



Socio-Economic Analysis of The Estuarine Fishermen Community Along The Nagavali and Vamsadhara Rivers in Andhra Pradesh, India

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| Article History | Abstract |
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| Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 14 Nov 2023 | <p><i>This study conducted an analysis of the socio-economic conditions of fishermen in the estuarine regions of the Nagavali and Vamsadhara rivers in Andhra Pradesh, India. Over a period of two years from June 2012 to May 2014, data was collected to evaluate the livelihood and social status of the fishermen. The study is the first-ever documentation of this specific region. A wide range of data was collected from the study sites to analyze the socio-economic conditions of the fishermen. This included factors such as income generation, age distribution, housing, and literacy rates among the fishermen. It was found that fishing served as the primary source of income for the traditional fishermen, but they also engaged in various non-fishery related activities, which contributed significantly to their annual income. Based on the findings, it is recommended that the fishing profession be legalized and that settlements of traditional fishing communities be supported. These communities should be given priority in receiving necessary support from relevant stakeholders.</i></p> |
| CC License CC-BY-NC-SA 4.0 | <p>Keywords: Estuarine, Fishermen, Nagavali river, Socio-economic, Vamsadhara River</p> |

1. Introduction

The participation of the fishermen community in fishing and fisheries plays a significant role in income and employment generation for both developing and developed countries worldwide (Basavakumar et al., 2011). However, without adequate infrastructural development, the introduction of advanced techniques, and planned utilization of local resources with the involvement of community members, the benefits of fisheries may not be fully realized. Socioeconomic status encompasses various aspects of a community, including income, cost of living, demographic factors, boat transportation, fishing gear, and marketing infrastructure. It provides insight into the social, cultural, and economic conditions of individuals, households, and communities (Kronen et al., 2007). The small-scale fisheries sector, predominantly occupied by populations struggling with severe poverty, presents significant social, economic, and political challenges. Lack of understanding of the socio-economic conditions of fishers and fishing communities hinders effective planning and implementation of fisheries management programs (Devi et al., 2012b; Devi et al., 2014).

An appropriate management policy in fisheries involves the careful selection of inputs that can have a substantial impact on employment, thereby influencing the local economy (Heady, 2000). Socio-economic analysis of fisheries is utilized to support the conservation and management of fisheries industries (e.g., FAO, 2001). Unfortunately, the fishermen community, responsible for the exploitation of fishery resources, remains neglected, with 85% of the total population living below the poverty line (BPL) (Sahoo, 2000). Many fishermen are illiterate, semi-literate, and economically disadvantaged, lacking knowledge of the latest fishery technologies and a proper attitude towards fishery development (Chakraborty et al., 2005). The fishing sector's significance in the Indian economy is increasing due

to the adoption of advanced techniques, aimed at increasing the yield per unit area of water, and its role in foreign exchange earnings. Additionally, proper and planned utilization of local resources with the involvement of community members can help address the twin problems of unemployment and malnourishment in rural India (Datta and Kundu, 2007). Fishermen are among the most vulnerable communities, often living from hand to mouth (Ali et al., 2014).

2. Materials and Methods

Study Area:

The Kallepalli estuary, situated between Longitude 83°-18'-26" E and Latitude 18° -33' - 33" N, is a minor estuary formed by the Nagavali river mouth near Kallepalli village in Srikakulam mandal, Srikakulam district, Andhra Pradesh. Similarly, the Kalingapatnam estuary, situated between Longitude 84° - 11' -67" E and Latitude 17° -89' -39" N, is a minor estuary formed by the Vamsadhara river mouth near Kandrapeta village in Gara mandal, Srikakulam district, Andhra Pradesh.

To collect data on the socio-economic conditions of fishermen in these regions, a field survey was conducted in the sampling sites. The data collection involved two methods: physical observation and questionnaire survey. Personal interviews using questionnaires were conducted to collect data, which were crosschecked with information from NGOs and government officials. Photographs were also taken to illustrate the socio-economic status of the fishermen whenever necessary.

3. Results and Discussion

The study revealed that the total number of fishermen fishing at Kallepalli estuary is approximately 150, and there is no specific name for their fishermen society. In Kalingapatnam there are 75 fishermen organized under the name Odiya Kandra Fishermen Society. In terms of religion and caste, the fishermen at Kallepalli estuary were found to belong to the Odabali and Jalarlu castes, while the fishermen at Kalingapatnam estuary belonged to the bera (oddu) caste.

Regarding the age of the fishermen, at Kallepalli estuary, the percentage of fishermen in the age groups of 20-35 years was 16.66%, 35-50 years was 56.66%, 50-65 years was 20%, and above 65 years was 6.66%. At Kalingapatnam estuary, the percentage of fishermen in the age groups of 20-35 years was 26.66%, 35-50 years was 50.66%, 50-65 years was 13.33%, and above 65 years was 9.33%. (Fig:E)

In terms of marital status, all fishermen at Kallepalli estuary were married, while at Kalingapatnam estuary, 80% of fishermen were married and 20% were unmarried. The study also analyzed the type of houses in the study area. The houses of the fishermen were classified into two main types: Kaccha houses made of bamboo with mud flooring and Pucca houses made of concrete. At Kallepalli estuary, 87% of the fishermen had Pucca houses, while 13% had Kaccha houses. At Kalingapatnam estuary, 95% of the fishermen had Pucca houses, while 5% had Kaccha houses.

Electricity and drinking water facilities were found to be available to the fishermen in both Kallepalli estuary, situated on the Nagavali river, and Kalingapatnam estuary, situated on the Vamsadhara river. The survey revealed that 100% of the fishermen in both areas had access to electricity and drinking water.

In terms of educational qualifications, the majority of fishermen in Kallepalli estuary were found to be illiterate, accounting for 83.33% of the population. The remaining 16.66% were literate, with 60% having attended lower primary school and 40% having completed matriculation. Similarly, all fishermen in Kalingapatnam estuary were literate, with 57.33% having attended lower primary school, 26.66% having completed matriculation, 8% having completed intermediate, and 8% having completed a bachelor's degree. (Fig:F)

When it comes to communication assets, all fishermen possessed radios, while 63% of fishermen in Kallepalli estuary had televisions and 47% of fishermen in Kalingapatnam estuary had televisions. While fishing remained the main occupation for fishermen in both estuaries, some fishermen in Kallepalli estuary (12.66%) engaged in construction labor work, 40% engaged in general labor work, and 4% were willing to take on various types of work based on availability. In Kalingapatnam estuary, 33.33% of fishermen engaged in construction labor work, 40% engaged in general labor work, and 6.66% were willing to take on various types of work based on availability.

In terms of fishing experience, at Kallepalli estuary, 13.33% of fishermen had 0 to 5 years of experience, 30% had 5 to 10 years of experience, 20% had 10 to 15 years of experience, and 36.66% had more than 15 years of experience. In Kalingapatnam estuary, 18.66% of fishermen had 0 to 5 years of experience, 32% had 5 to 10 years of experience, 21.33% had 10 to 15 years of experience, and 28% had more than 15 years of experience. (Fig:G)

The monthly income of the fishermen varied across age groups. In Kallepalli estuary, it ranged from Rs.1000-1500 for fishermen aged 20-30 years, Rs. 1500-5000 for those aged 30-40 years, Rs.1500-6000 for those aged 40-50 years, Rs. 1500-4000 for those aged 50-60 years, and Rs. 1500-3500 for fishermen above 65 years of age. In Kalingapatnam estuary, the monthly income ranged from Rs.800-1500 for fishermen aged 20-30 years, Rs.1500-3000 for those aged 30-40 years, Rs.1500-5500 for those aged 40-50 years, Rs.1500-4000 for those aged 50-60 years, and Rs.1500-3000 for fishermen above 65 years of age.

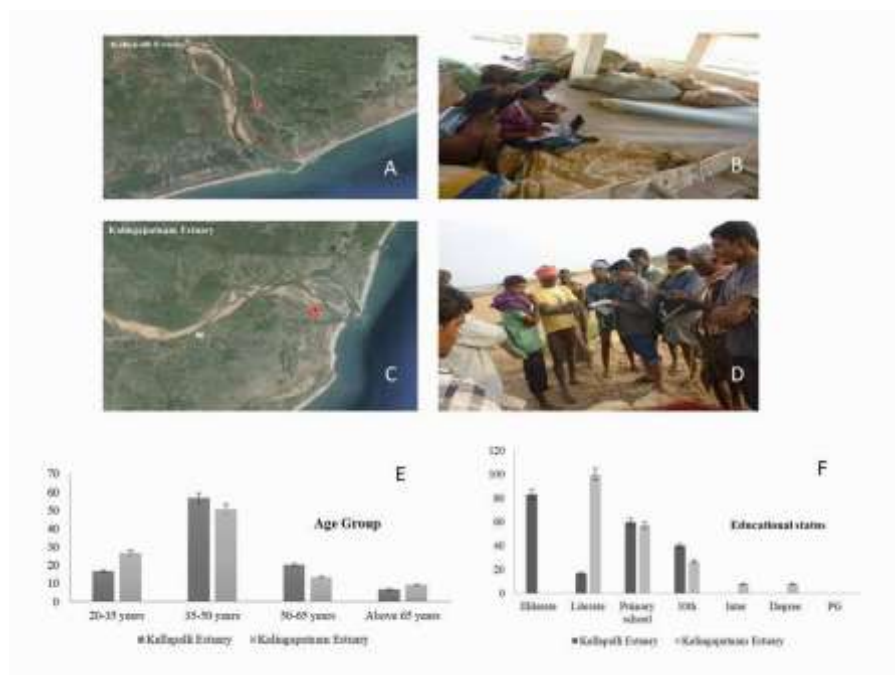
The credit sources for fishermen in both estuaries were typically money lenders and rural banks, with annual interest rates charged by money lenders. It was observed that the literacy level among these fishermen is very low, with the majority being illiterate. Only a few have received primary-level education, and some can only write their name and provide a signature. In terms of education, children tend to drop out after primary school to contribute financially to their families.

Typically, men engage in income-generating activities, while women are involved in both income and non-income-generating activities. Women possess local knowledge related to certain aspects of fisheries, fishing habitats, and related areas. Men are generally responsible for fishing during the night or in areas with strong currents, while women take on the responsibilities of housework, childcare, and reproductive activities. This division of labor sometimes limits women's ability to travel longer distances or stay away from home for extended periods. In seasons where men work as hired laborers, women remain behind to care for the household and provide food for the family.

The income level of fishers tends to be low during ripe seasons and can even fall below the poverty line during odd seasons. Given the current state of resources and unfavorable climatic conditions in recent decades, fishers' livelihoods are vulnerable. Age was found to have a negative relationship with socioeconomic status, indicating that as fishers age, their socioeconomic status declines. This may be due to their declining health, which affects their ability to go fishing and earn income.

Family size was also negatively correlated with socioeconomic status, suggesting that larger families tend to have lower socioeconomic status. This could be attributed to fewer earning members in the family and higher expenditure than income. Natural disasters such as cyclones or heavy floods significantly alter the conditions not only in terms of physical assets but also psychologically. Fishermen, being the worst affected, can experience mental distress due to adverse environmental conditions.

The study found that smoking, betel-nut chewing, and alcohol consumption were common habits among adult fishermen. To improve the overall socioeconomic status of fishermen, it is important to adopt advanced fishing methods and improve education. Economic growth is crucial for reducing poverty at the national level, and addressing these issues requires a focus on education, healthcare, infrastructure, and empowerment, including women.



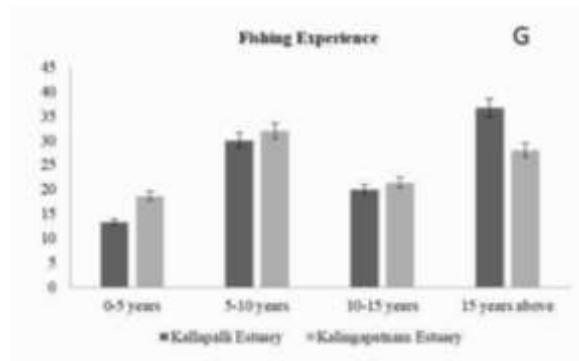


Fig.IA: Kallapalli estuary; **Fig.B:**Kallapalli estuary(Interaction with fisherman); **Fig.C:** Kalingapatnam estuary; **Fig.D:** Kalingapatnam estuary (Interaction with fisherman); **Fig.E.** Age groups of fishermen in Kallepalli and Kalingapatnam estuary; **Fig.F.** Educational status of fishermen in Kalingapatnam and Kallepalli estuary; **Fig.G.** Fishing experience of fishermen in Kallepalli and Kalingapatnam estuary.

Table.1. Socio-economic status of fisher man at Nagavali and Vamsadhara River.

| S.no | Parameters | Number | | Percentage | Kalingapatnam Estuary | Percentage |
|------|---------------------------|-----------------------|-------|------------|--------------------------------|------------|
| | | Kallapalli Estuary | | | | |
| 1 | Total number of fishermen | 150 | | | 75 | |
| 2 | Society name | _____ | | | Odiya Kandra Fishermen Society | |
| 3 | Caste | Odabaliijilu, Jalarlu | | | Bera (oddu) | |
| 4 | Age group | | | | | |
| | 20-35 years | 25members | 16.66 | | 20 members | 26.66 |
| | 35-50 years | 85 members | 56.66 | | 38 members | 50.66 |
| | 50-65 years | 30 members | 20 | | 10 members | 13.33 |
| | Above 65 years | 10 members | 6.66 | | 7 members | 9.33 |
| 5 | Marital Status | | | | | |
| | Married | 150 members | 100 | | 60 members | 80 |
| | Unmarried | 0 | 0 | | 15 members | 20 |
| 6 | Type of house | Kaccha, | | | Kaccha, Pucca | |
| | | Pukka | | | | |
| | | Kaccha | 13 | | Kaccha | 5 |
| | | Pukka | 87 | | Pukka | 95 |
| 7 | Electricity | Present | 100 | | Present | 100 |
| 8 | Drinking Water | Present | 100 | | Present | 100 |
| 9 | Educational status | | | | | |
| | Illiterate | 125 members | 83.33 | | 0 members | 0 |
| | Literate | 25 members | 16.66 | | 75 members | 100 |
| | Primary school | 15 members | 60 | | 43 members | 57.33 |
| | 10th | 10 members | 40 | | 20 members | 26.66 |
| | Inter | 0 members | 0 | | 6 members | 8 |
| | Degree | 0 members | 0 | | 6 members | 8 |
| PG | 0 members | 0 | | 0 members | 0 | |

| | | | | | |
|----|---------------------------------|-------------|-------|------------|-------|
| 10 | Communication asset possess | Radio | 100 | Radio | 100 |
| | | Television | 63 | Television | 47 |
| 11 | Main occupation | | | | |
| | Fishing | 150 members | 100 | 75 members | 100 |
| | Construction labour | 19 members | 12.66 | 25 members | 33.33 |
| | Labour work | 60 members | 40 | 30 members | 40 |
| | All above (as per availability) | 6 members | 4 | 5 members | 6.66 |
| 12 | Fishing experience | | | | |

| | | | | | |
|----|--|------------------------|-------|------------------------|-------|
| | 0-5 years | 20 | 13.33 | 14 | 18.66 |
| | 5-10 years | 45 | 30 | 24 | 32 |
| | 10-15 years | 30 | 20 | 16 | 21.33 |
| | 15 years above | 55 | 36.66 | 21 | 28 |
| 13 | Monthly income of the family with age distribution | | | | |
| | 0 -10 years | 0 | | 0 | |
| | 10-20 years | 0 | | 0 | |
| | 20-30 years | Rs 1000- 1500 | | Rs 800 - 1500 | |
| | 30-40 years | Rs 1500- 5000 | | Rs 1500- 3000 | |
| | 40-50 years | Rs 1500-6000 | | Rs 1500 - 5500 | |
| | 50-60 years | Rs 1500-4000 | | Rs 1500 - 4000 | |
| | Above 65 years | Rs 1500-3500 | | Rs 1500 - 3000 | |
| 14 | Credit source | Banks, Village finance | | Banks, Village finance | |

4. Conclusion

In conclusion, fishing plays a vital role in the economy of fishing communities in the Kallepalli estuary of the Nagavali river and the Kalingapatnam estuary of the Vamsadhara river. However, the income patterns of fishermen are insufficient to meet their annual expenditures, impacting their lifestyle and forcing them to seek alternative sources of income. The lack of infrastructure for fish landing and conservation poses a significant challenge to developing alternative market strategies, which would increase economic returns for fishers and reduce their dependence on intermediaries.

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