



RESEARCH PAPER

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## Information seeking practices, problems, challenges, preferences and media usage among fishers and farmers: Towards an improved dissemination and utilization of the MangngalApp

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**Key words:** Fishers, Farmers, Information-seeking, Media use

### Abstract

With the growing demand of communities to be well-informed, this research study determines the information seeking practices, technology awareness of key stakeholders in fishing and farming activities. Specifically, this study provides relevant results along socio-economic characteristics of the participants, their awareness of technology to boost productivity and efficiency, their access and use of media and information as well as their information-seeking practices. The descriptive-survey research design was employed in the study. Findings revealed that most of the participants take a balance in fishing and farming activities based on their socio-economic characteristics. Their access to information relies on available sources of information in their location and available media at home. Their information-seeking practices are dependent on the information needs and preferences of media in the area. Results of the study provides insights to redefining information dissemination practices and strategies catering to the immediate, relevant, and reliable information to fishers, farmers, gatherers, and processors. It is hoped that the study offers opportunity to communicating the different relevant information to the stakeholders. Particularly in this study, it is hoped that the sustained management and upscaling of the MangngalApp, boosts the productivity, cost-efficiency, and faster turnaround. The results are limited at the responses elicited thru questionnaire and focus-group discussions to a coastal community in Northern Cagayan, Philippines.

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## Introduction

Information is becoming more and more crucial in every aspect of development in the twenty-first century. Human beings cannot survive without information; they require it at every stage of life. Developing nations are converting societies from the industrial to the information eras. This has led to the abundance of tools and resources that are available to us today, such as those that may give us access to information. Information, as we might say, is the force behind all advancements in industrial, agricultural, and knowledge society. Information is acknowledged to be extremely important for every aspect, hence it is imperative for concerned service providers to comprehend the information they want in order to deliver superior service.

Along with fishing and farming communities, information is a potent instrument for solving agricultural requirements, and when used properly, it has the potential to significantly alter an entire country's economic landscape. Every person searches for information at some point. To find answers to the why, what, when, and how questions, man searches through various information sources to stimulate his or her curiosity. Information needs, information source users, and information use after retrieval are generally included in information seeking. Information seeking refers to the various ways in which those in need of information look for, handle, distribute, and utilize information. With the aid of information, fishermen can improve their catch rates; farmers ably gain competitive advantage and improve their harvest; gatherers are able to maximize their time for gathering and marketing their products; and processors safely and efficiently produce market-specific aqua-marine post-harvest products.

For those in need, knowledge opens doors and presents opportunities. It lessens their susceptibility to illness and bad luck while also assisting them in shaping their life and genuinely utilizing opportunities. Fishermen require a variety of knowledge on contemporary fishing equipment, current and emerging trends in fishing, and weather

information. Fish are historically captured using traps, hooks, nets, lines, trawlers, etc. However, with agricultural knowledge, current technology would be employed, leading to great productivity (Uzezi, 2015). Information is an essential component of decision-making processes and a tool for reducing uncertainty in the selection of inactive actions (Solano *et al.*, 2003). According to (Denizcan Durgun, 2020), there is a clear correlation between the accuracy of the information a decision-maker uses and the effectiveness of their decision-making process. According to the person's view of "useful" knowledge, "useful" decision-making comes naturally to them (Streufert, 1973). Therefore, making the right choice does not always ensure a positive end; this type of pragmatism has proven successful by Buchanan and O'Connell (2006). The individual's limited understanding demonstrates the necessity for information in the decision-making process.

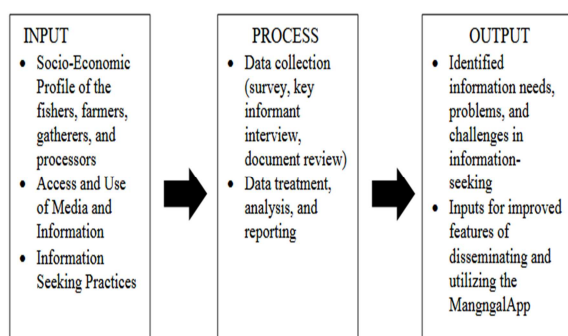
Although access to and availability of ICT channels on mobile devices and the Internet have increased recently, decision-makers in the fisheries sub-sector still mostly use traditional media (radio, television, personal communications) to obtain and disseminate fisheries information (Kusyama *et al.*, 2022). The proliferation of information in the fisheries sector is the needs of time with the recent trends in technology for dissemination. Recent innovations and emerging technologies have the potential to support fishery-dependent data systems by expanding or streamlining data collection, automating and empowering the data processing and analysis, and facilitating the communication of results to pertinent stakeholders. These innovations and emerging technologies frequently capitalize on the pervasiveness of mobile phones and tablets, the growing accessibility of cloud-based computing for data storage, and artificial intelligence for analysis (Bradley *et al.*, 2019).

In order to help people and organizations create better systems and give information that will fulfil their demands, it is necessary to better understand the information needs of a group of people (Adewumi, 2003).

Fishers seek and explore for knowledge on the various tools used in large-scale fish catching (Pietro, 2000). As with any other occupation, fishing needs the application of unique tools and devices for fishing, gathering, and post-harvest related activities. Cast nets and dragnets, hooks and lines, spears, baskets, trawlers, drained ponds, electrofishing, usage of ultrasonography, etc. are some of the tools utilized.

Public agricultural extension systems, according to (Babu and Glendenning, 2019), often fail due to inadequate understanding of the farmers about their information needs and lack of understanding of their information search strategies. They further iterated that tailoring the delivery of agricultural information to the different information search behaviors of farmers is important for extension programs to consider.

Many coastal towns in northern Cagayan boast the countryside with fishing and farming activities. One is Aparri, a first-class municipality and a coastal town in Northern Cagayan, boosted by agricultural activities, particularly farming and more along fishing. In 2012, a total of 3,348 farms or approximately 5446 hectares has been recorded by Philippine Statistics Authority (PSA, 2012). A total of 8,104 fisherfolks in municipal fisheries has been thriving in the different coastal towns of Cagayan, Aparri being the most number, according to (Maguigad, 2019).



**Fig. 1.** IPO framework

The study generally aimed at understanding the information needs, information-seeking behaviors of the fishers, farmers, gatherers, and processors. The research utilized the IPO framework (Fig. 1) and anchored in the development and implementation of the Mangngalapp— an integrated package of technology for rural development.

**Materials and methods**

*Research design*

The descriptive-survey design was employed in this study. The study intends to describe the profile characteristics of the participants, their information-seeking practices, access and use of information and media.

*Study site*

The study was conducted in a first class coastal town in the northern tip the Cagayan Province, Philippines. The participants in the study were mainly residents who have been engaged in fishing, farming, gathering, and post-harvest activities. This coastal town in northern Cagayan is popularly known for its soft-shelled aramang, and other known fishery resources is home to 68, 839 population as of 2020 (PhilAtlas, n.d.)

*Respondents and sampling techniques*

Participants in this study include fishers, farmers, gatherers, and fish processors. A master list from the municipal agriculture office of the local government unit were formally requested, particularly fishers and farmers. The listing of gatherers and processors were taken thru close coordination with the barangay officials. Systematic-random sampling was made. Priorities are those barangays in the coastal areas in one first class coastal town of Northern Cagayan. Those gatherers and processors identified by the barangay officials were listed. They form part as participants if they were at least able to get into the occupation for at least 6 months.

*Research instruments*

A guide questionnaire was used to gather necessary data consisting of two parts. Part 1 elicited data regarding fisheries independent survey (participant’s basic profile, socio-economic status, access and use of media and information. Part 2 focused on gathering of fishers’ information-seeking practices. The questionnaires were distributed personally to the respondents by the researchers. The researchers assisted the respondents in answering by translating some questions in their vernaculars. In addition, a discussion guide to elicit responses from the participants was made.

*Data collection*

Prior to the research implementation, a formal coordination and requested permission was made. Upon approval from the heads of barangay concerned, subsequent coordination as made to the barangay captain of the selected study sites. The officials of barangays aided support to the researchers in the floating of questionnaires. A focused group discussion with the participants was also performed to gather further details as additional inputs in the study results. This was conduct in three sessions were representatives from all sectors were invited and willing shared their responses.

*Ethical considerations*

The study critically made careful consideration of the research ethics and standards in the activities conducted. Having obtained approval from the university’s research and development arm a special order to conduct the study, the researchers informed the participants on the purpose of the study. Their protection as human subjects participating in this research was assured. Participants were fully informed of the purpose and procedures of the study for which consent was sought. Meanwhile, the dataset from the local agriculture officer were validated directly in coordination with the officials of the barangay. The adherence to Data Privacy Act of 2012 is ensured, including but not limited to access, use, and management of data.

*Data analysis*

The collected data were organized and tabulated for analysis. Descriptive statistics such as frequency counts and percentage rank were used in the study.

**Results and discussion**

The profile of the participants is disclosed in the Table 1. Majority of the respondents belong to age bracket 36 to 45 years old. Almost 88 percent are in their middle age as represented with a mean of 41.38. In the study, a substantial number of the respondents were males, outnumbering their female counterparts (19.5 percent). Married respondents comprised the 76.2 percent, 45 were single and 27 were widowed or on a separated civil status.

**Table 1.** Profile of the participants

Profile	f (n=303)	%
Age		
18-25	15	5.0
26-35	92	30.4
36-45	114	37.6
46-55	60	19.8
56 and above	22	7.3
Mean Age	41.38	
Sex		
Male	244	80.5
Female	59	19.5
Civil Status		
Single	45	14.9
Married	231	76.2
Widowed/Separated	27	8.9
Classification/Sectors		
Fishers	158	52.1
Farmers	58	19.1
Gatherers	43	14.2
Processors	44	14.5
Location		
B1	53	17.5
B2	29	9.6
B3	40	13.2
B4	32	10.6
B5	37	12.2
B6	31	10.2
B7	24	7.9
B8	25	8.3
B9	20	6.6
B10	7	2.3
Highest Education Attained		
Elementary Level	55	18.2
Elementary Graduate	37	12.2
High School Level	42	13.9
High School Graduate	118	38.9
College Level	35	11.6
College Graduate	16	5.3
Post Graduate	0	-
Religion		
Roman Catholic	214	70.6
Iglesia ni Kristo	7	2.3
Jehovah's Witnesses	20	6.6
Baptist	31	10.2
Born Again	25	8.3
Others	6	2.0

Most of the respondents are from the fishing sector, primarily in the actual fishing activity (52.1 percent) while gatherers and processors represented the additional 28 percent. Those whose primary occupation is in farming were represented herein by 58 respondents. A fair distribution of the respondents was included in the study. Most of which come barangay B1- a densely populated community; B5, B4, B3, B2, and B6- where most fishers, farmers, gatherers and processors are located. More than half of the respondents attained high school education, followed by those who completed elementary. Most of the respondents are Roman Catholics comprising 71 percent of participants.

**Table 2.** Socio-economic characteristics of the participants

Variable	f (n=303)	%
<b>Monthly Income</b>		
Php 5000.00 and below	219	72.28
Php 5001.00 to 10,000.00	56	18.48
Php 10,001.00 to 15,000.00	30	9.90
Above Php 15,000.00	1	0.33
Mean Monthly Income: Php 5,416.50		
<b>No. of household Members</b>		
3 and below	59	19.47
4 to 6	119	39.27
7 to 9	98	32.34
10 and above	26	8.58
<b>Major Source of Income*</b>		
Fishing	202	66.67
Farming	167	55.12
Construction	102	33.66
Post-harvest	88	29.04
Others	87	28.71
<b>Membership to Fisher Associations</b>		
Yes	128	42.24
No	175	57.76
<b>Technology and/or Media at Home</b>		
Radio (Transistor/Digital)	89	29.37
Television	147	48.51
Smart Phones	78	25.74
Mobile Phones	90	29.70
Computer/Laptop	2	0.66
Portable DVD Player	12	3.96
None	158	52.15

\*multiple responses

In Table 2, the socio-economic profile of the respondents is presented. With a mean monthly income of Php 5,416.50, most of the respondents reported to have a monthly income of P5000.00 or lower. This is attributed to the ongoing economic and financial problems associated to the impact of COVID19 restrictions. The participants also reported to have a family member ranging from 4 to 6 household members, a typical Filipino family size according to PSA in 2020 (Philippine Statistics Authority, 2022). Most of the respondents reported to have fishing as their major source of income, representing 66.67 percent of them. Considering multiple responses, respondents also reported farming, construction and post-harvest as major source of income. As fishing and farming may have seasons to observe, it is observed that participants engaged in other occupations as augmentation to their rising family needs. While some reported to have associated in fishing and/or farming associations, most of the respondents are not associated to any fisher association. Meanwhile in

terms of technology and/or media available at home, most of the respondents have television (48.51%). However, more than 52 percent reported to have none, an indicator of their need to be informed in another channels.

**Table 3.** Type of information needs of fishers

Types of information needs of fishers	f (n=158)	%	Rank
Fishing methods	45	28.48	5
Fishing equipment	34	21.52	7
Fish transportation	45	28.48	6
Storage method	34	21.52	8
Fish preservation methods	56	35.44	4
Fish processing	34	21.52	9
Fish species	23	14.56	11
Marketing prices and strategies	34	21.52	10
Weather	123	77.85	1
Fish farming	22	13.92	12
Policies and Ordinances in Fishing	67	42.41	3
Fishing and gathering spots	78	49.37	2

In terms of the type of information needs of fishers, weather information was their most needed information (78 percent) (Table 3). Fishing and gathering spots came 2<sup>nd</sup>, policies and ordinances in fishing on 3<sup>rd</sup>, followed by fish preservation and fishing methods respectively. This indicates that most fishers, including gatherers and processors, highly needed constant weather information as it is crucial in the daily activities of the fishers. Economically, weather forecast aids fishers and farmers in stirring business activities. (Koshy, 2020) This transcends in making money for their families and thus a cycle of economic undertaking. The diversity of information needs reflected in Table 4 is including responses of those gatherers and processors.

**Table 4.** Type of information needs of farmers

Types of information needs of fishers	f (n=158)	%	Rank
Fishing methods	45	28.48	5
Fishing equipment	34	21.52	7
Fish transportation	45	28.48	6
Storage method	34	21.52	8
Fish preservation methods	56	35.44	4
Fish processing	34	21.52	9
Fish species	23	14.56	11
Marketing prices and strategies	34	21.52	10
Weather	123	77.85	1
Fish farming	22	13.92	12
Policies and Ordinances in Fishing	67	42.41	3
Fishing and gathering spots	78	49.37	2

**Table 2.** Preferred types of information sources

Preferred types of information sources	Fishers		Farmers		Gatherers		Processors	
	f	%	f	%	f	%	f	%
	(n=158)		(n=58)		(n=43)		(n=44)	
Public information offices/centers	88	55.70	45	77.59	1	2.33	32	72.73
Library	12	7.59	2	3.45	1	2.33	5	11.36
Schools or University	90	56.96	36	62.07	3	6.98	32	72.73
Fishery or agricultural experts/scientist	86	54.43	43	74.14	5	11.63	33	75.00
Association meetings	101	63.92	44	75.86	2	4.65	2	4.55
Field demos	92	58.23	45	77.59	0	0.00	27	61.36
Ngos	45	28.48	23	39.66	0	0.00	23	52.27
Business firms	34	21.52	12	20.69	14	32.56	19	43.18
Others(websites, social media, mobile app)	56	35.44	43	74.14	29	67.44	33	75.00

**Table 6.** Sources preferences for information access

Sources preference for information access	Fishers		Farmers		Gatherers		Processors	
	f	%	f	%	f	%	f	%
	(n=158)		(n=58)		(n=43)		(n=44)	
Books or manuals	12	7.59	4	6.90	0	0.00	34	77.27
Newspapers	45	28.48	35	60.34	0	0.00	23	52.27
Magazines	56	35.44	23	39.66	3	6.98	21	47.73
Leaf lets, brochures posters	76	48.10	53	91.38	3	6.98	35	79.55
Neighboring farmers, fishers or friends	66	41.77	54	93.10	6	13.95	36	81.82
Tv	74	46.84	43	74.14	7	16.28	34	77.27
Local dealers, sales and technical people	32	20.25	23	39.66	3	6.98	23	52.27
Mobile SMS updates	50	31.65	33	56.90	34	79.07	33	75.00
Radio	67	42.41	23	39.66	23	53.49	25	56.82
Community leaders	64	40.51	43	74.14	25	58.14	22	50.00
Others (websites, social media, mobile applications)	66	41.77	34	58.62	12	27.91	32	72.73

Meanwhile, Table 4 presents the type of information needs among farmers. Diseases and pest management emerged to be their important information needs. In addition all of the respondents reported their need of information on manure and fertilizer management, and of course weather information.

Further, farmers needed more information along soil and water conservation, storage of crops, and market prices on crops. The needed information is critical to them as fisher does. Interestingly, their eagerness to new technology and applications for farming has been their need.

**Table 7.** Nature of information preferred

Nature of information preferred	Fishers		Farmers		Gatherers		Processors	
	f	%	f	%	f	%	f	%
	(n=158)		(n=58)		(n=43)		(n=44)	
Print	123	77.85	45	77.59	2	4.65	15	34.09
Audio	45	28.48	10	17.24	0	0.00	12	27.27
Video	101	63.92	40	68.97	15	34.88	44	100.00
Verbal	143	90.51	58	100.00	42	97.67	44	100.00
Any others (mobile, combination of audio and video)	108	68.35	48	82.76	16	37.21	32	72.73

The preferred types of information sources are presented in Table 5. Fishers acknowledge the usability of attending association meetings represented by 63.92 percent. Meanwhile, farmers prefer getting information from public information centers or offices (77.79%), field demonstrations (77.59 %), as well as association meetings (75.86). It is interesting to note how 4 sectors acknowledge the

use of websites, social media and mobile applications as their preferred types of information sources. Presented in Table 6, the fisher-participants preferred leaflets, brochures or posters (48.10%) as source for information, followed by television (46.84%). Gaining information from neighboring farmers, fishers or friends farmers and processors tend to be their preferences. Table 7 presents the nature of

information preferred by the respondents. The emergence of audio-video materials is seen practical and preferred by the respondents, in general. Most of the respondents still preferred verbal information being relayed to them. Table 8 and 9 presents the problems and factors affecting information search

and gathering. Unavailability and unreliability of information emerged as the key problem faced by the participants. In addition their lack of awareness about new sources of information affects their conduct of activities related to their occupations.

**Table 8.** Problems faced by participants during information search

Problems Faced by the Participants during information search	f(n=303)	%	Rank
Inability to access formal channel and sources	123	40.59	2
Inadequate transport facility	45	14.85	7
Regular Inaccessibility of NGOs at rural area	56	18.48	6
Poor availability and unreliability of information	145	47.85	1
Ignorance of government responsibility	45	14.85	8
Lack of proper electricity	34	11.22	9
Information Telecast on radio and TV always on odd hour	89	29.37	4
Technology know-how	58	19.14	5
any others(language used)	98	32.34	3

**Table 9.** Factors affecting or encountered during information gathering

Factors affecting or encountered during information gathering	f(n=303)	%	Rank
Long distance to the Information centers	143	47.19	4
Low education level and illiteracy	165	54.46	3
Lack of awareness about New communication technology	187	61.72	2
Lack of Library and different. information centers	99	32.67	6
Weak/ poor Govt. policy about information dissemination	101	33.33	5
Lack of awareness about new sources of information	201	66.34	1
Lack of proper guide line	32	10.56	9
Information gap between farmers and fishers and information officers	49	16.17	7
Any others (language used, comprehension)	34	11.22	8

**Conclusion**

From the findings, it is concluded that fishers and farmers convey a variety of information needs that keep them stir the socio-economic cycle regardless of their profile. Key information on weather, methods or strategies and management emerged to be their primary information needs. Further, with advances in technology, it is also deduced their need of information on applications and new technologies that aids them in doing their respective occupation.

**Recommendations**

From the results, it is recommended that those involved in information dissemination, knowledge-transfer, and technology adoption consider the results

of the study critical in bridging the need of factual information, processes, procedures, and technologies to fishers and farmers in general. Development of IEC materials that pay heed to the needed information of the fishers and farmers should consider vernaculars, understanding and level of literacy of its audience.

In connection to the MangngalApp project, technology dissemination and training activities be conducted by the team, including sustained updating of the needed content and addition of features that are deemed important to fishers, farmers, and other stakeholders including students and researchers. Key implication of the study is that the results be communicated to concerned agencies in order to

devise necessary programs and activities relative to providing information and other needs to concerned stakeholders. The long-term impact would mean socio-economic progresses.

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