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Bridging the Gap: A Study of Constraints in ICT Tool Deployment for Fisheries Extension in Manipur

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ABSTRACT

The study was conducted during 2023 to study the knowledge level of the respondents on ICT tools; to assess the extent of utilization of ICT tools by the respondents; and to identify the constraints faced by the respondents in using ICT tools. The present study was conducted in the four districts of Manipur which were purposively selected based on the concentration of a higher number of fisheries extension professionals available. The selected districts were Imphal West, Imphal East, Bishnupur, and Thoubal. Data were collected from the extension professionals from the Department of Fisheries, Govt. of Manipur using a semi-structured interview schedule. The study revealed that the majority of respondents belonged to the young age category (60%) followed by middle-aged (35%). The study revealed that the majority of the respondents (75%) had a medium level of knowledge on the usage of ICT tools. A considerable number of respondents were graduates (55%) and only a small proportion of them had post-graduate degrees (18%). The study also revealed that the majority (73.33%) of them were also found to have a medium level of ICT utilization. A few of the major problems faced by respondents were unavailability of Wi-Fi services, power instability, unavailability of UPS/Generator, and faulty internet connectivity, which were some of the top-ranked constraints. Extension professionals, therefore need to expand their usage of ICT tools to explore and seek more farm-related information. The department should provide appropriate training plans for each level of fisheries extension professionals in accordance with their job requirements, and ongoing refresher training should also be organized to keep the experts up to date on the most recent developments in the ICT media farm information communication. The state Department of Fisheries should take up some strategies to improve and rectify the challenges faced by the fisheries extension professionals in the department so that the extension professionals get to deliver their service without any problems.

Introduction

Manipur is a hilly state in India's northeast, situated between longitudes 92°58'23.422" and 94°43'35.553" east and latitudes 23°49'45.530" and 25°42'1.456" north. It encompasses 56,461.05 hectares of water areas, including ponds, tanks,

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natural lakes, rivers, and more. By the end of the 2019-20 fiscal year, around 22,000 hectares of these water areas were utilized for fish farming. Fish is a dietary staple for the majority of the population in Manipur and plays a vital role in improving the socio-economic conditions of rural communities grappling with poverty. In the 2019–20 fiscal year, Manipur produced 32.52 thousand tonnes of fish, while the state's fish demand for the same period was estimated to be 52 thousand tonnes (Anonymous, 2021). The fish production in Manipur falls short of the state's demand, necessitating the import of fish from other regions (Singh *et al*.,2018). Several challenges hinder local fish production, including a lack of training facilities for new technology, insufficient access to credit, poor availability of quality fingerlings, drainage issues during the rainy season, inadequate on-site storage, rising labor and input costs, and a shortage of skilled fishery extension staff (Ronel *et al*., 2017). Most fish farmers rely on informal networks for information, including friends, neighbors, progressive farmers, and government departments (Singh and Maurya, 2020).

The primary reason for Manipur's low fisheries output is the limited access to extension services, which constrains the state's production capacity. To address this gap and meet domestic fish demand, public extension services are crucial for technology transfer (FAO, 2004). Information and Communication Technologies (ICTs) can facilitate stronger connections between farmers, extension agents, and research institutions. ICTs serve as a channel through which research findings can be efficiently shared with extension agents for dissemination to farmers, potentially improving fish production in the state (Nyarko and Kojari, 2021).

Extension staff within state departments of agriculture play a crucial role in disseminating agricultural technologies to the farming community. To fulfill their role effectively, extension personnel require consistent access to up-to-date agricultural information. However, in certain regions, such as the hilly states of the Northeast, physical distance and poor communication infrastructure have posed challenges for extension staff in connecting farmers with researchers (Kavaskar and Sharmila, 2020).

To address these challenges, there is a need for extension functionaries to make efforts to expand and share farm information and technologies. This can be achieved through various extension publications and the use of ICT tools, which can enhance the efficiency and effectiveness of service delivery to fish farmers. Additionally, it is essential to study and document the patterns of ICT tool usage by extension personnel in order to gain insights for future improvements. Therefore, understanding and assessing the utilization patterns of ICT tools among various categories of extension personnel in Manipur's fisheries line department is of great importance.

Methodology

The study took place in the state of Manipur and focused on four specific valley districts: Imphal east, Imphal west, Bishnupur, and Thoubal. These districts were chosen purposively because they had the highest number of fisheries extension professionals working under the Department of Fisheries, Government of Manipur. The study gathered a list of fisheries extension professionals from different districts in Manipur, including Fishery Officers, Fishery Inspectors, Fishery Assistants, and District Fishery Officers. The data collection included details about their place of posting. The study conducted a comprehensive survey of all these professionals in selected districts, namely Imphal East, Imphal West, Bishnupur, and Thoubal, as part of its primary data collection. A semi-structured interview schedule was created for the current study. The study includes variables such as age, post/designation, gender, education qualification, marital status, service experience, job satisfaction, sources of information, credibility of information, training on ICT, and knowledge level of ICT. The test consists of 80 knowledge questions with binary "Yes" or "No" answers. Each correct "Yes" answer is scored as one, while each "No" response is scored as zero. The challenges faced by fisheries extension professionals when using ICT tools can be grouped into three main categories: infrastructure, technical, and personal. A total of 18 constraints have been used , the respondents responds to these set of contraints and were score 1 as 'high', 2 as 'medium', and 3 as 'low' based on their severity of their problems. The data collected was analyzed using various statistical methods, including frequency and percentage calculations, arithmetic mean, standard deviation, Spearman's Rank correlation analysis, and stepwise regression analysis. The Statistical Package for the Social Sciences (SPSS 20.0) was employed for this data analysis in order to draw logical conclusions in accordance with specific requirements.

RESULT AND DISCUSSION:-

- Socio-personal characteristics of the fisheries extension professionals

The study examined the demographic characteristics of fisheries extension professionals. It found that the majority of respondents were young (60% under 35 years), followed by middle-aged (35% between 36 and 50 years) and a small percentage of old age (5% over 50 years). This result indicates that ¬young people are more employed for the effective workforce and skills, which can shape future work and management of resources. Most respondents held the

position of Fishery Assistants (60%), followed by Fishery Inspectors (32%), Fishery Officers (3%), and District Fishery Officers (5%). According to the department of fisheries' pyramidical structure, the majority of respondents in the research geographical area were Fishery Assistants (FA), since more posts were sanctioned for FA than FO, FI and DFO.

There was a gender imbalance, with 70% of respondents being male and 30% female, highlighting the need for addressing gender diversity in the Department of Fisheries. The education levels of respondents varied, with 55% having a graduate degree, 23% holding a higher secondary school certificate (HSC), 18% having a post-graduate degree, and 4% having a PhD. This is because of the criteria that the minimum education level for the recruitments of fisheries farm assistant (FA) is matriculate, so any graduate can also apply for the post of fishery farm assistant (FA).

Marital status indicated that 70% of respondents were married. The study suggested that married individuals might be more stable and creative in their workplace Rahman and Bashir (2020). Regarding job experience, the majority (52%) had 8 to 16 years of experience, indicating that they were well-experienced in their field.

The study emphasized the importance of training on ICT tools for extension professionals. Mobile calls and internet browsing were the most common sources of information for the respondents. Television, newspapers, and radio were also frequently used information sources. Internet browsing was considered the most credible information source, followed by television and demonstration.

In terms of job satisfaction, 71.67% of respondents reported medium satisfaction, 18.33% reported low satisfaction, and only 10% reported high satisfaction. This level of job satisfaction could impact their dedication to their work, potentially affecting their service to farmers.

- knowledge level of fisheries extension professionals on usage of ICT tools in the study area

The study found that most respondents (75%) had a medium level of knowledge about ICT, while 15% had a high level of knowledge, and only 10% had a low level of knowledge. This means that 90% of extension professionals had a basic understanding of ICT tools. Similar findings were reported by Sharmila and Kavaskar in 2017. The study also identified certain factors that influenced the respondents' ICT utilization scores. The variables of post/designation and information source significantly affected the social values score and the knowledge level of ICT among the respondents. This suggests that these variables play a significant role in predicting how fisheries extension professionals use ICT tools.

- Constraints faced by the respondents in using ICT tools.

The study assessed challenges faced by Fisheries Extension Professionals when using ICT tools. The major constraints were categorized into infrastructural, technical, and personal factors. In the infrastructural category, unavailability of Wi-Fi services was the top issue, followed by unavailability of UPS/Generator and power instability. In the technical category, faulty internet connectivity was the primary concern, followed by shadow mobile/internet connectivity and a lack of useful software. Personal constraints included time management problems, health issues related to ICT use, and low computer literacy. To address these challenges, the state department of fisheries should implement strategies to improve the situation and support extension professionals in delivering their services effectively.

Table 33. Distribution of ranked constraints based on mean score of the respondents

CONSTRAINT	Mean score	Rank	TOTAL Rank
Infrastructural			
Insufficient modern ICTs equipment	2.38	IV	VIII
Supply of electricity	1.93	VII	XVI
Unavailability of ICTs Device	2.30	VI	XI
Load-shading/Power-Cut/Low Voltage	2.33	V	X
Unavailability of UPS/Generator	2.52	II	V
Power instability	2.42	III	VII
Unavailability of Wi-Fi Services	2.68	I	II
Technical			
Faulty internet Connectivity (LAN)	2.7	I	I
Limited internet coverage	2.37	V	IX
Lack of useful software to run internet	2.63	III	IV
Shadow Mobile/Internet Connectivity	2.67	II	III

Unavailability of Computer antivirus	2.48	IV	VI
Personal Constraints			
Lack of expertise on usage of ICT tools	1.92	V	XVII
Lack of motivation to acquire the required skill set	1.97	IV	XV
Low computer literacy among extension workers	2.08	III	XIV
Time management problems in learning to use ICT	2.25	I	XII
Use of ICT causes Health problems like eye pain, body pain etc.	2.15	II	XIII
Lack of confidence to use ICT	1.62	VI	XVIII

CONCLUSION:-

The study concludes that the use of ICTs in fisheries extension can bridge the gap between extension professionals and farmers, leading to advancements in fisheries development and supporting farmers in improving their livelihoods. The study provides recommendations for improving the utilization of ICT tools by Fisheries Extension Professionals in Manipur. These recommendations include:

1. Extension professionals should become familiar with a wider range of ICT tools to increase their awareness and knowledge of modern agricultural technologies for better service delivery to farmers.
2. The State Department of Fisheries should design a systematic plan to incorporate and effectively use ICT-mediated fishery extension systems throughout the state to meet the information needs of fish farmers.
3. Training programs should be provided to extension staff on using modern information sources and ICT tools to enhance their knowledge and efficient use of these tools in serving farmers.
4. Training is crucial for enhancing the performance of extension staff using ICT tools. The Directorate of Fisheries should develop training plans tailored to the specific needs of fisheries extension professionals, including ongoing refresher training to keep them updated on the latest developments in ICT-mediated farm information communication.
5. Steps should be taken to address issues like the unavailability of Wi-Fi services, power instability, faulty internet connectivity, time management problems, and health issues related to ICT use. This will ensure that extension professionals can deliver their services without hindrance.

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