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Agricultural Extension Services Framework of Fisherfolk in Baganga, Davao Oriental: An Exploratory Factor Analysis

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ABSTRACT

This study aimed to explore the dimensions of agricultural extension services for the fishery sector in Baganga, Davao Oriental. An exploratory design, utilizing both qualitative and quantitative research methods, was employed to achieve the study's objectives. Eight participants took part in the qualitative phase, engaging in in-depth interviews, while 540 respondents participated in the quantitative phase, using a survey questionnaire. Descriptive statistics, including frequency and percentage, were used to analyze the socioeconomic profile of the respondents, while exploratory factor analysis was employed to identify the dimensions of extension services for the fishery sector in the locale. The findings revealed that the fisherfolk community is primarily composed of younger and middle-aged individuals, with a significant portion having limited educational attainment, a notable absence of female participation, and a predominant affiliation with the Seventh-Day Adventist (SDA) religion. Seven essential themes emerged, describing the dimensions of extension services for the fishery sector: capacity building and skills development, infrastructure and resource accessibility, financial access and resource management, social services and community empowerment, policy awareness and stakeholder engagement, market access and information systems, and inclusivity and digital adaptation. These findings suggest that targeted efforts in these areas could help strengthen the sector and achieve long-term success and sustainable growth. Finally, further research should explore a wider range of research locales, include diverse respondent representations, and consider a broader set of variables to provide a more comprehensive and in-depth understanding of the challenges and opportunities within the fishery sector, ultimately guiding more effective and inclusive agricultural extension services.

INTRODUCTION

Fisheries are socially, culturally, economically and ecologically significant to all Filipinos and play a vital role in the national economy of the country in terms of employment and income. But empowerment of fisherfolk through provision of effective, efficient and relevant training services is questionable (Watts *et al.*, 2021). Accordingly, the use, conservation, protection, management, and development of the marine resources to attain food security, enhanced employment of jobs and poverty reduction are yet to be the challenge of each fisherfolk in the nation (Narayanan *et al.*, 2023).

Agricultural extension services are vital instruments for rural development, particularly in communities heavily dependent on agriculture and fisheries for livelihood. In Baganga, Davao Oriental a coastal municipality in the Philippines the fisherfolk sector plays a significant role in ensuring local food security and sustaining economic activity. However, fisherfolk often face systemic challenges such as limited access to updated knowledge on sustainable fishing practices, inadequate technical training, and vulnerability to environmental risks such as climate change and coastal degradation.

Seemingly, a well-designed agricultural extension services framework can address these issues by promoting education, technology transfer, resource management,

and capacity-building among fisherfolk (Anderson & Feder, 2004). Such frameworks not only serve as communication bridges between government institutions and local communities but also foster participatory development approaches that ensure the needs and voices of fisherfolk are integrated into policy and program planning (Swanson & Rajalahti, 2010).

Moreover, the increased number of fisherfolk in the country requires the government to deliver sufficient and proper extension services. However, the efficiency of such services relies on the participation and engagement of fisherfolk themselves as well as their mindset towards it (Epres *et al.*, 2023). Moreover, irregular meetings, poor infrastructure facilities, entrepreneurial activities' absence, and poor follow-up of activities are factors that contribute to the perception of fisherfolk towards the extension services and how the above are part of what they believed for (Quinones *et al.*, 2020).

Fisherfolk in Baganga, Davao Oriental, live a life highly integrated with the ocean, where fishing is their main source of living. The group experiences many challenges, such as the effects of climate change, overfishing, and limited use of modern fisheries technologies, which impact their daily harvest and income. In spite of these challenges, the fisherfolk are resilient and accommodating, with the majority finding themselves involved in

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community-driven activities toward sustainable fishing and maintaining marine diversity (Bacungan, 2020; Dela Cruz, 2021). Their heritage is rich, with conventional fishing practices transferred from parent to child, showing solidarity with the natural environment and ensuring the continuation of their lifestyle.

In response to these challenges, the fisherfolk of Baganga have begun to adopt community-based initiatives aimed at promoting sustainable practices and protecting their marine resources. Local organizations and government agencies have collaborated to provide training on sustainable fishing techniques and the importance of marine conservation. These efforts not only help improve fish stocks but also enhance the fisherfolk's economic resilience. By engaging in practices such as fish farming and the establishment of marine protected areas, the community aims to ensure the long-term viability of their livelihoods while preserving the ecological balance of their coastal environment (Dela Cruz, 2021).

Culturally, the life of fisherfolk in Baganga is rich and vibrant, with traditions and customs that reflect their deep connection to the sea. Festivals celebrating the bounty of the ocean, as well as rituals to honor the spirits of the sea, play a significant role in their community life. This cultural heritage is passed down through generations, reinforcing their identity and sense of belonging. Despite the challenges they face, the fisherfolk remain resilient, adapting to changing circumstances while striving to maintain their traditions and way of life. Their commitment to sustainability and community solidarity serves as a model for other coastal communities facing similar challenges (Santos, 2022).

Whereas, there were some previous studies on the concerns of urban small-scale fisherfolk (Factura *et al.*, 2021), livelihood resilience in the small-scale fisheries (Amadu *et al.*, 2021), and on fishery management (Tolentino-Zondervan & Zondervan, 2022), but these studies only focused on how the fisherfolk cope and survive with the challenges and hardships on fishing as their main source of livelihood. Additionally, there is no clear framework of extension services for the fishery sector (Eyayu *et al.*, 2023) particularly in the area of this research. Based on the above, the researcher felt that with this research, the parameters of extension services for the fishery sector may be brought to the surface which could hopefully address potential issues that the fisherfolk in the area are encountering.

In the context of Baganga, where coastal and marine resources are central to the community's socio-economic stability, the importance of strengthening the agricultural extension services framework cannot be overstated. An effective extension system tailored to fisherfolk must prioritize inclusivity, adaptability, and sustainability. This involves deploying trained extension agents, incorporating indigenous knowledge systems, and ensuring timely dissemination of climate-resilient and market-responsive practices. Enhancing the framework is also crucial for achieving the broader goals of rural

development, environmental conservation, and poverty alleviation in the region. By focusing on the unique challenges and capacities of the fisherfolk in Baganga, an improved extension framework can support long-term resilience and inclusive growth in Davao Oriental's coastal communities (FAO, 2013).

Statement of the Problem

This study aimed to explore the dimensions of extension services for the fishery sector in Baganga, Davao Oriental. This study specifically aimed to address the following questions:

1. What is the socioeconomic profile of the respondents in terms of:

- a. age;
- b. sex;
- c. educational attainment; and
- d. religious affiliation?

2. What are the dimensions of extension services for the fishery sector in Baganga, Davao Oriental?

3. What extension service framework can be proposed for the fishery sector in Baganga, Davao Oriental?

Significance of the Study

The fishery sector of the country is one of the government's arms in addressing the growing demand for food of the constantly increasing human populace. As such, continued efforts should be made visible in order to appropriately provide the needed strategies and technologies. In such a manner, the productivity of the fish industry shall increase thereby making it possible to keep up with the demands of the growing population.

First and foremost, the research focused on exploring the dimensions of the agricultural extension services for the fishery industry in Baganga, Davao Oriental. In line with this, this study enlightened the factors that served as the core in developing the framework for the agricultural extension services of the fishery industry in the area. In particular, this research can be useful to the following groups:

Fisherfolk

By employing the findings of this study, they may be assured of the services that are advantageous and gainful on their part. In effect, they would be able to maximize the resources and increase their productivity, thereby improving the quality of their existence.

Local Government Unit Officials

The results of this study may give them research-driven data as bases for providing activities and initiatives deemed necessary for the fisherfolk to maximize their productivity.

Department of Agriculture and Bureau of Fish and Aquatic Resources

The findings of this research can be of invaluable assistance to the Department of Agriculture and Bureau

of Fish and Aquatic Resources to come up with trust-worthy and sustainable assessment and monitoring instruments in monitoring sustainability of the programs, projects, activities, and initiatives implemented to the fisherfolk. In addition, findings from this research can provide evidence-based information as foundations for extending technical assistance and intervention activities that will better respond to the needs of the fisherfolk in the area.

Workers in Agriculture Extension

The study's findings might assist individuals in setting priorities for their roles, responsibilities, and obligations so they can complete their work efficiently.

Non-Government Organizations

Through an understanding of the main dimensions of fishery sector agricultural extension services, Non-Government Organizations (NGOs) are able to craft more focused and efficient programs that meet the specific requirements of fishing communities. Further, these insights can assist NGOs in working together with policymakers and stakeholders to enhance resource allocation and service delivery to ultimately increase the sustainability and productivity of the fishery sector.

Future Researchers

The findings of this research can motivate them to conduct similar research in support of and verification of the findings. Also, the findings and literature of this research can be used to enhance their research in related issues.

Objectives of the Study

The purpose of this study was to investigate the aspects of agricultural extension services for the Baganga, Davao Oriental, fishing industry. In particular, this study answered the following questions:

1. To determine the socioeconomic profile of the respondents in terms of:
 - a. age;
 - b. sex;
 - c. educational attainment; and

d. religious affiliation.

2. To investigate the dimensions of extension services for the fishery sector in Baganga, Davao Oriental.

3. To craft an extension service framework for the fishery sector in Baganga, Davao Oriental.

Scope and Limitation of the Study

The research focused on the extension service dimensions of the fishery industry in Baganga, Davao Oriental through an exploratory factor analysis. With regard to this, the respondents were confined to the fisherfolks of the four barangays within the area so that the research captured the information from people with experience and know-how regarding the fishing business. Through this, the research guarantees that the answers depict enlightened opinions of agricultural extension services, which makes the findings more viable and relevant to the needs of the sector. In addition, they were selected based on a universal sampling method taking into account their quantity.

Furthermore, the exploratory design of quantitative research methods was employed in this study. Consequently, an interview guide as the main instrument of data collection and a survey questionnaire as the secondary instrument of data collection were employed. With these in mind, the collected data and information lacked detail on the participants' responses, on how data will be analyzed, and on available resources bearing in mind that there is a lack of related studies.

Additionally, taking other intervening variables that this research might be faced with and has to contend with into account, within or outside the control of the researcher, the findings might not be extrapolated beyond the immediate setting. Accordingly, the utilization of its findings requires cautious and comprehensive deliberation.

MATERIALS AND METHODS

Location and Duration of the Study

This study was conducted in selected areas in Baganga, Davao Oriental. The survey was performed from October 2024 - January 2025.

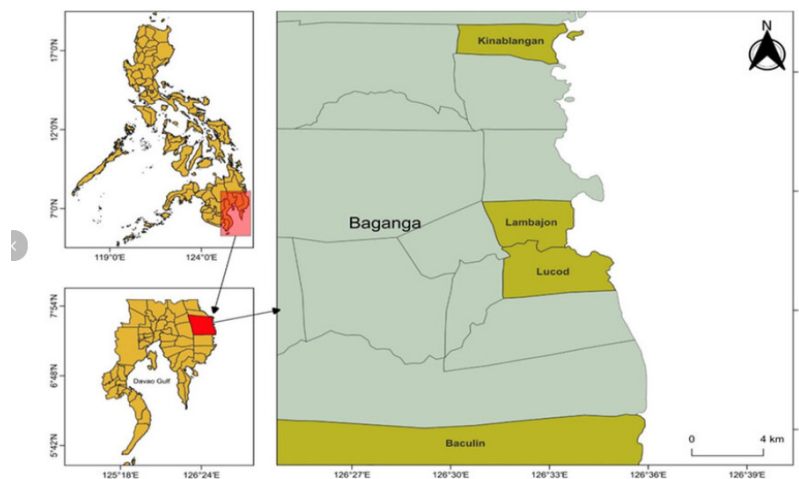


Figure 2: Map of Baganga Davao Oriental, highlighting the selected sampling sites.

Research Method

The research employed the exploratory design of quantitative research techniques for the purpose of achieving its goals. Quantitative research limits itself to statistical analyses of gathered data through survey questionnaires using computational methods, argues Mohajan (2021). In the current research, it was employed to provide the socioeconomic description of the respondents.

Furthermore, as explained by Frabrigar *et al.* (2019), Exploratory Factor Analysis (EFA) refers to a collection of statistical techniques employed to establish the number and form of constructs needed to explain the pattern of correlations among a group of measures. Similarly, as noted by Goretzko *et al.* (2021), it is applied when little theoretical and/or empirical foundation exists to derive certain predictions about the underlying pattern of intercorrelations between the measures. In this research, EFA was utilized to investigate the agricultural extension service dimensions for the fishery industry in Baganga, Davao Oriental.

Sources of Data

In this research, the initial sources of information were the answers of the fisherfolk of Baganga, Davao Oriental. Similarly, no single piece of information was added from the researcher herself to prevent bias. A survey questionnaire was also employed, which, as stated by Aarons (2020), is a useful tool for collecting statistical data on the characteristics, attitudes, or behaviors of a population by a standardized set of questions. Equally, Aithal and Aithal (2020) also pointed out the importance of systematic development and validation of survey questionnaires to maximize their effectiveness in obtaining good statistical data.

In addition, secondary readings from online sources, published articles, refereed journals, books, newspapers, and the like were conducted. The data gathered from these secondary sources were utilized to corroborate the primary data that were collected from the respondents. Furthermore, these secondary readings served as additional contextual background, corroborated findings, and added depth to the analysis by providing comparative insights, theoretical underpinnings, and empirical facts to substantiate and enhance the primary data collected from the respondents.

Procedure of the Study

In this study, there were two phases of data collection that were followed.

Phase 1. Initial Data Collection Procedure

Step 1. Identify initial factors/dimensions of knowledge trap by reading related literature.

Step 2. Consultations with the fisherfolk and experts to solicit ideas about the dimensions of extension services of the fishery sector.

Step 3. Drafting of survey tools/instruments.

Step 4. Pre-testing of survey tools/instruments. The Cronbach's alpha coefficient was 0.859, and that indicates the questionnaire has a high internal consistency and reliability as emphasized by Barbera *et al.* (2021).

Step 5. The surveyed data is pre-run using the Cronbach alpha coefficient and exploratory factor analysis (EFA).

Step 6. Revision and finalization of survey tool / instrument.

Phase 2. Full Blown Data Collection Procedure

During this stage, the new survey instrument or instrument was administered to the respondents following expert validation and reliability testing. Next followed the collection of the returned questionnaires. Lastly, the data were then counted and processed using the proper statistical software.

In significant, during the conduct of the study, the following procedures were also conducted: The researcher requested permission from the Dean of Graduate School to conduct the research and obtain data. Afterwards, the researcher requested permission in letter form from the barangay captains. Copies of said approved letters are attached.

RESULTS AND DISCUSSION

Socio Economic Profile of the Respondent

The socioeconomic profile of the fisherfolk in Baganga, Davao Oriental reveals several key findings. In terms of age, the majority of the fisherfolk (30.19%) are in the 31-40 years age group, followed by the 18-30 years age group (22.96%) and the 51-60 years age group (21.30%) (Table 1). The sex profile shows that the entire population (100%) are male, with no female participation in the fishing sector. Regarding educational attainment, the majority of the fisherfolk (66.30%) have only reached the elementary level of education, while 32.63% are elementary graduates. The high school level and high school graduate categories account for 10.56% and 0.10% of the fisherfolk, respectively. The religious affiliation of the fisherfolk is diverse, with the majority (60.55%) being Seventh-Day Adventist (SDA), followed by Roman Catholic (33.15%), Jehovah's Witnesses (12.04%), and Baptist (4.26%).

Age

The age distribution of the fisherfolk respondents in Baganga, Davao Oriental reveals a relatively young to middle-aged population. Out of 540 respondents, the largest group falls within the age bracket of 31-40 years (30.19%), followed by 18-30 years (22.96%), and 51-60 years (21.30%). Respondents aged 41-50 comprise 19.81% of the total, while those aged 61-70 and 71 and above represent only 3.70% and 2.04%, respectively. This indicates that the majority of the fisherfolk are within their prime working age, with younger groups slightly outnumbering the older population. The dominance of the middle-aged group may suggest a stable, experienced workforce, though the relatively low number of younger

individuals may reflect a declining interest in traditional fishing livelihoods among youth.

Table 1: Socioeconomic Profile of the Fisherfolk in Baganga, Davao Oriental

Profile	Frequency	%
Age (in years)		
18-30	124	22.96
31-40	163	30.19
41-50	107	19.81
51-60	115	21.30
61-70	20	3.70
71 and above	11	2.04
Total (Age)	540	100.00%
Sex		
Male	540	100.00
Female	0	0.00
Total (Sex)	540	100.00%
Educational Attainment		
Elementary Level	304	56.30
Elementary Graduate	178	32.63
High School Level	57	10.56
High School Graduate	1	0.18
Total (Educational Attainment)	540	100.00%
Religious Affiliation		
Baptist	23	4.26
Jehovah's Witnesses	65	12.04
Roman Catholic	179	33.15
Seventh-Day Adventist (SDA)	273	50.55
Total (Religious Affiliation)	540	100.00%

Sex

The statistics indicate that 540, or 100%, of the fisherfolk are males and that there is no female engagement in the fishing sector. The latter is an indication of the high level of men's dominance in this industry, a common occurrence in most traditionally male-based industries. This implies that cultural, societal, and economic circumstances might limit women's participation in the fishing sector, with the predominant male nature of the community being a major hindrance to them entering, as advanced by Pineda and Cruz (2021), who mention that the predominantly male composition of the fishing community provides structural barriers that deter women from participating or accessing resources in the sector.

Educational Attainment

Out of 540 fisherfolk respondents, 304 (56.30%) have only elementary education, 178 (32.96%) are elementary graduates, 57 (10.56%) have some high school education, and 1 (0.18%) is a high school graduate. Akinbo and Adebayo (2021) noted that there are meager educational opportunities available in rural fishing communities, and this tends to leave a vast majority of the people with basic education alone, which might limit their scope to

undergo advanced training and develop skills. However, the limited percentage of high school graduates (0.18%) and at the level of high school (10.56%) clearly indicates a disparity in educational progress among the fisherfolk. Low educational attainment could impact the community's capacity to adopt new technologies, understand regulatory frameworks, or engage fully with extension services. It also underlines the need for simplified and accessible training materials when delivering agricultural or fishery extension programs.

Religious Affiliation

In terms of religious affiliation, the majority of respondents identify as Seventh-Day Adventists (50.55%), followed by Roman Catholics (33.15%). Jehovah's Witnesses make up 12.04%, and Baptists account for 4.26%. This diversity in religious affiliation, with a dominant presence of Seventh-Day Adventists, suggests the need for culturally sensitive and inclusive extension services. Faith-based beliefs can influence work habits, community participation, and receptiveness to certain extension practices, particularly those scheduled on specific days or involving group activities. In other words, religious affiliation dominated by Seventh-Day Adventists over the fisherfolk, followed

by Roman Catholics, Jehovah's Witnesses, and Baptists. This distribution emphasizes the significant contribution religious beliefs make to the identity of the fisherfolk community, as highlighted by Olivares and Rodriguez (2021), who posit that religious beliefs have a great impact on social interactions in fishing communities, which usually shape interpersonal relations, collective decisions, and communal activities. The high concentration of Seventh-Day Adventists indicates that lifestyle habits attributed to this religion, including certain eating habits or work attitudes, might have an impact on the social life and daily habits of the fisherfolk. According to Jara and Gutierrez (2020), who assert that religious consideration is important in community-based programs as it helps in engaging diverse communities towards cooperation and unity in pursuit of sustainable livelihoods.

The age profile of the fisherfolk in Baganga, Davao Oriental suggests that the fishing sector is dominated by younger and middle-aged individuals, with the 31-40 years and 18-30 years age groups accounting for the majority of the population. This may indicate that the fishing industry in the area is able to attract and retain younger workers, which could be a positive sign for the long-term sustainability of the sector (Dela Cruz, 2020). However, the absence of female participation in the fishing sector in Baganga, Davao Oriental is a notable finding. This could be due to cultural or societal norms that may limit women's involvement in this traditionally male-dominated industry (Gonzalez, 2018).

According to Pomeroy and Andrew (2011), the aging of small-scale fisher populations is a growing concern in Southeast Asia, often linked to the lack of income security, poor working conditions, and minimal government support. This trend reinforces the need for revitalized extension frameworks that can make the sector more attractive and viable for younger generations through innovation, cooperatives, and value-chain improvements. The finding that all fisherfolk respondents are male reveals a strong gender bias in the occupation. This may stem from cultural traditions that define fishing as a male responsibility, thereby limiting women's direct participation in actual fishing activities. However, women often play crucial roles in fish processing, marketing, and household livelihood strategies, which may not have been captured in this study. As argued by Kleiber *et al.* (2015), gender-inclusive extension programs are essential to ensure equitable access to training, credit, and resources. Therefore, future frameworks should integrate gender-sensitive planning to involve women in decision-making, training, and support systems.

Fisherfolk presents a significant barrier to the effective implementation of extension services. Extension workers may encounter difficulties when introducing technical information, especially if it relies heavily on written or complex communication. As FAO (2013) emphasized, adult education and literacy play a vital role in the adoption of improved practices in coastal resource management. To overcome this challenge, extension

services in Baganga must employ localized, visual, and participatory learning approaches that are sensitive to the literacy levels of the target community. This will improve the comprehension, retention, and application of training. Moreover, the lack of education of the fisherfolk in Baganga, Davao Oriental, with the majority having only reached the elementary level of education, may have implications for their ability to adapt to technological advancements, access information and resources, and participate in decision-making processes related to the fishing industry (Mercado, 2019). This finding highlights the need for targeted interventions to improve the educational and skill levels of the fisherfolk, which could ultimately contribute to the overall development and sustainability of the sector. Additionally, the diverse religious affiliation of the fisherfolk in Baganga, Davao Oriental may reflect the cultural and social diversity of the local community. Understanding the role of religion in the lives of the fisherfolk could provide insights into their values, beliefs, and social networks, which may influence their economic and livelihood activities.

Summary, Conclusions And Recommendations

This chapter presents a summary of the findings, conclusions, and recommendations. The recommendations were not only lay the foundation for future research but were also consider the aspects of agricultural extension services for the fishery sector in Baganga, Davao Oriental.

Summary

This study aimed to explore the dimensions of agricultural extension services in the fishery sector of Baganga, Davao Oriental. Specifically, it sought to answer the following objectives: (1) To determine the socioeconomic profile of the respondents in terms of age, sex, educational attainment, and religious affiliation; (2) To investigate the dimensions of extension services for the fishery sector in Baganga, Davao Oriental; and (3) To develop an extension service framework for the fishery sector in Baganga, Davao Oriental.

This study employed an exploratory design within the framework of quantitative research methods to achieve its objectives. As part of the data collection process, both an interview guide and a survey questionnaire were used. The qualitative phase involved eight participants, selected through purposive sampling, who underwent in-depth interviews. The quantitative phase consisted of 540 respondents, chosen through universal sampling, who completed the survey questionnaire. Finally, the collected data were analyzed using appropriate data analysis tools. First, the socioeconomic profile of the fisherfolk revealed the following age distribution: 124 individuals (22.96%) fall within the "Young Fisherfolk" category (18-30 years old), 163 (30.19%) are in the "Early-Middle-Aged" group (31-40 years old), 107 (19.81%) belong to the "Middle-Aged" group (41-50 years old), 115 (21.30%) are in the "Late-Middle-Aged" category (51-60 years old),

20 (3.70%) are in the “Older Fisherfolk” group (61–70 years old), and 11 (2.04%) are in the “Elderly Fisherfolk” category (71+ years old). In terms of sex, the data shows that all 540 respondents (100%) are male, with no female participation in the fishing industry. Regarding educational attainment, 304 individuals (56.30%) have only completed elementary education, 178 (32.96%) are elementary graduates, 57 (10.56%) have some high school education, and 1 (0.18%) is a high school graduate. Finally, the data on religious affiliation shows a clear predominance of Seventh-Day Adventists, with 273 individuals (50.55%), followed by Roman Catholics (179, or 33.15%), Jehovah’s Witnesses (65, or 12.04%), and Baptists (23, or 4.26%).

Second, the dimensions of extension services for the fishery sector in Baganga, Davao Oriental revealed seven key factors. Capacity Building and Skills Development (20.79% variance, eigenvalue 1.100) emphasizes training, technical support, and leadership. Infrastructure and Resource Accessibility (11.75%, 1.792) highlights the availability of fishing gear, storage, and transportation. Financial Access and Resource Management (14.40%, 2.727) focuses on microfinance, savings, and community-based resource management. Social Services and Community Empowerment (23.15%, 1.868) underscores extension services, market access, healthcare, and rights advocacy. Policy Awareness and Stakeholder Engagement (5.23%, 2.111) reflects fisherfolk’s participation in policy discussions and cooperatives. Market Access and Information Systems (5.65%, 2.676) stresses market information, regulatory compliance, and ICT integration. Inclusivity and Digital Adaptation (4.38%, 2.086) highlights governance representation, decision-making, and ICT’s role in resilience.

Third, an extension service framework for the fishery sector in Baganga, Davao Oriental was developed, highlighting seven essential factors to provide a structured approach that equips fisherfolk with skills, resources, and support mechanisms for sustainable livelihoods, governance participation, and market access.

CONCLUSIONS

The socioeconomic profile of the fisherfolk reveals a community primarily composed of younger and middle-aged individuals, with a significant portion having limited educational attainment. The absence of female participation in the industry highlights a sex imbalance that warrants attention. Furthermore, the predominant religious affiliation within the community suggests that shared religious values and practices likely influence social dynamics and daily interactions.

Second, the findings reveal that the extension services for the fishery sector in Baganga, Davao Oriental are shaped by seven key factors, ranging from capacity building and infrastructure accessibility to financial support and policy engagement, emphasizing the importance of a comprehensive approach that targets interventions in skills development, resource accessibility, financial management, and social empowerment to ensure long-

term sustainability and improve the livelihoods of fisherfolk.

Third, the developed framework for the fishery sector in Baganga, Davao Oriental offers a structured approach that ensures extension services align with the community’s needs while promoting active participation in governance and market opportunities, positioning the sector for long-term success and sustainable growth.

Recommendations

In view of the findings and conclusions, the researcher offers the following recommendations:

Fisherfolk may actively engage in capacity-building programs that focus on both skill development and education. These programs should emphasize sustainable fishing practices, resource management, and the integration of new technologies to enhance both productivity and environmental responsibility. By embracing modern tools and techniques, they can improve their catch while ensuring the preservation of aquatic ecosystems. Additionally, fisherfolk should prioritize active participation in local fishery initiatives and community-based projects, fostering collaboration with other stakeholders and contributing to collective sustainability efforts. By adopting responsible fishing methods, they can help ensure the long-term health of fish populations and maintain the delicate balance of the aquatic environment.

Local government officials may play a critical role in supporting the fishery sector by investing in infrastructure such as fishing ports, cold storage facilities, and transportation networks, which are essential for the efficient movement and preservation of fishery products. In addition, LGUs may focus on facilitating market access by establishing channels that connect local fishery products with broader markets, ensuring fair pricing and boosting the local economy. Further, they may collaborate with other stakeholders to develop and implement policies that promote sustainable practices, protect aquatic ecosystems, and distribute fishery resources equitably, ensuring the long-term stability of the sector.

The Department of Agriculture (DA) may strengthen its support for the fishery sector by providing technical expertise, financial assistance, and training programs to empower fisherfolk to adopt sustainable practices and enhance their productivity. Additionally, the DA could prioritize research and development on sustainable fishery practices, new technologies, and alternative livelihoods, introducing these innovations to the community for greater economic resilience. By offering continued support and fostering innovation, the DA can help ensure the long-term sustainability and productivity of the fishery sector in Baganga. Meanwhile, the Bureau of Fisheries and Aquatic Resources (BFAR) may focus on awareness campaigns to educate fisherfolk on sustainable fishing techniques and environmental conservation, ensuring they understand the long-term benefits of responsible fishing. BFAR should also enhance the enforcement of policies

that regulate fishing practices, protect fish populations, and safeguard aquatic ecosystems, collaborating with local governments and other stakeholders to ensure effective implementation. Furthermore, BFAR can play a pivotal role in fostering partnerships between the government, local communities, and the private sector to achieve the goals of sustainable fisheries.

Non-Government Organizations (NGOs) may enhance the fishery sector by providing training in sustainable fishing, financial literacy, and leadership, empowering fisherfolk to improve their skills and resilience. They may also promote community involvement in policy discussions, support access to fishing gear and transportation, and facilitate market access through ICT tools. Additionally, NGOs may raise awareness on environmental sustainability and responsible fishing to ensure the sector's long-term health and productivity. Future researchers may conduct longitudinal studies to assess the long-term impact of extension services on the sustainability of the fishery sector, focusing on both environmental and socioeconomic outcomes. Additionally, evaluating the effectiveness of current policies will provide insights that can help improve future strategies for both environmental sustainability and community development. Despite a sample size of 540 and the exploration of 90 items, the study's use of Exploratory Factor Analysis (EFA) may still face challenges in capturing the full complexity of extension services for the fishery sector, suggesting that future research could enhance these findings by incorporating broader theories and a more diverse set of variables to strengthen the robustness and applicability of the results.

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