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Information seeking-behaviour and use of ict among fishermen of Purba Medinipur, West Bengal

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Abstract
This study examines the information-seeking behaviour and use of information and communication technologies (ICTs) among fishermen in the coastal district of Purba Medinipur, West Bengal. Using a quantitative descriptive survey approach, primary data were collected from 170 fishermen through a structured questionnaire. The study analyses fishermen's information needs, sources of information, patterns of ICT usage, and challenges in accessing digital information. The findings indicate that fishermen primarily seek information related to weather forecasts, sea conditions, safety measures, and market prices. Interpersonal sources remain the most trusted, while mobile phones are increasingly used for information access. However, the use of smartphones, internet services, and mobile applications remains limited due to poor network connectivity, low digital literacy, language barriers, and cost-related constraints. The study highlights the need for user-centred, technology-enabled information services to improve information access and support sustainable coastal livelihoods.

Keywords: Information-seeking behaviour, fishermen, ict, coastal livelihoods, digital divide, Purba Medinipur

Introduction

Information plays a pivotal role in shaping livelihood decisions, particularly for occupational groups whose activities are closely linked to natural resources and environmental uncertainty. Among such groups, fishing communities are especially vulnerable, as their livelihoods depend heavily on fluctuating factors such as weather conditions, sea state, fish availability, market dynamics, technological inputs, and regulatory frameworks. Timely, accurate, and reliable information is therefore essential not only for economic sustainability but also for ensuring safety at sea and reducing occupational risks.

In recent decades, the rapid expansion of information and communication technologies (ICTs) has significantly transformed the processes of information generation, dissemination, and access. Tools such as mobile phones, internet-based platforms, satellite-supported weather forecasting systems, and digital government services have created new opportunities for fishermen to access critical information related to weather alerts, potential fishing zones, market prices, safety advisories, and welfare schemes. These technological interventions have the potential to improve decision-making, enhance productivity, and strengthen livelihood resilience. However, the actual adoption and effective utilisation of ICTs among fishing communities remain uneven and context-dependent.

In developing countries like India, fishing communities often face multiple socio-economic and infrastructural challenges that limit their access to formal and technology-driven information systems. Low levels of education, limited digital literacy, inadequate network connectivity, language barriers, affordability issues, and reliance on traditional knowledge systems continue to shape information-seeking behaviour among fishermen. As a result, interpersonal sources such as fellow fishermen, boat owners, traders, and local networks remain dominant, despite their limitations in terms of accuracy, timeliness, and reliability.

India possesses one of the largest fisheries sectors in the world, supporting millions of people who depend on marine and inland fisheries for their livelihoods. West Bengal, with its extensive coastline along the Bay of Bengal, occupies a significant position in the fisheries economy of eastern India. The coastal district of Purba Medinipur, in particular, contributes substantially to marine fishing activities and local employment. Despite this importance, fishermen in this region continue to experience high levels of livelihood vulnerability due to natural hazards, income instability, and limited access to institutional information, and inadequate technological infrastructure.

From the perspective of Library and Information Science (LIS), the study of information-seeking behaviour focuses on understanding how individuals recognise information needs, identify and access information sources, evaluate information, and apply it in decision-making processes. Examining the information-seeking behaviour of fishermen is therefore crucial for designing inclusive, user-centred information systems and services that address the needs of marginalised and occupationally vulnerable communities. Although previous studies have explored information needs and ICT use among fishing communities in different regions, empirical research focusing on district-level contexts particularly in Purba Medinipur remains limited.

In this context, the present study seeks to examine the information-seeking behaviour of fishermen in the coastal district of Purba Medinipur, West Bengal, with specific emphasis on the role of ICTs in facilitating access to livelihood-related information. By analysing fishermen's information needs, preferred information sources, patterns of technology use, and the challenges they encounter in accessing digital information, the study aims to generate insights that can support policymakers, information professionals, and development agencies in designing

effective, context-sensitive, and sustainable information services for coastal fishing communities.

Review of Literature

Information-seeking behaviour constitutes a central domain of research in Library and Information Science, focusing on how individuals recognise information needs, locate appropriate information sources, and utilise information for effective decision-making (Joshi & Mandalia, 2020) [2]. In recent years, scholarly attention has extended beyond conventional user groups to include occupational and marginalised communities whose livelihoods are critically dependent on timely, accurate, and reliable information (Aker, 2011). Among such communities, fishermen require diverse forms of information, particularly related to weather forecasts, sea conditions, fishing zones, market prices, safety measures, and government welfare schemes (Chaudhuri & Bose, 2014; Nath & Mondal, 2017).

Existing studies indicate that inadequate access to accurate and timely information significantly increases livelihood risks and economic vulnerability among fishing communities. The expansion of information and communication technologies (ICTs) has contributed to improved access to livelihood-related information, especially through mobile phones, which have emerged as a key medium for receiving weather alerts, market updates, and safety-related information (Aker, 2011; Singh & Sharma, 2018). Despite this progress, research suggests that the use of technology among fishermen remains largely confined to basic mobile services, with limited adoption of advanced digital platforms and specialised applications (Joshi & Mandalia, 2020) [2].

Notwithstanding technological advancements, interpersonal sources such as fellow fishermen, traders, and local community networks continue to be the most trusted and frequently utilised sources of information. These sources are valued for their familiarity and experiential knowledge, even though they may lack accuracy and timeliness (Joshi & Mandalia, 2020) [2]. At the same time, the literature highlights the persistence of a digital divide resulting from low levels of digital literacy, language barriers, poor network connectivity, and affordability constraints, which collectively restrict the effective use of technology-based information services (World Bank, 2017; Maity *et al*., 2020) [4].

Studies conducted in Indian coastal regions, including West Bengal, reveal a hybrid pattern of information-seeking behaviour in which traditional knowledge systems coexist with limited use of mobile-based and digital information sources (Nath & Mondal, 2017; Maity *et al*., 2020) [4]. While fishermen increasingly recognise the potential benefits of technology-enabled information, structural and socio-economic barriers continue to shape their information access and usage patterns.

However, district-level, technology-focused studies that explicitly link information access with coastal livelihoods remain limited, particularly in the context of Purba Medinipur (Roy, 2009; Joshi & Mandalia, 2020) [2, 7]. Overall, the reviewed literature suggests that although ICTs hold considerable potential for enhancing information access among fishermen, their effective utilisation is constrained by persistent socio-economic and infrastructural challenges. The present study seeks to address this research gap by examining the information-seeking behaviour of fishermen in Purba Medinipur, West Bengal, with specific emphasis on technology and information access.

Objectives of the Study

The primary objective of the present study is to examine the information-seeking behaviour of fishermen in the coastal district of Purba Medinipur, West Bengal, with particular emphasis on the role of information and communication technologies (ICTs) in facilitating access to livelihood-related information.

The specific objectives of the study are to:

1. Identify the nature and types of information required by fishermen for their livelihood activities, including weather conditions, fishing zones, market prices, safety measures, and government welfare schemes.
2. Examine the patterns of information-seeking behaviour adopted by fishermen in Purba Medinipur.
3. Identify the various sources of information used by fishermen, including interpersonal, traditional, and technology-based sources.
4. Assess the level of awareness, access, and utilisation of information and communication technologies (ICTs) among fishermen.
5. Analyse fishermen's perceptions regarding the usefulness, reliability, and trustworthiness of technology-based information sources.
6. Examine the challenges and barriers faced by fishermen in accessing and using digital and technology-driven information services.
7. Study the influence of socio-economic and demographic factors on fishermen's information-seeking behaviour and adoption of ICTs.
8. Assess the role of information access in supporting livelihood-related decision-making among fishermen.
9. Identify the nature and extent of the digital divide affecting fishermen in the study area.
10. Suggest appropriate measures and recommendations for improving information access and designing user-centred, technology-enabled information services for coastal fishing communities.

Research Questions

The present study seeks to address the following research questions:

1. What types of information do fishermen in the coastal district of Purba Medinipur require for their livelihood-related activities?
2. How do fishermen in the study area recognise their information needs and seek information to support their fishing practices?
3. Which sources of information interpersonal, traditional, and technology-based are most frequently used by fishermen?
4. To what extent are fishermen aware of, and able to access, information and communication technologies (ICTs) for obtaining livelihood-related information?
5. How do fishermen perceive the usefulness, reliability, and trustworthiness of technology-based information sources?
6. What challenges and barriers do fishermen face in accessing and using digital and technology-driven information services?

7. How do socio-economic and demographic factors influence fishermen's information-seeking behaviour and adoption of ICTs?
8. What role does information access play in fishermen's livelihood-related decision-making processes?
9. In what ways does the digital divide affect information access and utilisation among fishermen in Purba Medinipur?
10. What measures can be proposed to improve information access and enhance the effectiveness of technology-enabled information services for coastal fishing communities?
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Methodology

The study adopted a quantitative research approach using a descriptive survey design to examine the information-seeking behaviour and use of information and communication technologies (ICTs) among fishermen in the coastal district of Purba Medinipur, West Bengal. The study area was selected purposively due to its extensive coastline and concentration of fishing communities.

The population comprised fishermen engaged in marine fishing activities in selected coastal villages of Purba Medinipur. A total of 170 fishermen were selected using a purposive sampling technique. Primary data were collected through a structured questionnaire focusing on information needs, sources of information, ICT usage, and challenges in accessing digital information services. Data was collected through personal field visits. The collected data were coded, tabulated, and analysed using descriptive statistical techniques such as frequency distribution and percentage analysis. Ethical considerations, including informed consent and confidentiality of responses, were strictly maintained throughout the study.

Data Analysis and Interpretation

Table 1: Demographic Profile of the Respondents

Demographic Variable	Category	Frequency	Percentage (%)
Age Group	Below 30 years	34	20.0
	31–40 years	59	34.7
	41–50 years	48	28.2
	Above 50 years	29	17.1

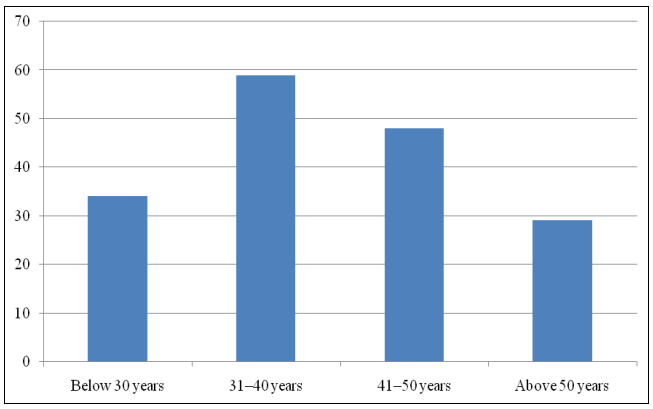

Fig 1: Demographic Profile of the Respondents

Table 1 & Figure 1 reprents the majority of respondents belonging to the economically active age group of 31-40 years, indicating high dependence on fishing as a primary livelihood. Low levels of formal education are evident, which may influence the effective use of technology-based information. Both traditional and mechanised fishermen are adequately represented.

Table 2: Types of Information Required by Fishermen

Type of Information	Frequency	Percentage (%)
Weather Forecasts	149	87.6
Sea Conditions & Safety	137	80.6
Market Prices	121	71.2
Fishing Zones	98	57.6
Government Welfare Schemes	82	48.2
New Fishing Techniques	61	35.9

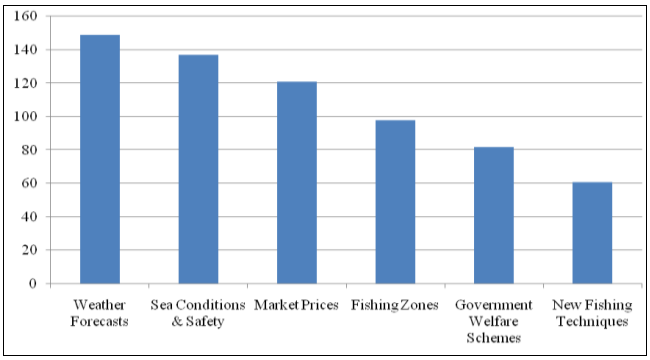

Fig 2: Types of Information Required by Fishermen

Table 2 & Figure 2 represents the Weather-related and safety information constituting the most critical information needs of fishermen, highlighting livelihood vulnerability and occupational risk. Market price information is also highly valued, reflecting income-related concerns.

Table 3: Sources of Information Used by Fishermen

Source of Information	Frequency	Percentage (%)
Fellow Fishermen	142	83.5
Local Traders / Middlemen	116	68.2
Boat Owners	94	55.3
Mobile Phones (Calls/SMS)	108	63.5
Television / Radio	74	43.5
Internet / Mobile Apps	51	30.0

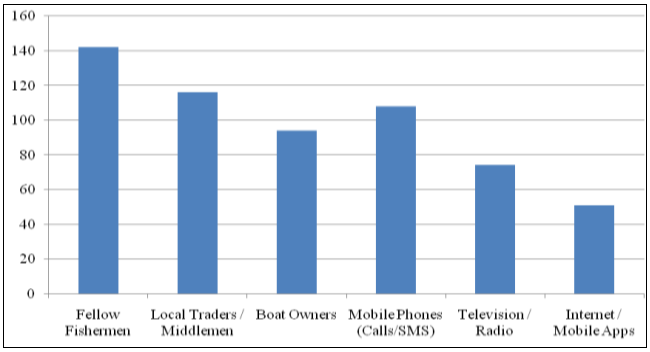

Fig 3: Sources of Information Used by Fishermen

Table 3 & Figure 3 shows that the Interpersonal sources remain the most frequently used and trusted sources of information. However, the growing use of mobile phones indicates a gradual shift towards technology-based information access.

Table 4: Use of Technology for Information Access

Technology Used	Frequency	Percentage (%)
Basic Mobile Phone	136	80.0
Smartphone	71	41.8
Internet Access	60	35.3
Mobile Apps (Weather/Fishery)	43	25.3
No Technology Use	34	20.0

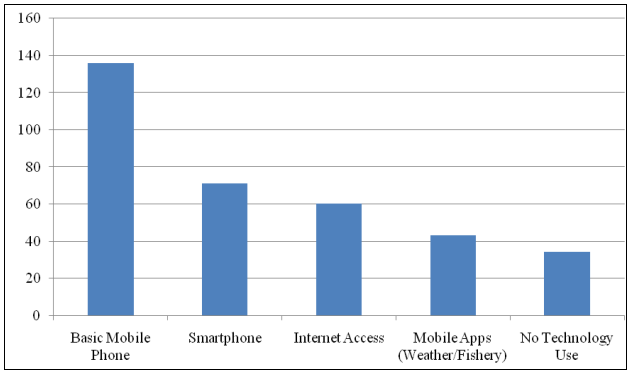

Fig 4: Use of Technology for Information Access

Most fishermen rely on basic mobile phones, while the use of smartphones and internet-based services remains limited. This reflects partial digital inclusion with scope for further technological adoption.

Table 5: Challenges Faced in Accessing Digital Information

Challenges	Frequency	Percentage (%)
Poor Network Connectivity	125	73.5
Lack of Digital Literacy	117	68.8
Language Barrier	97	57.1
Lack of Trust in Online Information	84	49.4
High Cost of Devices/Data	65	38.2

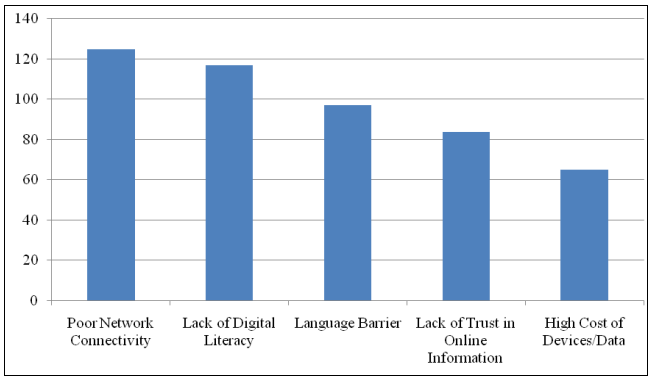

Fig 5: Challenges Faced in Accessing Digital Information

Table 5 & Figure 5 represents that poor network connectivity and limited digital literacy are the most significant barriers to digital information access. Language issues and lack of trust further restrict effective use of online information services.

Table 6: Perception of Usefulness of Technology-Based Information

Level of Usefulness	Frequency	Percentage (%)
Very Useful	37	21.8
Useful	71	41.8
Moderately Useful	42	24.7
Not Useful	20	11.7

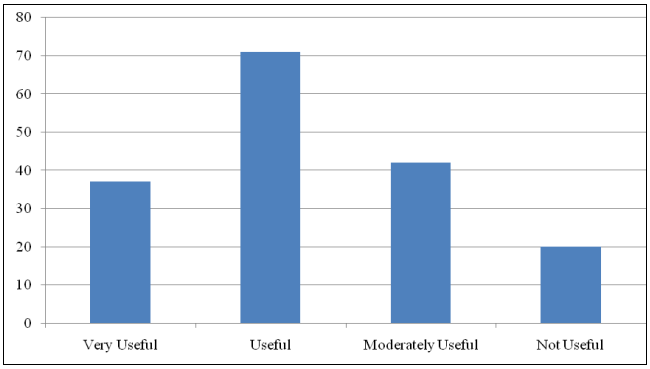

Fig 6: Usefulness of Technology-Based Information

Table 6 & Figure 6 shows a majority of fishermen perceive technology-based information as useful for their livelihood activities. However, a notable proportion remains uncertain or dissatisfied, largely due to infrastructural and skill-related constraints.

Findings of the Study

The findings of the study reveal that fishermen in the coastal district of Purba Medinipur predominantly belong to the economically active age group and depend heavily on fishing as their primary source of livelihood. The majority of respondents possess low levels of formal education, which significantly influences their capacity to access and effectively utilise technology-based information sources. Fishermen primarily seek information related to weather forecasts, sea conditions, safety measures, and market prices, underscoring the close link between information access, livelihood security, and occupational risk. Interpersonal sources such as fellow fishermen, traders, and boat owners continue to be the most frequently used and trusted channels of information, reflecting strong reliance on traditional and community-based networks. At the same time, the growing use of mobile phones indicates a gradual shift towards technology-enabled information access, although the adoption of smartphones, internet services, and mobile applications remains limited. The study further identifies poor network connectivity, lack of digital literacy, language barriers, high costs, and low trust in online information as major challenges restricting effective use of digital information services. Despite these constraints, a substantial proportion of fishermen perceive technology-based information as useful for supporting livelihood-related decision-making. Overall, the findings highlight the presence of a digital divide that continues to shape information-seeking behaviour and limits the full potential of ICTs in enhancing the livelihoods of coastal fishing communities.

Conclusion and Recommendations

The present study underscores the critical importance of information access in shaping the livelihood practices of fishermen in the coastal district of Purba Medinipur, West Bengal. The findings indicate that fishermen primarily depend on information related to weather conditions, sea safety, and market prices, as these factors directly influence both income stability and occupational safety. Although traditional and interpersonal sources of information continue to dominate due to familiarity and trust, the increasing use of mobile phones reflects a gradual transition towards

technology-based information access. However, the effective utilisation of digital technologies remains constrained by persistent challenges such as poor network connectivity, limited digital literacy, language barriers, affordability issues, and low trust in online information sources. These factors collectively highlight the existence of a significant digital divide within fishing communities.

Based on the findings, the study recommends the development of user-centred, context-specific, and local-language digital information services tailored to the information needs of fishermen. Regular digital literacy and awareness programmes should be organised to enhance fishermen's skills and confidence in using technology-based information sources. Strengthening mobile and internet connectivity in coastal and offshore areas is essential for ensuring timely access to critical information, particularly weather and safety alerts. Integrating technology-enabled information services with trusted community networks, such as fishermen's cooperatives and local associations, can improve acceptance and reliability. Libraries, community information centres, and information professionals can play a vital role in facilitating information dissemination, training, and support services. In addition, policy-level interventions are required to ensure affordable access to digital devices and data services. Collectively, these measures can help bridge the digital divide and enhance information access for sustainable coastal livelihoods.

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