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Community needs assessment on fishing-based livelihood program in Occidental Mindoro: An extension baseline

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ABSTRACT

In Occidental Mindoro, Philippines, marine fishing is not only a commercial venture but also a fundamental aspect of local culture and livelihoods. Despite its importance, many fisherfolks in the province face poverty and limited education. This study aimed to evaluate the socio-economic characteristics and livelihood status of small-scale fisherfolks in the region to inform the development of an extension program to enhance their economic well-being.

Using a descriptive research approach, the study surveyed 356 registered small-scale fisherfolks from 11 municipalities in Occidental Mindoro, chosen through Simple Random Sampling Technique. Key factors examined included age, education, income, household size, alternative income sources, training needs, fishing experience, and practices.

Findings revealed significant challenges, including low education levels, meager earnings, lack of alternative income, inadequate training, and declining fish stocks. Limited education hampers access to resources and markets, reducing income and increasing vulnerability to economic shifts. Ineffective governance exacerbates sustainability issues, necessitating stricter enforcement of regulations.

Recommendations include improving access to resources through grants or loans, enhancing regulatory oversight, and promoting community involvement in fisheries management. Incentives and educational programs tailored to local needs, including skill development and technology adoption, are proposed. A collaborative effort involving the College of Business, Administration, and Management and government bodies aims to develop a targeted livelihood extension program for small-scale fisherfolks in Occidental Mindoro.

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1. INTRODUCTION

Managing small-scale fisheries in a developing country like the Philippines poses a complex set of challenges. These challenges result from a combination of factors, such as the growing demands from an expanding fishing population, widespread poverty, and a lack of alternative options for earning a living. The fisheries sector in the Philippines is administratively divided into commercial, municipal, and aquaculture sub-sectors. Within the municipal sub-sector, there are further classifications, specifically coastal or marine municipal fisheries and inland fisheries. The Philippines boasts 266,000 square kilometers of coastal waters,

making up 12% of the nation's territorial waters. Marine municipal fishing is conducted by fisherfolks operating small vessels with a capacity of 3 gross tons or less, within a 15-kilometer radius from the shoreline. These activities fall under the jurisdiction of local government units in coastal municipalities or cities. In 2012, production from municipal fishing amounted to 1,280,422 metric tons, contributing to 26% of the country's total fisheries output. Of this, 85% came from coastal waters and 15% from inland sources. According to data from the National Statistics Office in 2002, there were over 1.3 million municipal fisherfolks. Reports indicate that the majority of small-scale fisherfolks in the Philippines have a catch rate of less than 10 kilograms per day per trip. Moreover, the value of their catches has shifted from high-value to low-value fish species. From the Philippine Statistics Authority, highlighted that the poverty incidence among municipal fisherfolk is the highest in the country, standing at 39.2%, in contrast to the national average of 25.2% (Castro & Magnaye, 2023).

The total volume of fish production in the MIMAROPA Region was estimated to be 41,455 metric tons in the first quarter of 2020. This translates to 4.2 percent of total fish production in the country. The total volume of fish produced in the region of 41,455 metric tons from January to March 2020 was 3.9 percent or 1,544 metric tons higher than the 39,911 metric tons produced in the same quarter in 2019. Among the provinces in the region, Palawan received the highest share of regional fish production for the first quarter of 2020, accounting for 32,831 metric tons of fish. Occidental Mindoro came in second with 3,077 metric tons, or 7.4 percent of regional production.

In Occidental Mindoro, marine fishing is more than a business; it is a way of life. Moreover, it is a predominant source of income for the people in the province. This is considered as staple food and one of relatively large surpluses produced in exportable amounts in the province. The situation of fisherfolks's livelihoods is not favorable. The majority of fisherman are impoverished and have minimal education (Agaton, Guno, Labog & Collera, 2023). These studies offer proof of the poor livelihood situation of fisherman. Actions should be taken by the non-governmental and government groups to enhance the livelihood situation for fisherfolks. Although numerous empirical studies have delved into aspects like fishery households, equipment, labor productivity, and earnings, the current state of fishery research underscores the urgent requirement for a more extensive and purposeful exploration into the distressing poverty faced by Filipino small-scale fisherfolk.

To address these gaps, this study aimed to determine the specific issues facing small-scale fishing or municipal fishing communities in Occidental Mindoro, Philippines. The study assessed the socio-economic characteristics of these communities, as well as evaluate their current livelihood status in relation to fish stock levels, sustainable practices, and economic viability. The ultimate goal is to gather foundational data that will guide the development of an extension program in collaboration with the Bureau of Fisheries and Aquatic Resources, Municipal Agricultural Office, Department of Trade and Industry, and Barangay Local Government Units to improve the economic well-being of small-scale fishing communities in Occidental Mindoro, Philippines

2. MATERIALS AND METHOD

In this study, a descriptive method was employed. Only those with registered boats are the respondents of the study with a total population of 4,787. The total sample size for the study is 356, a figure determined using the Raosoft Calculator. Simple Random Sampling Technique was employed across 11 municipalities in Occidental Mindoro. The study focused on registered small-scale fisherfolks with a minimum of six months' experience in the field. Respondents who were either not interested in contributing or reluctant to share their perspectives were excluded. Moreover, all respondents were assured that they could opt out of the study at any time if they felt uneasy or distressed answering the survey questions.

To ensure the accuracy and comprehensiveness of the questions in the questionnaire, content validity was employed. This approach made certain that all aspects or dimensions of the subject being studied were adequately represented. For the analysis of the gathered data, statistical methods such as percentage and frequency distribution, weighted mean, and standard deviation were employed. These tools provided a comprehensive understanding of the data collected.

In compliance with the Code of Ethics, the researchers made sure that all data gathered from respondents was provided voluntarily and with full informed consent. The researchers also emphasized treating respondents respectfully and with integrity during interactions, with the goal of obtaining the most authentic responses. By giving importance to and accurately documenting the viewpoints and feedback of the participants, the credibility and success of the study are enhanced.

3. RESULTS

3.1. Socio-economic characteristics of the small-scale fisherfolks

The data shows the socio-economic characteristics of small-scale fisherfolks. In terms of age, it is clear that the largest group of fisherfolks are fairly young, falling within the 25 to 34 age bracket and

constituting 28.4% of the total population surveyed. However, 15 to 24 age group, makes up only a small portion at 14.04%. Overall, the age of the respondents varies across 11 municipalities. Regarding their education, only 29% have not even completed primary education, while a scant 1.4% possess a tertiary degree. In terms of their income a significant 92.13% of respondents earn a monthly income between P4,000 and P8,999, and only .56% earn between P24,000 to P28,999.

This financial hurdle is made worse by the fact that most people have fairly small families, with nearly 63% having five and below members. While it might be easier to support a smaller family, this benefit is cancelled out because a significant 83.43% do not have another way to make money to keep their household running.

Despite these challenges, the community does show an inclination for self-improvement. Specifically, 35.39% of respondents expressed a desire for entrepreneurial training, while another 32.02% are interested in improving their financial literacy. This enthusiasm for skill development is noteworthy, especially given that a large majority, 96%, have more than 15 years of experience in the fishing industry. Lastly, in terms of fishing practices, the majority are reliant on just two methods: nets used by 40.03%, and spearfishing, used by 19.38% [Table 1].

Table 1. Frequency and percentage of the respondents' socio-economic characteristics.

Socio-Economic Characteristics	f (n=356)	Percentage (%)
Age		
15 – 24 years old	50	14.04
25 – 34 years old	99	27.81
35 – 44 years old	68	19.11
45 – 54 years old	60	16.85
55 years old and above	79	22.19
Educational Attainment		
Elementary Undergraduate	103	28.93
Elementary Graduate	68	19.10
High School Undergraduate	95	26.67
High School Graduate	78	21.91
College Undergraduate	7	1.97
College Graduate	5	1.40
Monthly Income in Fishing		
P4000 – P8,999	328	92.13
P9,000 – P13,999	12	3.37
P14,000 – P18,999	4	1.12
P19,000 – P23,999	5	1.40
P24,000 – P28,999	2	.56
P29,000 and above	5	1.40
Household Size		
5 members and below	224	62.92
6 – 10 members	109	30.62
11 – 15 members	10	2.81
16 members and above	13	3.65
Alternative Source of Income		
None	297	83.43
Rice Retailer	2	.56
Piggery	4	1.12
Dried Fish Dealer	13	3.65
Tricycle Driver	11	3.09
Construction Worker	10	2.81
Farming	19	5.34
Training Needs		
Seminar on Financial Literacy	114	32.02
Seminar on Risk Management	95	26.69
Seminar on Entrepreneurship	126	35.39
Seminar on planning	21	5.90
Length of Experience in Fishing		
Less than a year	34	9.55
1 – 5 years	86	24.16
6 – 10 years	90	25.28
11 – 15 years	50	14.04
More than 15 years	96	26.97
Fishing Practices		
Fishhook	61	17.13
Handline	55	15.45
Spearfishing	69	19.38
Net Fishing	171	40.03

3.2. Assessment on the current livelihood status of the small-scale fisherfolks

The subsequent tables present the current livelihood status of small-scale fisherfolks in Occidental Mindoro, focusing on the level of fish stocks, sustainability practices, and economic viability.

3.2.1. Level of fish stocks of the small-scale fisherfolks in Occidental Mindoro.

Results shows that the respondents has high status of fish stock levels ($\bar{x}$=2.86 ± 0.673) especially on the perception of having healthier fish populations offer hope for stock recovery through good fishery management ($\bar{x}$=2.99 ± 0.898) garnered a highest mean [Table 2].

Table 2. Level of fish stocks of the small-scale fisherfolks in Occidental Mindoro.

Indicators		Mean	SD
1.	Fish stock decline has led to fewer catches.	2.87	.841
2.	Fish scarcity is forcing fisherfolks to go farther out to sea.	2.85	.851
3.	Overfishing is reducing fish catches and harming fisherfolks's income.	2.79	.911
4.	Abundant fishing grounds now risk yielding smaller catches, creating future uncertainty.	2.80	.897
5.	Smaller fish sizes are affecting market value and demand.	2.79	.888
6.	Healthier fish populations offer hope for stock recovery through good fishery management.	2.99	.898
7.	Commitment to conservation that aims to stabilize the future fishing industry.	2.94	.908
	Weighted Mean	**2.86**	**.673**

Legend:1.00-1.75 Very Low; 1.76-2.50 Low; 2.51-3.25 High; 3.26-4.00 Very High

3.2.2. Sustainability practices of the small-scale fisherfolks in Occidental Mindoro.

Results shows that the sustainability practices of the respondents receive a 'good' rating ($\bar{x}$=2.58 ± 0.673). Among all the indicators, the statement "size limits in fishing help fish grow before capture" ($\bar{x}$=2.97 ± 0.868) received the highest score [Table 3].

Table 3. Sustainability practices of the small-scale fisherfolks in Occidental Mindoro.

Indicators		Mean	SD
1.	The use of selective equipment to minimize bycatch and protect endangered fish species.	.302	.825
2.	Technique and quota adjustments help prevent fish stock depletion.	2.96	.831
3.	Implementing seasonal closures for fish reproduction and ecosystem health.	2.80	.850
4.	Size limits in fishing help fish grow before capture.	2.97	.868
5.	Participation in fishery talks ensures diverse perspectives.	2.86	.900
6.	Adapting to new regulations is considered a way to sustain the industry for future generations.	2.93	.897
7.	Collaboration with scientists informs responsible fishing and enhances ocean understanding.	2.86	.869
8.	Maintaining the balance in the marine ecosystem and ensuring a sustainable catch for future years are prioritized.	2.92	.917
	Weighted Mean	**2.58**	**.673**

Legend: 1.00-1.75 Weak; 1.76-2.50 Fair; 2.51-3.25 Good; 3.26-4.00 Strong

3.2.3. Economic viability of the small-scale fisherfolks in Occidental Mindoro.

Results shows that the economic viability of small-scale fisherfolks is rated as ‘good’ ($\bar{x}$=2.92 ± 0.642). The statement “membership in a cooperative help facilitates collaborative problem-solving, resource pooling, and empowers collective advocacy for fisherfolks’ rights and interests” ($\bar{x}$=3.01 ± 0.851) got a highest mean score [Table 4].

Table 4. Economic viability of the small-scale fisherfolks in Occidental Mindoro.

Indicators		Mean	SD
1.	Changes in fish population are making the fishing industry's future uncertain.	3.00	.861
2.	Overfishing is causing smaller catches, making family support difficult.	2.85	.902
3.	Rising fuel prices are reducing income and causing livelihood concerns.	2.82	.869
4.	Climate change is complicating ocean ecosystems, making fishing trips unpredictable.	2.95	.878
5.	Government regulations can protect or hinder fisherfolks’ earnings.	2.99	.826
6.	Membership in a cooperative help facilitates collaborative problem-solving, resource pooling, and empowers collective advocacy for fisherfolks rights and interests.	3.01	.851
7.	Diverse fishing methods offer a safety net when fish types deplete.	2.87	.824
8.	Tourism-related fishing boosts income but raises ocean disturbance concerns.	2.82	.829
9.	International markets offer opportunities, but trade policies are a hurdle.	2.95	.823
	Weighted Mean	**2.92**	**.642**

Legend: 1.00-1.75 Critical; 1.76-2.50 Challenged; 2.51-3.25 Good; 3.26-4.00 Very Good

4. DISCUSSION

The following discussions aim to provide valuable insights into the current socio-economic characteristics of the small-scale fisherfolks in Occidental Mindoro.

In the matter of age distribution, the largest segment of survey respondents falls within the 25 to 34 age bracket. In contrast, the age group least represented is the 15 to 24 years old category. When considering educational attainment, a significant number of fisherfolks have not completed primary education, while a minimal number hold a tertiary degree. There is a distinct decline in the number of respondents who have reached higher educational levels, such as high school and college. This pattern of lower educational attainment in fishing communities may be linked to cultural norms and practices. Often, young individuals enter the fishing trade at an early age, frequently with family members, as a way to contribute to the household income. This trend aligns with Chapman, Johnston, & Jetson (2017) study, which identifies socio-cultural factors and financial limitations as main reasons for low educational ambitions among parents in rural settings. A similar observation is made in a study by Maesti (2017), confirming that fisherfolks generally possess lower educational levels compared to individuals in other occupations. Such educational gaps can create significant obstacles to adopting advanced fishing technologies. Additionally, van Zon, Reijneveld, Mendes de Leon, & Bültmann (2017) noted that the lower educational attainment may result in less disciplined and less accountable work practices.

A large number of respondents indicate that their monthly income falls within a range P4,000 to P8,999 that suggests involvement in small-scale or subsistence fishing. This aligns with data from the Philippine Statistics Authority, which shows that fisherfolk have the highest poverty rates compared to other groups in rural areas. Such high levels of poverty within the fishing community could be linked to their limited access to essential resources, advanced technology, and viable markets. These constraints may, in turn, limit their capacity to generate more substantial income from their fishing endeavors. Considering that the fisherfolks have low incomes, it is worth mentioning that many have opted for smaller family sizes comprising five and below members. This choice to maintain a smaller family size among low-income fisherfolks suggests a level of financial planning and awareness. The economic constraints likely make it challenging to provide for a large family, so keeping the household size small can be viewed as a practical decision to manage limited resources effectively.

Despite earning a low income from fishing, a substantial number of the surveyed fisherfolks indicate that they do not have an alternate source of income to supplement their livelihood. In contrast, a smaller proportion do engage in other income-generating activities, such as farming, construction, tricycle driving, dried fish dealing, operating a piggery, and rice retailing. This pattern suggests a lack of income diversification for the majority of fisherfolks, rendering them more susceptible to economic difficulties, especially considering their already low income from fishing. Those with secondary sources of income are in the minority, but their alternative occupations span diverse sectors, including agriculture, construction, and retail. These additional avenues for income could provide a safety net, potentially making these individuals more resilient to economic shifts or challenges within the fishing industry. Given that the majority of fisherfolks do not have an alternative source of income, there is a significant need for training in entrepreneurship and financial literacy. Among those surveyed, a noticeable portion expressed a desire for entrepreneurial training, while another segment indicated an interest in learning about financial literacy. This is in line with research by Calcagno, Alperovych, and Quas (2019), which posits that entrepreneurs often act as catalysts for innovation and economic growth. However, their success is closely tied to their capability to make informed financial decisions.

Furthermore, an overwhelming majority of the fisherfolks possess more than 15 years of experience in the fishing industry, highlighting their deep expertise and long-term dedication to the profession. In contrast, only a minimal number have less than a year of experience in the field. This predominance of long-tenured fisherfolks implies that small-scale fishing is not merely a temporary job for most, but rather a lifelong vocation. The majority of fisherfolks in the study have been in the profession for at least 15 years and primarily utilize two specific fishing practices namely nets “lambat” and spearfishing “pagpana”. Nets “lambat” are a popular fishing gear in Occidental Mindoro, weights known as "bato-bato," floatation material referred to as "palataw," and a long fishing line that connects these elements. These traditional practices have evolved to include encircling schools of fish with a net deployed either from a boat, commonly known as a “bangka,” or by wading in shallow waters. Additionally, spearfishing, often referred to as “pagpana,” requires diving beneath the water's surface to catch fish using a spear. However, less commonly utilized methods include fishhooks and handlines, both of which are also traditional fishing practices prevalent in the province of Occidental Mindoro. Importantly, all these fishing practices are legal and comply with the sustainable fishing guidelines established by the Bureau of Fisheries and Aquatic Resources (Viray-Mendoza, 2019).

The findings clearly indicate that effective fishery management and a commitment to conservation are essential for maintaining healthy fish stocks. The persistent decline in fish stocks necessitates the sustainable management of these resources. The Fisheries Management Area (FMA) mechanism in the Philippines is one such effort. Under this framework, Philippine waters are divided into 12 areas, each jointly

managed by the national fisheries agency and a network of local governments. Established through Fisheries Administrative Order (FAO) No. 263, the FMA aims to conserve and manage fisheries within Philippine waters. Despite these regulations, a large portion of the Philippines' fish stocks are still considered overfished, which has led to a critical drop in both domestic commercial and municipal fisheries production since 2010. The failure of local authorities to adequately regulate and monitor coastal fisheries is seen as a major contributing factor to the declining health of the country's fisheries. With fish stocks continuing to decrease, activists and policymakers are placing their hopes on recent regulations aimed at enhancing the management of municipal waters (Yuhandra, Rifa'i, & Hidayat, 2023).

In terms of sustainable practice, the results revealed that various measures are in place for the government to oversee and regulate fishing activities within its jurisdiction. These regulatory frameworks include the use of catch quotas, size limits for fish, and restrictions on both fishing methods and target species. It is widely acknowledged that overfishing and destructive fishing methods have severely obstructed fish populations and overall harvests. Moreover, fishing communities, particularly those small-scale fishing, should assume stewardship roles for the marine ecosystems within the establishment of community-based fishing rights and guidelines could empower these local residents to regulate fishing activities effectively. This community involvement would promote responsible fishing practices and discourage actions that could be harmful to marine life (Church, Benbow, & Duffy, 2023; Buana and Barlian, 2023).

Regarding economic viability, the formation of groups or associations among fisherfolks signifies a shift towards recognizing the power of collective action. By uniting, fisherfolks can amplify their voices and influence in advocating for their interests and concerns. The findings also highlighted the collaboration of fisherfolks allows them to pool their resources, share knowledge, and collaborate on various aspects of their livelihoods. This pooling of resources can lead to improved access to information, technology, and funding. López-Rodríguez, Cabello, Castro, and Rodriguez (2019) advocated for a social-learning approach aimed at creating new avenues for constructive connections among diverse stakeholders. The significance of social capital to small-scale fisherfolks becomes apparent, as it grants them access to vital information about fishing conditions, facilitates collaborative problem-solving, facilitates resource pooling, and empowers collective advocacy for their rights and interests (Eriksson, van Riper, Leitschuh, Bentley, Rawluk et al., 2019; Morgan, Sheehan, Rees, & Cartwright, 2020).

Table 5. Proposed Fishing-Based Livelihood Extension Program

Key Result Areas	Specific Objectives	Program/Project Activities
Economic Viability	To enhance values and skills in communication and leadership	**Building Social Capital** • Ethics and Social Responsibility Training • Networking Skills • Effective Communication Skills • Leadership Skills • Community Engagement Training • Social Enhancement Skills Training
Dwindling Fish Stock Level & Sustainable practices	To offer guidance on preserving and managing marine resources.	**Environmental Awareness** • Environmental Awareness seminar • Fishing Policy & Regulation Awareness Seminar • Waste Management Community Outreach-Coastal Clean-Up Drive
Low earnings	To provide insight into how to maintain a livelihood with the income earned.	**Financial Literacy** • Training on Budgeting • Training on savings • Training on Financial Outsourcing
Alternative income Avenues	To offer perspective on revenue sources.	**Entrepreneurship** • Training to develop entrepreneurial skills • Training on Business Planning • Training on business management • Accounting and marketing strategies.
	To support fishermen in developing and diversifying their fish product offerings.	**Food Product Development** • Product Development Strategies • Food Safety Standards and Best Practices • Packaging and Labelling • Marketing and Branding

5. CONCLUSION

Small-scale fishermen in Occidental Mindoro grapple with a multitude of challenges such as limited educational opportunities, low earnings, absence of alternative income avenues, insufficient training, dwindling fish stocks, sustainable practices, and economic viability. Many of these fishermen had to abandon their education at a young age, often due to social pressures and financial difficulties, and as a result, their

options for resource access and market penetration are limited. Consequently, their fishing income is reduced. In addition, the majority lack other means of income, leaving them particularly vulnerable to economic changes. Training programs that could enhance their skills in business and financial management are largely absent. While there are existing guidelines and frameworks aimed at sustainability, the fish stocks continue to decline. This decline can be partially attributed to the ineffectiveness of local governance measures. Though governmental and community-level regulations exist, they require stricter enforcement for sustainable and economically viable fishing practices.

After careful analysis of the findings, it is strongly advised to reinforce non-government and government interventions, specifically through the Bureau of Fisheries and Aquatic Resources, Municipal Agricultural Office, Department of Trade and Industry, and Barangay Local Government Units is vital. These measures aim to improve access to vital resources like fishing equipment and capital, as well as provide the necessary knowledge and support to enhance production and facilitate the marketing of their products. Additionally, efforts should be made to strengthen the capabilities for effective regulation and oversight of fishing activities. Local communities should also be empowered to play a more proactive role in managing fisheries to ensure both sustainability and adherence to existing guidelines. Incentives and public acknowledgment could be employed to encourage the adoption of more sustainable fishing practices. Further, introduce free educational programs tailored to fishing communities that allow for skill development, provide training in adopting advanced fishing technologies should be simplified and made accessible.

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Dr. Jason G. Ramirez is an accomplished researcher with a diverse academic background. He holds a Doctor of Philosophy in Business Management with the highest distinction award from Centro Escolar University, complemented by a Master in Business Administration and a Bachelor of Science in Accountancy from Divine Word College of San Jose. Currently pursuing a Post-doctoral Diploma in Quality Management at Centro Escolar University, Dr. Ramirez's research interests span accounting, finance, business management, and community engagement. His work reflects a blend of theoretical insight and practical application, contributing to both scholarly discourse and societal impact. Throughout his career, Dr. Ramirez has actively engaged in scholarly activities, including publishing in reputable journals, and presenting at conferences. As a respected figure in academia, Dr. Jason G. Ramirez's dedication to excellence, coupled with his passion for research and community engagement, positions him as a leading voice in the fields of business management and accounting, with the potential to influence positive change on a global scale.

Dr. Liezel C. Garcia is an educator and a dedicated leader in the field of education. Currently serving as an Assistant Professor at Occidental Mindoro State College, she also holds the role of Program Chair of BSBA Operations Management program highlighting her adeptness in leadership and administration. With a professional background deeply rooted in business and management, Dr. Garcia is a proud alumna of New Era University. Her commitment to academic excellence led her to obtain a Master's degree in Public Administration from Occidental Mindoro State College. Driven by her passion for knowledge and expertise in her field, she further solidified her credentials by completing her Doctor of Philosophy in Business Management at the University of Perpetual Help System Laguna. Dr. Garcia's professional journey is characterized by a blend of academic expertise and practical experience in business and management. Her research interests primarily focus on business and livelihood development, reflecting her dedication to enhancing community livelihoods and local industries. For inquiries or collaboration opportunities, she can be reached via email at liezelgarcia_cbam@omsc.ph.education.

Ms. Jean P. Gulac is an esteemed member of the Occidental Mindoro State College serving as Assistant Professor and Quality Assurance Officer at Mamburao Campus. Her academic journey began with a Bachelor of Arts in Economics from St. Paul College, Quezon City, followed by a Bachelor of Laws from San Sebastian College Recoletos, Manila. Ms. Gulac furthered her academic pursuits by completing a Master's in Public Administration at Occidental Mindoro State College. Beyond her teaching responsibilities, Ms. Gulac channels her passion for continuous improvement by holding the position of Campus Quality Assurance Officer. This dual role allows her to not only impart knowledge to students but also contribute to the campus's overall quality assurance efforts. Ms. Gulac's research interests primarily lie in three key areas: quality assurance, human resources, and livelihood development. This diverse range of research interests reflects her commitment to both academic excellence and the sustainable development of communities.