calculated Value

Measures like the Gini coefficient (which your study calculated) and the Lorenz curve were used to quantify this. A Gini coefficient of 0 indicated perfect equality, while 1 indicated perfect inequality.

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