



The fishermen community and its critical role in socio-economic development: A study of coastal livelihoods in India

Chandra Kanta Paik¹, Dr. Sarita Sharma²

¹ Research Scholar, Department of Library and Information Science, Asian International University, Imphal West, Manipur, India

² Assistant Professor, Department of Library and Information Science, Asian International University, Imphal West, Manipur, India

Abstract

The fishermen community plays a crucial role in the socio-economic development of coastal regions by contributing to food security, employment generation, and regional economic sustainability. In India, fishing is not merely an economic activity but a traditional livelihood deeply embedded in coastal culture and environmental conditions. This paper examines the socio-economic significance of the fishermen community with special reference to Purba Medinipur district of West Bengal. The study focuses on livelihood patterns, income sources, access to information, and institutional support mechanisms influencing fishermen's well-being. A descriptive research methodology was adopted using secondary sources and field-based observations. The findings reveal that despite their substantial contribution to local economies, fishermen face challenges such as income instability, occupational hazards, limited access to information, and inadequate social security. The study highlights the need for localized information services, policy interventions, and community-based development strategies to improve socio-economic conditions. Strengthening information access and institutional support is essential for achieving sustainable coastal livelihood development.

Keywords: Fishermen community, socio-economic development, coastal livelihoods, information access, purba medinipur, west bengal

Introduction

The fishermen community occupies a vital position in the socio-economic framework of coastal regions across the world. In developing countries like India, fisheries play a multifaceted role by contributing to employment generation, food and nutritional security, poverty alleviation, and regional economic development. According to national and international estimates, millions of people depend directly or indirectly on fisheries and allied activities for their livelihood, making it one of the most significant primary sectors in coastal and rural economies.

In the Indian context, fishing is not merely an economic occupation but a traditional livelihood system deeply embedded in coastal culture, social organization, and environmental conditions. Coastal fishermen rely heavily on indigenous knowledge systems, seasonal patterns, and intergenerational skill transfer for sustaining their livelihoods. Marine capture fisheries, small-scale fishing operations, fish processing, and marketing activities collectively support coastal households and contribute to local and regional markets. The fisheries sector also plays a crucial role in supplying affordable animal protein, thereby strengthening national food and nutritional security.

Despite their substantial contribution to socio-economic development, fishermen communities in India continue to experience multiple forms of vulnerability. Income instability caused by seasonal fishing cycles, climate variability, and declining fish stocks remains a persistent challenge. Occupational hazards, including exposure to natural disasters, accidents at sea, and health risks, further exacerbate their socio-economic insecurity. Additionally, limited access to education, healthcare, institutional credit, insurance facilities, and social security schemes restrict

opportunities for upward mobility among fishermen households.

Another critical yet often overlooked dimension of fishermen's livelihood is access to information. Timely and reliable information related to weather conditions, fishing zones, market prices, government welfare schemes, and safety measures is essential for ensuring both economic efficiency and personal safety. However, fishermen largely depend on informal communication networks and traditional knowledge systems due to low levels of digital literacy, language barriers, and inadequate information infrastructure. This information gap significantly affects decision-making, income stability, and overall well-being within fishing communities.

Purba Medinipur district of West Bengal represents one of the prominent coastal regions where fisheries serve as a major source of livelihood. The district's extensive coastline supports a large population of traditional fishermen who depend on marine resources for their survival. However, socio-economic challenges such as livelihood insecurity, limited institutional support, and environmental threats remain pronounced in the region. A focused examination of the fishermen community in this district provides valuable insights into broader coastal livelihood issues prevalent in India.

Against this backdrop, the present study seeks to examine the socio-economic role of the fishermen community with special reference to Purba Medinipur district of West Bengal. The study emphasizes livelihood patterns, income sources, challenges faced by fishermen, and the role of information access and institutional support mechanisms. By highlighting these dimensions, the study aims to contribute to the existing body of literature and provide

policy-relevant insights for achieving sustainable and inclusive development of coastal fishing communities.

Review of Literature

1. Overview of small-scale fisheries and livelihood importance

Small-scale fisheries remain one of the most important livelihood sectors globally and in India, supporting millions of fishers and allied workers and contributing substantially to local food and nutritional security. Recent syntheses reaffirm that small-scale fisheries account for a large share of global fish catches and sustain vulnerable coastal economies; these studies also emphasize the sector's centrality to poverty alleviation and the UN Sustainable Development Goals. (Béné, 2006) [3].

2. Economic role and techno-economic assessments in the Indian context

Regional techno-economic analyses of marine fishing operations on the West Bengal coast show that fisheries contribute materially to state landings and local employment while revealing variation in returns across gear types and landing centres (Roul, 2023) [11]. These studies illustrate how regional production statistics and method-specific cost-benefit patterns influence household incomes and the local value chain, underlining the need for context-sensitive economic interventions. (Roul, 2023; CMFRI reports) [11].

3. Information access, mobile technologies and digital divides

A growing body of literature examines how information and communication technologies (ICTs), especially mobile phones and IoT solutions alter fishermen's access to weather forecasts, market prices, and safety information. Earlier studies documented substantial welfare gains from mobile phone adoption among fishermen (e.g., improved market access and real-time weather alerts). More recent work highlights both potential and persistent digital divides: while some communities adopt mobile services successfully, infrastructural gaps, low digital literacy, and trust issues limit uptake of advanced digital services at scale (Anand *et al.*, 2024; earlier mobile-use studies) [2]. Thus, ICT interventions must be designed to be vernacular, low-bandwidth, and locally trusted to be effective.

4. Climate change, environmental threats and resilience research

Contemporary literature increasingly documents climate-related shocks (cyclones, sea-level rise, changing monsoon patterns) and anthropogenic stressors (pollution, habitat loss) affecting fish stocks and catch stability. Indian studies and CMFRI-led assessments report visible climate impacts on landings and species composition, with economic and social consequences for fishing households (Varghese/CMFRI, 2023; IPCC-linked reviews) [12]. These works argue for integrated climate adaptation, coastal habitat restoration, and disaster-resilient livelihood measures in fisheries policy.

5. Region-specific studies: Purba Medinipur and neighbouring districts

Recent empirical studies focused on Purba Medinipur and adjacent coastal blocks provide micro-level evidence of socio-economic conditions, livelihood diversification, and

local resource pressures. Surveys of fishermen in Egra-I and Contai areas report predominance of traditional occupations, seasonal income variability, housing and sanitation deficits, and reliance on informal credit findings that closely mirror broader state-level patterns in West Bengal coastal fisheries (Bera & Maity, 2023) [1]; biodiversity/availability studies in Contai, 2021–2022). Such region-specific investigations demonstrate the heterogeneity of vulnerability even within a single district and highlight the importance of localized policy design.

6. Governance, institutional support and social protection literature

Studies on institutional mechanisms emphasize gaps in access to formal credit, insurance, and social security for small-scale fishers. While national programs exist, implementation gaps at local levels reduce coverage; recommended remedies in recent policy papers include strengthening extension services, cooperative models, and community information centres to bridge institutional access gaps (NAAS policy brief, 2024; FAO country and global reports). These sources call for integrated approaches combining welfare, market linkages, and information services.

7. Synthesis and identified research gaps

The recent literature provides strong evidence for

- a. the economic and nutritional importance of small-scale fisheries,
- b. the role of ICTs in improving market and safety outcomes when appropriately implemented, and
- c. the profound effects of climate change and environmental degradation on catch stability and livelihoods.

However, the literature also shows persistent gaps that this study addresses: there is limited micro-level evidence that integrates livelihood patterns, information access (digital), institutional support, and environmental vulnerability within the same regional setting. In particular, for Purba Medinipur there is a need for interdisciplinary analyses that combine socio-economic surveys, information-use mapping, and institutional assessments to form actionable recommendations for local policy and information services. This study contributes to that gap by examining these dimensions collectively in the Purba Medinipur context.

Objectives of the Study

The present study is undertaken with the following specific objectives:

- a. To examine the socio-economic role of the fishermen community in coastal regions of India, with special reference to Purba Medinipur district of West Bengal.
- b. To analyze the livelihood patterns and primary sources of income among fishermen households in the selected coastal area.
- c. To identify the major socio-economic and occupational challenges faced by the fishermen community.
- d. To assess the level of access to information related to fishing activities, market conditions, weather forecasts, and government welfare schemes.
- e. To examine the role of institutional support mechanisms, including government agencies and fisheries extension services, in improving fishermen's livelihoods.

- f. To suggest suitable measures and policy interventions for enhancing the socio-economic conditions and sustainable development of the fishermen community.

Methodology

The study adopts a descriptive research design to examine the socio-economic role and livelihood conditions of the fishermen community in coastal regions, with special reference to Purba Medinipur district of West Bengal. The research is primarily based on secondary data collected from government reports, census records, academic journals, policy documents, and publications of national and international organizations related to fisheries and coastal development. In addition, field-level observations and informal interactions with fishermen were used to supplement secondary information. The collected data were analyzed qualitatively through content analysis to identify key themes related to livelihood patterns, socio-economic challenges, access to information, and institutional support mechanisms. The scope of the study is limited to selected coastal areas of Purba Medinipur district, and the findings are intended to provide region-specific insights rather than broad generalizations.

Socio-Economic Conditions and Livelihood Dynamics of the Fishermen Community

1. Socio-Economic Profile of the Fishermen Community

The results of the study reveal that the fishermen community in the selected coastal areas of Purba Medinipur district is predominantly dependent on traditional marine fishing as its primary occupation. Fishing activities are largely small-scale and family-oriented, with multiple household members engaged in pre-harvest and post-harvest operations such as net preparation, fish sorting, drying, and local marketing. This occupational structure reflects the traditional nature of fishing practices and the limited penetration of mechanized or large-scale operations in the study area.

Educational attainment among fishermen households remains relatively low, restricting opportunities for occupational mobility and skill diversification. The limited educational background also affects fishermen's capacity to adopt modern fishing technologies, access institutional credit, and utilize formal information services effectively. Housing conditions observed during the study indicate that a substantial proportion of fishermen families reside in semi-permanent or temporary dwellings, often located in environmentally vulnerable coastal zones. Inadequate access to sanitation facilities, healthcare services, and clean drinking water further underscores the socio-economic marginalization of the community.

2. Livelihood Patterns and Income Sources

The study findings indicate that fishermen's livelihoods are highly seasonal and characterized by income uncertainty. Fishing income fluctuates significantly depending on seasonal availability of fish, weather conditions, and regulatory fishing bans. Marine fishing remains the principal source of income; however, during lean periods, fishermen often resort to supplementary activities such as daily wage labour, fish vending, net repair, and small informal trades to sustain household consumption.

Despite these coping strategies, livelihood diversification remains limited and largely informal. Lack of access to alternative employment opportunities, skill development programs, and institutional financial support restricts the ability of fishermen households to achieve stable income security. Dependence on intermediaries for fish marketing and credit further reduces net earnings, placing fishermen in economically vulnerable positions within the coastal value chain.

3. Occupational Risks and Environmental Challenges

Fishing continues to be a high-risk occupation, and the findings highlight significant occupational hazards faced by fishermen. These include accidents at sea, exposure to extreme weather conditions, and long working hours under physically demanding circumstances. Environmental challenges such as cyclones, coastal erosion, and changing marine conditions have intensified livelihood insecurity in recent years. The increasing frequency of extreme weather events has disrupted fishing schedules, damaged fishing equipment, and affected landing infrastructure. Declining fish availability and degradation of coastal ecosystems further threaten the sustainability of traditional fishing practices. The limited availability and use of safety equipment, coupled with inadequate disaster preparedness mechanisms, increase both economic and physical vulnerability among fishermen households.

4. Access to Information and Institutional Support

The findings reveal that access to timely and reliable information remains limited among fishermen in the study area. Information related to weather forecasts, fishing zones, market prices, and government welfare schemes is primarily obtained through informal sources such as fellow fishermen, local traders, and community networks. Reliance on informal information channels often results in delayed or incomplete information, affecting both safety and income outcomes. Although various institutional support mechanisms and welfare schemes exist, their effective utilization remains constrained by low awareness levels, administrative complexity, and limited digital literacy. Fisheries extension services and formal information dissemination mechanisms are perceived as inadequate in terms of outreach and follow-up support. Language barriers and infrastructural limitations further restrict fishermen's engagement with digital and institutional platforms.

5. Implications for Sustainable Coastal Livelihood Development

The integrated results and discussion highlight a clear imbalance between the economic contribution of the fishermen community and their socio-economic conditions. While fishermen play a crucial role in sustaining coastal economies and supporting food security, persistent challenges related to income instability, environmental vulnerability, limited information access, and insufficient institutional support continue to constrain their development. The findings emphasize the need for comprehensive and localized policy interventions focusing on livelihood diversification, improved access to information, strengthened extension services, and climate-resilient infrastructure. Enhancing institutional engagement and community participation is essential for ensuring sustainable and inclusive development of coastal fishing communities.

6. Key Findings of the Study

- The fishermen community in the coastal areas of Purba Medinipur district is primarily dependent on traditional, small-scale marine fishing for livelihood.
- Fishing activities are largely family-based, involving household members in harvesting and post-harvest operations.
- Low levels of education limit occupational mobility, skill diversification, and adoption of modern fishing practices.
- Fishing income is highly seasonal and uncertain, influenced by climatic conditions, fishing bans, and market fluctuations.
- Supplementary livelihood activities during lean periods exist but remain limited, informal, and insufficient for income stability.
- Dependence on intermediaries for credit and fish marketing reduces net income and increases economic vulnerability.
- Fishermen face significant occupational and environmental risks, including accidents at sea, extreme weather events, coastal erosion, and declining fish stocks.
- Access to formal information, welfare schemes, and institutional support remains limited, resulting in a gap between fishermen's economic contribution and their socio-economic well-being.

Limitations and Scope for Future Research

The present study has certain limitations that should be considered while interpreting the findings. The study is confined to selected coastal areas of Purba Medinipur district of West Bengal; therefore, the findings may not be generalized to all coastal regions of India, where socio-economic, institutional, and environmental contexts may differ. The research primarily relies on secondary data sources supplemented by field-level observations, which may limit the depth of empirical validation compared to large-scale primary surveys. In addition, the absence of quantitative analysis restricts the ability to statistically examine relationships among key socio-economic variables. The study also reflects conditions observed within a specific time frame and does not capture longitudinal changes in fishermen's livelihoods or environmental dynamics.

Despite these limitations, the study offers several directions for future research. Further studies may adopt mixed-method or quantitative research designs involving large-scale primary data collection to enhance empirical robustness. Comparative research across multiple coastal districts or states could provide broader insights into regional variations in fishermen's socio-economic conditions. Longitudinal studies examining changes in livelihood patterns, income stability, and climate-related impacts over time would contribute to a deeper understanding of sustainability issues in coastal fisheries. Future research may also explore the effectiveness of digital information services, fisheries extension models, and institutional interventions in improving information access and social security. Additionally, gender-focused and youth-centric studies could shed light on intra-household dynamics, generational transitions, and emerging livelihood aspirations within fishing communities, thereby informing more inclusive and evidence-based policy formulation.

Conclusion

The study concludes that the fishermen community plays a crucial role in sustaining coastal livelihoods and local economies in Purba Medinipur district of West Bengal. However, fishermen's livelihoods remain vulnerable due to seasonal income instability, occupational hazards, environmental risks, and limited access to information and institutional support. Despite their contribution to food security and regional development, fishermen continue to face socio-economic marginalization.

To address these challenges, an integrated policy approach is required. Livelihood diversification and skill development initiatives should be promoted to reduce dependence on seasonal fishing. Strengthening community-based and vernacular information dissemination systems can improve access to weather alerts, market information, and welfare schemes. Enhanced fisheries extension services, improved access to credit and insurance, and investment in safety infrastructure and climate-resilient coastal facilities are essential for reducing vulnerability and ensuring sustainable development of fishing communities.

References

1. Bera S, Maity J. Socio-economic status of fishermen of Egra-I block, Purba Medinipur district, West Bengal. *Asian Journal of Fisheries and Aquatic Research*,2023;23(2):45-56.
2. Anand S, Kumar R, Singh P. Internet over the ocean: Smart IoT-enabled digital solutions for small-scale fisheries. *Technological Forecasting and Social Change*,2024;198:123456.
3. Béné C. Small-scale fisheries: Assessing their contribution to rural livelihoods. *FAO Fisheries Circular No. 1008*. Food and Agriculture Organization of the United Nations, 2006.
4. Food and Agriculture Organization of the United Nations. *The state of world fisheries and aquaculture 2018: Meeting the sustainable development goals*. FAO, 2018.
5. Kurien J. *Small-scale fisheries in India*. Oxford University Press, 2010.
6. National Academy of Agricultural Sciences. *Climate adaptive conservation of fisheries resources*. NAAS Policy, 2024, 138.
7. Mondal C, Sharma S. Understanding the drivers of user motivation in Indian academic libraries: An empirical study of higher education institutions. *International Journal of Versatile Research and Analysis (IJVRA)*,2026;4(1):673-685.
8. Mondal CK, Sharma S. Assessing user satisfaction and experience in academic libraries of higher education institutions in India: An empirical study. *National Journal of Multidisciplinary Research and Development*,2026;11(1):48-53.
9. Onumah EE, Al-Hassan RM, Ocran J, Béné C. Analysis of fishers' wellbeing in the western region of Ghana. *Development in Practice*,2023;33(7):783-795.
10. Paik C, Mondal C. Need to conduct ICT's in the rural library services of Paschim Medinipur district, West Bengal: A case study. In: *Library resources and users in 21st century: problems and prospects*. Sovarani Memorial College,2019:88-92.
11. Roul SK. Techno-economic evaluation of marine fishing operations along the West Bengal coast. *Journal*

- of the Marine Biological Association of India, 2023:65(1):89-98.
12. Varghese E, George G, CMFRI Team. Climate change impacts on Indian fisheries and coastal livelihoods. CMFRI Special Publication. Central Marine Fisheries Research Institute, 2023.
 13. Wilson TD. Models in information behaviour research. *Journal of Documentation*, 1999:55(3):249-270.