

Blue Economy for Small-Scale Fisheries: Challenges from A Coastal Community in the Southern Philippines

Reynnard M. Sumalpong¹
Amabelle A. Embornas²

¹School of Interdisciplinary Studies, MSU-Iligan Institute of Technology

²Department of Sociology, MSU-Iligan Institute of Technology

Abstract

This research describes the experiences of small-scale fisheries (SSF) concerning the coastal development project in Kolambugan, Lanao del Norte. This initiative aims to enhance the municipality's fisheries sector to reinvigorate fishing activities through the development of a boulevard, enhancement of existing fish landings, and development of a commercial building for the agri-aqua industry in the municipality. Despite the promising prospects of such an initiative, various literature revealed that there have been concerns regarding the sustainability of small-scale fisheries within the context of the blue economy. Utilizing a descriptive research design, this study uses surveys, interviews, and focus group discussions to analyze the SSF's awareness, perception, knowledge, and participation in the proposed coastal development. Salient findings reveal that SSF in Poblacion are predominantly middle-aged, married men, with moderate involvement and positive insights in coastal development. However, they face numerous challenges encompassing inadequate socio-economic support, shifting weather patterns, and a lack of institutional assistance being the most prominent. These challenges exacerbate the difficulties encountered by the coastal SSF community, compounded by evolving market conditions and changes in livelihoods, which further strain their resilience. These emphasize the critical need for community engagement and the establishment of sustained support and monitoring mechanisms to advocate for sustainable coastal development. Recommendations include the rigorous implementation of Information, Education, and Communication (IEC) campaigns, as well as the establishment of a barangay coastal resource management plan to promote participatory planning practices. Emphasis is placed on the importance of early and frequent stakeholder interaction to comprehend various stakeholders' perspectives.

Keywords: *Small-scale Fisheries, Blue Economy, Coastal Development, Community Development, Sustainable Development*

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Introduction

The blue economy, coined by Gunter Pauli in 2010, has gained popularity especially in developing countries. This concept emphasizes the sustainable utilization and conservation of marine resources to promote economic growth (Youssef, 2023). It recognizes the inherent value of ocean and coastal areas, not just economically, but also as crucial ecosystems supporting diverse life forms that provide essential benefits to humanity. Likewise, this emphasizes the importance of integrating and empowering small-scale fisheries to their potential to drive sustainable development and enhance coastal communities (Pauly, 2018; Sulanke et al., 2021). Small-scale fisheries (SSF) exhibit diversity in terms of the individuals involved, the fishing gear employed, and the targeted species (Nomura et al., 2022). In the Philippines, they are defined as municipal fishers who possess exclusive rights to access municipal waters, extending up to 15 km from the coastline in accordance with the national fisheries code (Philippine Fisheries Code, 1998).

The coastal resources in Kolambugan have been a vital lifeline for people living in the periphery. For generations, these resources have provided sustenance and livelihood to the community primarily through fishing activities. According to the 2020 Census of Population and Housing, Kolambugan ranks as the 10th most populous municipality in Lanao del Norte, boasting a total population of 28,265 distributed across 7,414 households. With the municipality's population increasing and along with the presence of essential facilities and services, its significance within the regional spatial development grows exponentially. This demographic trend emphasizes the call for strategic urban planning and infrastructure development to accommodate the growing population. To capitalize this potential, the municipal local government unit has proposed a visionary coastal development project that encompasses the creation of a boulevard, enhancement of existing fish landing, and development of commercial building for agri-aqua industry in the municipality. This initiative aims to significantly enhance the municipality's fisheries sector by revitalizing fishing activities, enhancing local economy, and ensuring the sustainable utilization of coastal resources.

Despite the promising prospects of such an initiative, concerns that small-scale fisheries are being marginalized in the context of the blue economy are glaring issues. According to the Municipal Planning and Development Coordinator (MPDC), the actualization of these plans necessitates a reclamation project spanning 25-30 meters which has significant environmental and socio-economic implications in Poblacion. This aligns to Fabinyi et al., (2022) and Suuronen et al. (2020) studies that such initiative may aggravate the decline in resources, overcapacity, and conflicts among the community. Various literature depicts concern regarding inequality, Standing (2019) raised the question of whether the new ocean development agenda aligns with the sustainability of small-scale fisheries. Cohen et al. (2019) and Bennett et al. (2021) echo these concerns by emphasizing the risks small-scale fishers face in terms of marginalization and resource depletion within the evolving blue economy.

While the blue economy framework entailed the utilization and conservation of marine resources for economic growth, it has been criticized for insufficiently addressing the specific

challenges of SSF. Likewise, the absence of participation and inadequate information on the project development may lead to unfounded expectations not helpful to sustainable utilization of the coastal area. It is deemed appropriate therefore to understand the conditions of the small-scale fisheries living in the community, particularly in Barangay Poblacion, Kolambugan, Lanao del Norte – the research setting – in terms of their existing challenges and concerns. Also, knowing how these individuals interact in the coastal development project is important to sustain them on the major coastal landscape development. Understanding their roles, dependencies, and impacts within the ecosystem provides valuable insights for integrating their needs and practices into larger coastal development initiatives. Knowledge of these serves as a good starting point in determining appropriate interventions in the blue economy and addressing specific SDGs in a local SSF setting.

Likewise, this study presents the broader challenges and experiences of small-scale fisheries within the blue economy initiative by understanding them particularly their awareness, perception, knowledge, and participation in relation to Kolambugan coastal development. Hence, understanding SSF and their relationship to the blue economy and providing recommendations for Kolambugan coastal development can contribute to attaining Sustainable Development Goals. This is particularly related to the attainment of SDG 14, conserving and sustainably using the oceans, seas, and marine resources for sustainable development; and SDG 10 which aims to reduce inequalities. Likewise, a sustainable blue economy can also contribute to taking urgent action to combat climate change and its impacts (SDG 13).

Review of Related Literature

Small-scale fisheries are a diverse and an important part of the global fishing industry, with unique attributes and challenges. In Europe, they are characterized by smaller vessels, lower extraction rates, and lower capital investments (Guyader, 2013). In developing countries, the sustainability of these fisheries is closely tied to the strength of local social capital, with government involvement playing a secondary role (Kosamu, 2015). They face numerous challenges, both internal and external, that hinder their sustainability and success (Elfitasari, 2017). These challenges include resource overexploitation, fleet interactions, and post-harvest problems, as well as a lack of attention to socio-economic issues in research (Chuenpagdee, 2018). Existing studies have shown that reforming governance in small-scale fisheries in developing countries necessitates a balanced strategy that emphasizes wealth, rights, and resilience (Ratner and Allison, 2012).

In Europe, small-scale fisheries are important for employment and local economies, but they also encounter governance, market, and interaction challenges (Pita, 2020). In Southeast Asia, the issue is complex as it includes declining resources, overcapacity, and conflicts due to maritime zone development (Fabinyi et al., 2022; Suuronen, 2020). Co-management has been shown to reduce resource conflicts and improve food security (Fabinyi et al., 2022), but the effectiveness of management measures in trawl fisheries remains a concern (Suuronen, 2020). Excessive fishing efforts due to population growth and economic motivations are a key driver of conflicts (Glaser et al., 2019). Addressing these complex challenges necessitates a comprehensive approach that takes into account the socio-economic, ecological, and

institutional dynamics of the region. Therefore, implementing strategies to mitigate these challenges is paramount for safeguarding the long-term sustainability and viability of small-scale fisheries in Southeast Asia.

In the context of coastal development, community engagement and participation are deemed vital to evaluate community's participation and understand the potential social impacts within the community. Research on the engagement and participation of small-scale fisheries in development projects around the world has highlighted the importance of community-based management to improve their performance (Karr et al., 2017). This approach, when supported by strong local social capital, has been found to be crucial for the sustainability of small-scale fisheries (Kosamu, 2015). The US is moving towards a co-management model, which emphasizes stakeholder engagement (Eden et al., 2016). Thus, the success of development projects in SSF is closely tied to the engagement and participation of the communities.

Relative to the study of Mareta et al. (2024) and Coronado et al. (2020) which both emphasize the need for a community-based approach that considers the social, economic, and environmental complexities of these communities. Similarly, Buana (2023) highlights the role of community engagement in supporting sustainable fishing efforts, with a focus on the maritime sector. Triyuni (2019) provides examples of community participation in coastal tourism management and aquaculture highlighting the role of the community in decision-making. Bhagwan (2018) and Gillgren et al. (2018) highlight the importance of organized engagement processes, especially in university-community partnerships such as co-producing knowledge and collaboration, to provide cohesive solutions for sustainable coastal futures.

Thus, small-scale fisheries are a vital and diverse segment of the global fishing industry, characterized by unique attributes and challenges that vary across regions. In developing countries, the sustainability of small-scale fisheries is closely tied to local social capital, often more so than government intervention. Effective management measures and sustainable practices are essential for mitigating issues such as resource overexploitation, overcapacity, and conflicts. The importance of community-based management and strong local social capital cannot be overstated, as engaging communities in decision-making promotes ownership and responsibility towards sustainable practices.

Methodology

This study utilized a descriptive research design through triangulation of survey, key informants' interviews, and focus group discussion. Noble and Heale (2019) states that triangulation enhances confidence in research data by offering novel perspectives on a phenomenon, uncovering distinct findings, testing or merging theories, and delivering a more precise understanding of the issue. Qualitative data analysis through analytic memos and emerging themes will provide rich insights into the perceptions and challenges that are experienced among stakeholders (Lew, 2023). Through this process, patterns and recurring themes within the data will be identified, offering nuanced understanding and contextualization of the issues at hand.

There were 57 respondents who participated in this study. Forty of these are survey participants who are small-scale fishers. The study focused on gathering important information among SSF about their sex, age, marital status, educational attainment, and types of fishing activities, which aimed to establish a baseline profile among the Barangay Poblacion's SSF. These also involve exploring the economic activities and livelihood that encompass the sources of their income, average monthly income, and other livelihood activities. In addition, the survey questionnaires also delved into the challenges and issues faced by the fisherfolks encompassing issues concerning governance and environmental concerns, which provides an understanding awareness, perception, knowledge, and participation in the coastal development project.

In addition, four key-informant interviews were undertaken which involved the Municipal Development Planning Coordinator, Municipal Fisheries Officer, Barangay Councilor on Agriculture and Coastal Resource Management, and President of the Fisherfolks Association. Meanwhile, the focus group discussions were composed of 13 individuals including 10 fisherfolks (6 men and 4 women), Barangay Councilor on Agriculture and Coastal Resource Management, a representative from the Municipal Planning and Development Office, and a representative from the people's organization.

The qualitative data from the key informants and focus group discussions were processed and analyzed based on the emerging themes of the responses of the participants. Systematic coding and analysis of data ensure that the themes are grounded in the data itself. Patterns and consistency across data also validate the themes (Williams and Moser, 2019). Data generated from the survey was analyzed using IBM SPSS Statistics 23.0 allowing to perform the statistical analysis. Descriptive statistical analysis was used to obtain the overall mean and interpret the variables of the study. Strict adherence to the research ethics established by the Mindanao State University - Iligan Institute of Technology, through MSU-IIT IERC Form 13 was sought prior to data gathering.

Research Location

The study was conducted in Kolambugan, one of the municipalities along the Panguil bay. It is a 4th class municipality of Lanao del Norte, has a population of 28,265 in 7,414 households (based on 2020 Census of Population and Housing). This study was conducted in Barangay Poblacion in the said municipality. The barangay has a total of 615 households in nine (9) Puroks. The most populated are in Purok 6, 4, and 8 (Registry of Barangay Inhabitants, 2022). The area is one of the barangays along the Panguil bay coastline that is characterized by the presence of living coral reefs, estuarine and soft bottom communities of which are the primary habitat of the various types of marine organism (Comprehensive Land Use Plan, 2017). Barangay Poblacion, as the center of economic activity, was selected since it demonstrates significant development in the past five years and the result of this study could be replicated in other barangays.

The coastal development project aims to enhance the existing fish landing (Site 2), boulevard (Site 1) , and additional development structures. This initiative is situated in Barangay Poblacion which is home to over 60 small-scale fisheries that are integral to the

local economy, enhance tourism and provide essential amenities. It will transform the coastal area into a vibrant hub that would cater to the needs of residents and visitors, while also promoting sustainability and prosperity among small-scale fisheries.

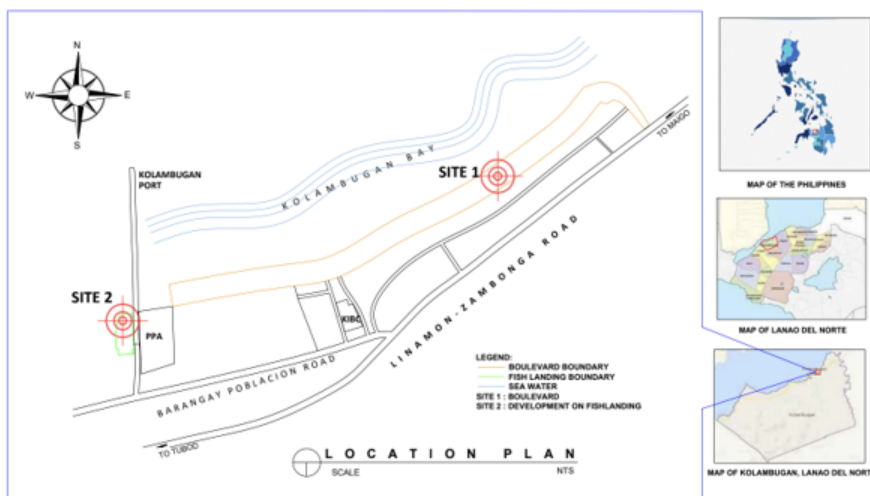


Figure 1. Project location site

Source: Kolambugan Municipal Planning and Development Office (2023)

Results and Discussion

Socio-demographic Profile of Small-scale Fisheries

Table 1. Location of residence of SSF who participated in the study

Purok	Frequency	Percentage (%)
I	3	7.5
II	5	12.5
III	4	10
III	4	10
V	1	2.5
VI	2	5
VII	2	5
VIII	13	32.5
IX	6	15
Total	40	100

Source: Survey, 2024

There were 40 small-scale fisheries participating in the study. These individuals were regular SSF, and others were occasional fishers. The 40 SSF (1.83% from the overall population of Barangay Poblacion) were inhabited in various Purok. Most of them are situated at Purok 8 (32.5%) and appear to have the highest number of responses that indicate a significant area of SSF in the community. Purok 1, 2, 3, 4 and 9 show relatively lower but still notable SSF which obtained 55% of the overall population. On the other hand, Purok 5, 6, and 7 yield 12.5% due to the lower amount of SSF within the specific area.

Table 2 shows the profile of the participants. The respondents are predominantly male comprising a larger proportion (75%) than females (25%). With respect to age, the modal age bracket is 38 - 47 years old or with a mean of 3.5. It shows the age distribution of respondents indicating that they are more represented in the middle age brackets (38 - 57 years old) comprising 82.5% compared to those ages 18 - 37 years old (10%) and 58 years old and above (7.5%). They are generally married (62.5%) while a few are single (22.5%), a smaller percentage of respondents are either living with a partner (10%), and a minority of the respondents are widowed (2.5%), and on prefer not to say (2.5%).

Table 2. *Profile of Small-scale Fisheries participated in the study*

Indicators	Frequency	Percentage (%)
Sex		
Male	30	75
Female	10	25
Total	40	100
Age		
18 - 27 years old	2	5
28 - 37 years old	2	5
38 - 47 years old	21	52.5
48 - 57 years old	12	30
58 years old and above	3	7.5
Total	40	100
Marital Status		
Single	9	22.5
Married	25	62.5
Living with a partner	4	10
Others (Widowed, prefer not to say)	2	5
Total	40	40
Educational Attainment		
Preparatory	4	10
Elementary	6	15
Secondary	24	60
Vocational	1	2.5
College	5	12.5
Total	40	40
Average household size	6	
Monthly Income*		
Below Php 10, 957 (Poor)	40	100

**Based on classifications by the Philippine Institute of Development Studies (2020)
Source: Survey, 2024*

The majority of the respondents have completed secondary education which indicates a high level of education that comprised 60% of the overall population. However, the percentage of those with higher education (college level and above) demonstrates low obtaining 15% in comparison to those with only high school education or below. Inversely, the rest are less educated, especially those who remained at preparatory (10%) and elementary education (15%). Household size generally affects family labor availability for different fisheries work. Furthermore, all the SSF households are poor based on the income classification of PIDS (2020) with less than Php 10,957 of monthly income.

Kolambugan Coastal Development Project

The Republic Act 7160 (Local Government Code of 1991) and Republic Act 9593 (Tourism Act of 2009) entrust the municipality to develop a project that facilitates in

enhancing the capacity of tourism and economic development through the Kolambugan coastal development. The regulatory framework to support the municipality's effective and efficient coastal development, the Sangguniang Bayan enacted Municipal Ordinance No. 10, S. 2020 on June 24, 2020. This ordinance is entitled "The Kolambugan Integrated Business Center (KIBC) of the Municipality of Kolambugan, Lanao del Norte". The power to enact ordinances is outlined to the Sangguniang Bayan by the Local Government Code of the Philippines.

This initiative is aligned with the municipality's vision to emerge as the center of agri-aqua industry in Mindanao by 2032. Anchored on this vision, the development project is an impetus to the community towards blue growth and sustainable development. Moreover, the project aims to establish key infrastructure development including boardwalk, fish landing facility, and commercial building tailored to support the agri-aqua industry, and to attract investment to stimulate economic growth, tourism, and promote social coherence in the community.

Likewise, this offers an imperative opportunity for small-scale fisheries to benefit from the project which can alleviate their social standings, particularly those in poor segments of the community. Since the infrastructural development would provide a fish landing facility, this can improve the handling, storage, and processing of catch, reducing post-harvest losses and enhancing the quality of fish in the Municipality. These can result in better marketability and competitive prices that can subsequently increase the income of small-scale fisheries. Additionally, creating marketplaces and commercial builds would expand access by allowing them to connect with other buyers in the nearby municipalities and provinces. Hence, this can improve the economic stability among SSF which helps them to usher from subsistence fishing to more sustainable and profitable livelihoods in their community.

With these initiatives, it is empirical to understand how SSF, particularly their awareness, perception, knowledge, and participation, interacts within the broader coastal development agenda. Their involvement and perspectives are significant throughout the project life cycle. Likewise, it is important to promote inclusive decision-making processes to ensure that the engagement among stakeholders is being heard and prioritized (Svolkinas et al., 2023). This could also address their needs and concerns, thus leveraging their knowledge and expertise for the long-term and sustainability of the coastal development.

Challenges of SSF in Poblacion

Socio-Economic and Livelihood Challenges

The inadequate socio-economic support, as identified by participants, emphasize the barriers that restrain their livelihood in the community. These challenges are particularly pronounced during the "Kulyada" or also known as the easterlies. According to the PAGASA-DOST, *Kulyada* is characterized by winds coming from the east and passing through the Pacific Ocean and bringing warm and humid weather that are affecting parts of the country. This can affect the livelihoods of small-scale fishers by influencing weather patterns, leading to challenges such as bad weather conditions, gear bans, and rising fuel

prices (Alhassan et al., 2022). Likewise, it denotes the decline in fish stocks and livelihood which typically occur around early November until late February. SSF-participants stressed that during this period, there was little to no support from the government which aggravated their vulnerability.

A significant portion of the respondents (57.5%) underscore that they do not have enough alternative livelihood options due to low education and lack of skills. This connotes the need for an intervention to enhance diversifying income sources and building resilience among SSF during *Kulyada*. Without enough alternatives, this will make the household highly vulnerable to economic challenges, disasters, and other external shocks that may affect their primary source of income. Meanwhile, the relatively low engagement in small-scale businesses (10%) and sari-sari or retail stores (7.5%) suggest that while some individuals have tried to diversify their income flows, opportunities for entrepreneurship and small-scale enterprises may be limited or inaccessible within the community made them adapt from other livelihood strategies.

Table 3. *Livelihood diversification among Poblacion's SSF*

Indicators	Frequency	Percentage (%)
No livelihood diversification	23	57.5
Manual work	10	25
Small-scale business	4	10
Sari-sari stores	3	7.5
Total	40	100

Source: Survey, 2024

Hence, they see the absence of livelihood diversification during seasons of economic downturn amplified their vulnerability. They emphasized that having fishing as their only source of income increases their vulnerability to outside shocks and reduces their ability to adjust to changing conditions. Studies emphasize that diversified livelihoods reduce vulnerability to climate shocks, enhance resilience and against adverse trends, and aid in poverty alleviation (Musyoka and Onjala, 2023; Nyathi et al, 2023). However, the lack of diversified income streams can increase vulnerabilities, especially in the face of climate change and other stressors. Livelihood diversification, including engaging in various income-generating activities, is crucial for mitigating risks, smoothing consumption patterns, and enhancing overall resilience in fishing communities.

Environmental burdens

The reliance on fishing as a primary income source likely increases the vulnerability of SSF from external shocks and struggle to adapt to the ever-changing condition. Nyathi, et. al (2023) highlights that fishing households are more sensitive to climate viability and other stressors due to their limited assets base. Relative to the SSF in Poblacion, significant environmental issues are persistent challenges. This underscores the profound environmental degradation and climatic tendency in their daily lives.

Respondents point out that waste by other municipalities is driven on the coastal zone during the rainy season which contributes to the degradation of the environment thus

threatening their municipal water sources and livelihood. In response, SSF in Poblacion took proactive measures to mitigate its waste pollution. They engage in collective efforts to clean up coastal areas by collecting garbage, particularly plastics and other non-biodegradable materials. Moreover, SSF also demonstrates resourcefulness by finding ways to repurpose collected waste. Wood waste is being utilized for charcoal and provided as an alternative fuel source.

This depicts that the vulnerability of fisheries to climate change and multiple stressors impacts their sustainability of livelihoods based on fishing, making them more vulnerable to shocks (Onyenekwe, et. al 2022). Hence, it was also noted that the unpredictable weather patterns disrupt the fishing activities which reduce the amount of catch and increase economic precarity. Likewise, they expressed their frustration regarding the ineffective governance mechanisms along with the absence of subsidy on which perpetuates the existing challenges. This diminished the income and opportunities of the fisherfolks and deepened the community's reliance on already strained resources.

Institutional shortcomings

Small-scale fisheries in developing countries face numerous challenges, including inadequate management, lack of enforcement, and vulnerability to external pressures. The absence of effective governance and accountability has led to overexploitation of coastal resources and conflicts within fishing communities (Lawrence and Bhalla, 2018). In this study, respondents emphasize the inadequate enforcement of regulations, and the absence of accountability adds on the existing issues that made them exploited on their own coastal resources. One example raised during FGD was the fishing ban imposed in the Municipality of Maigo, which had unintended effects for the neighboring municipalities, especially in Kolambugan. SSF revealed that some of the municipal fisherfolks were restricted to access their traditional fishing grounds due to the fishing ban and resorted to fishing in adjacent coastal areas, including those in the nearby communities. This transgression not only strained inter-municipal relations but also increased competition for limited resources and the tensions and conflict among fisherfolks. Respondents expressed their dismay,

*“Taga fishing ban sa Maigo kay manabuk sila dire sa Kolambugan..
.maong mo gamay ang kuha kay naay kompetensya. Ambot sa LGU kung
unsa ilang gibuhat ani kay permi namo namatikdan...”* [The fisherfolks
from the restricted fishing zone in Maigo are now venturing into the waters
of Kolambugan. It's concerning how the increase of fisherfolks is
impacting our livelihoods. We wonder about the actions taken by the LGU
as it's a recurring problem that we consistently observed and experienced]

Respondents highlighted that inadequate regulation enforcement and lack of accountability exacerbate the vulnerability of small-scale fisheries (SSF) to exploitation and marginalization. For instance, a fishing ban in Maigo Municipality restricted local fisherfolks from their traditional grounds, leading them to fish in adjacent areas and causing increased competition and conflicts. Similar issues have been observed in other regions: in India, seasonal bans led to policy and social disputes (Gunakar et al., 2017), and in Bangladesh, a

65-day ban had positive ecological effects but harmed fishers' income and food security (Islam et al., 2021). These cases underscore the need to balance conservation efforts with the socioeconomic needs of fishing communities for effective fisheries management.

Awareness of SSF on the Coastal Development Project

The fact that 70% of the respondents learned about the project through someone within their own community implies that community networks and interpersonal connections play a crucial role in disseminating information. It suggests that word-of-mouth and local influence are effective channels for communication about the project, highlighting the importance of leveraging community relationships for outreach and engagement. This finding may also indicate that the project has strong community integration and trust, which could enhance participation and support (Wade et al., 2023). Wade et al. (2023) also indicated that information-sharing networks support the adaptive capacity of small-scale fishers in the face of social and environmental change by allowing them to increase access to unique knowledge critical to their fishing success.

Conversely, 20% of respondents learned about the project through public consultation, highlighting efforts to engage stakeholders and ensure transparency and inclusion in coastal project planning and implementation. Public consultation is vital for small-scale fisheries management, as shown by Tolentino et al. (2015) in the Philippines, where focus group discussions and stakeholder workshops resulted in collective action plans.

The low percentage of respondents receiving information from local government units (LGUs) and barangays suggests a need for improved information dissemination and outreach efforts. Research shows that LGUs and barangays in the Philippines struggle with effective communication due to factors like technology access, dissemination methods, and community involvement (Balahadia et al., 2017; Redoble et al., 2018). Addressing this information gap through enhanced public participation in the Environmental Impact Assessment process under Presidential Decree 1586 could strengthen collaboration between local authorities and community members, improving information flow and supporting the blue economy.

Table 4. *Source of information about the project*

Indicators	Frequency	Percentage (%)
From the community	28	70
Public Consultation	8	20
Local Government Unit	3	7.5
Barangay LGU Information	1	2.5
Total	40	100

Source: Survey, 2024

Based on the survey responses gathered from the Likert statement, the respondents generally display a moderate level of awareness, with mean scores ranging from 2.78 to 3.45. These results indicate a fair amount of understanding regarding development in the coastal community. These findings are validated with the insights obtained during the focus group discussion, which emphasized that project initiatives had been under consideration by

previous administrations. According to one of the participants:

“Dugay naman na nga saad dire sa Poblacion sukad pa niadtong lahi pa ang mga Mayor... Maayo kung matinuod naba gyud na ron” [It's been a long-standing promise here in Poblacion since the time of the previous mayors... It would be great if it's actually happening now]

This also reflects a collective desire for tangible development and fulfillment of commitments in the past and underscores the pivotal role of ensuring that the current development efforts are not only realized but also effectively communicated among stakeholders to build rapport and perpetuate community engagement. However, it is also noted that the items elicited are within the range of “neither aware nor unaware”, which suggests that majority of the respondents possessed some degree of familiarity of the coastal development. Thus, this remains a room for improvement particularly on deepening their understanding and awareness especially in the Information, Education, and Communication (IEC) campaign towards the project lifecycle.

Hence, this emphasizes the importance of proactive engagement strategies that include targeted efforts and participatory mechanisms to enhance the awareness of the community and their understanding of the project. This process will involve meaningful dialogues that would provide an access to relevant information that enable platforms for knowledge sharing and stakeholders can help to mitigate the problem that contributes to the success and sustainability of the coastal development.

Perception of SSF on the Coastal Development Project

The findings from the Likert scale responses, along with insights from interviews provided a valuable understanding of the stakeholders' perception in relation to the Kolambugan Coastal Development agenda. The mean Likert score of 3.33 suggests a generally positive outlook towards the project. However, the divergence in responses across specific statements also underscores the nuanced nature of stakeholders' perspectives especially on items concerning disaster resilience, economic development, and tourism.

The differences in opinions highlight how difficult it is for the community to strike a balance between different goals and interests. For example, there is broad consensus about the project's ability to boost economic growth and defend against coastal disasters, but there is less agreement about how the project would affect tourism and if it will uproot local people and fisherfolks. These variances show that stakeholders have different goals, concerns, and degrees of understanding, which highlights the need for inclusive decision-making processes that take a variety of viewpoints into account.

On the other hand, this provided additional information into the variable influencing stakeholder's opinions. The recognition of the municipal local government unit's efforts to support the agri-aqua industry reflects the sense of empowerment among the local community, especially the marginalized sector of small-scale fisheries. The sentiment expressed among respondents highlights the optimism and relief resulting from the

implementation of a comprehensive plan that promotes a responsive governance in addressing the long-standing challenges and inequalities.

“Malipayun kay sa kadugayan dire naa nagyud saktong plano sa fisherfolks... [kay] nalabwan nata sa uban...sa Bacolod, Tubod.” [It's reassuring because after a long time, there's finally a proper plan for the fisherfolks here... because we've been left behind compared to others... in Bacolod, Tubod]

Furthermore, the LGU's dedication to sustainable development is demonstrated by the development initiative which has emphasis on the blue economy. Its commitment to tackling both regional issues and supporting global efforts towards sustainability is demonstrated by its alignment with global agendas like the Sustainable Development Goals (SDGs). The coastal development project which places a high priority on the development of coastal areas and the empowerment of local people not only takes care of the urgent economic development of the region but also builds the long-term, inclusive, and resilience growth in the municipality.

Knowledge of SSF on the Coastal Development Project

The survey data reveals a pattern of knowledge across various aspects of the coastal development initiative, with mean scores ranging from 2.83 to 3.35 on the Likert scale. This suggests that small-scale fisheries in the community possess a balanced understanding of the initiative, with knowledge levels falling within the range of moderate. The moderate knowledge scores indicate that respondents generally have a grasp of the key aspects of the coastal development project, neither excessively high nor low, showcasing a relatively stable understanding among the surveyed individuals.

Although there are slight variations in knowledge levels between different statements, the overall trend indicates a consistent moderate knowledge across the Likert statements. This suggests that efforts to disseminate information and raise awareness about the coastal development project may have been not totally effective, contributing to the overall balanced understanding among respondents. While some individuals may exhibit a greater understanding compared to others, the absence of significant outliers or deviations underscores the uniformity in knowledge distribution within the surveyed population.

The data reflects the balance of their understanding across the statement, it is worth noting that the knowledge of respondents plays a significant role in project development and management (Mareta et al., 2024; Alexander, et. al, 2023; Martina, et. al., 2016; Švihrová, et. al., 2015). Therefore, it is essential to delve deeper into specific statements where knowledge may be stronger or weaker to effectively address underlying issues and promote sustainable management of coastal landscapes. Understanding the nuances of respondents' knowledge and addressing areas of improvement, stakeholders can enhance community engagement and ensure the success of coastal development projects while mitigating potential negative impacts on small-scale fisheries and the local ecosystem.

Participation of SSF on the Coastal Development Project

Based on the survey findings, the mean scores of nine Likert statements regarding participants' involvement in coastal development ranged from 3.00 to 3.35. This suggests a moderate level of participation among the community members. The results indicate that they have generally engaged in the activities of the LGU Kolambugan, neither exceptionally high nor low, but rather at a moderate level of involvement.

Likewise, the focus group discussion highlighted the challenges faced by small-scale fisheries in actively participating in an open dialogue pertaining to coastal development. Most of their concerns are related to the perceived lack of communication from the government and less involvement of the community throughout the project development. Thus, this hindered their ability to fully engage and contribute to the decision-making processes. As expressed by the respondents:

“Kaapil mig session adtong November sa KIBC kabahin sa boulevard. Dako siyag tabang samoa labi na para mahibalo kami sa proyekto og lakip usa sa maapektuhan ni-ini. Naka storya pd mi ni Mayor sa iyang mga plano sa among bangka nga ipabalhin niya sa fishlanding. Human ato, wala na pud nasundan og panagtapok kabahin sa boulevard.”

[Last November, there was a session at KIBC regarding the boulevard. It was a big help for us, especially to understand the project and its implications. We also had a conversation with the mayor about his plans for our boat that he intends to relocate to the fish landing. After that, there hasn't been any further meeting regarding the boulevard.]

This sentiment concurs with Ali (2018) assertion that community participation can be obstructed by multiple factors, including insufficient awareness, external management pressures, and complex social dynamics. Despite efforts to engage, their involvement remains premature and requires further nurturing and support to ensure meaningful and sustained participation in decision-making endeavors. This highlights the pressing need for more flexible and inclusive engagement strategies to ensure the meaningful participation of all community members, particularly those whose livelihoods are directly impacted by the project.

Moreover, the discussion underscores the pivotal role of community involvement in promoting a meaningful participation in the blue economy initiatives, particularly as it needs to have an emphasized community-based approach that considers the social, economic, and environmental complexities (Mareta et al., 2024; Coronado et al., 2020). Addressing the perceived issues and actively involving small-scale fisheries throughout the project lifecycle can help to enhance the engagement that enables sustainable and community driven development outcomes.

Coastal Resource Conservation and Management

The Municipal Planning and Development Office (MPDO) of Kolambugan, Lanao del Norte, are optimistic on the potential socio-economic development of the community. The creation of key infrastructures such as boardwalk, fish landing facility, and commercial buildings are efforts to attract investors, hence can stimulate economic growth and tourism in Barangay Poblacion. Despite such prospects, the Municipal Planning and Development Coordinator (MPDC) is mindful on the negative impacts of the project as this will involve a sea reclamation of approximately 25 – 30 meters. According to the MPDC, the coastal development project is a collaborative effort between the MSU-IIT, Department of Civil Engineering and Technology, stakeholders and the local government unit of the said municipality.

“We know the potential impact of coastal development in Barangay Poblacion, labi na sa environment and to the constituents. Kami sa office... we advocate gyud for sustainable development. With the help of MSU-IIT, we were able to conduct an EIA on the project. It's a big thing as it is required in the report to address the potential impact along with institutions nga mo address sa mga impacts. In the present, we are coordinating with the province for the coastal research management plan in Barangay Poblacion and hopefully ma integrate sa plano in the future”

[We know the potential impact of coastal development in Barangay Poblacion, especially on the environment and the people. In our office, we advocate for sustainable development. With the help of MSU-IIT, we were able to conduct an Environmental Impact Assessment (EIA) on the project. It's a significant step as the report requires addressing the potential impacts along with the institutions that will manage these impacts. Currently, we are coordinating with the province for the coastal resource management plan in Barangay Poblacion, and hopefully, it will be integrated into the plan.]

Another sentiment from the Barangay councilor on the committee of Agriculture and Coastal Resource Management, whose concern aligns with the absence of Coastal Resource Management Plan (CRMP). She mentioned that such lapses could strike an imbalance on the possible benefit of the project to the community, particularly to its sustainability. With the positive outlook, she is optimistic that the CRMP, along with the coordination of MPDC to the provincial government, will push through before the actualization of the project.

Presently, the legal basis for the authority of the Municipal Local Government Unit over the management of municipal waters and its coastal and fisheries resources is outlined in the Local Resolution No. 172, the CRM Ordinance of the Municipality of Kolambugan, series of 2005. This resolution presents the responsibilities of the municipal government in overseeing these areas and serves as a guide to implement policies and initiatives aimed for sustainable management and conservation. Likewise, the LGU's authority is further supported by Republic Act 8550 or also known as the Philippine Fisheries Code of 1998, as amended by Republic Act 10654, which indicates regulations and measures for the management and

conservation of fisheries resources in the Philippines.

Conclusions

This study explored the experiences and perspectives of small-scale fisheries in the coastal town community of Kolambagan, Lanao del Norte. Likewise, this involves understanding the challenges and experiences of the SSF to coastal development. Vulnerabilities affecting the small-scale fisheries and their livelihood were many, but foremost among these were the inadequate socio-economic supports, changing weather patterns, and absence of institutional support, which have increasingly worsened the difficulties faced by the coastal communities.

Meanwhile, the diverse responses of the informants provided valuable insights into the communities' involvement with coastal development in terms of awareness, perception, knowledge, and participation underscoring a foundational understanding and engagement with the blue economy's underlying issues. This also points out areas where additional efforts in education, communication, and participation could prove beneficial in enhancing the community's interaction with the blue economy.

Drawing from the research findings, it is recommended to have stringent Information, Education, and Communication (IEC) campaigns and establish the Coastal Resource Management (CRM) plan to enhance the understanding of the community in regard to the project and to future development. This would also increase the dialogue and collaboration among the stakeholders and develop programs for capacity-building initiatives that could improve the knowledge and skills of small-scale fisheries.

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