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# THE SYNERGY OF GOVERNANCE AND SUSTAINABILITY STRATEGIES IN THE BLUE ECONOMY: AN EMPIRICAL STUDY OF THE REGENCY FISHERIES SECTOR, BARRU REGENCY

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## ABSTRACT

*This research aims to analyze the synergy between financial governance and sustainability strategies in advancing the blue economy within the fisheries sector of Barru District (case studies), South Sulawesi. A mixed-method approach was employed, with a qualitative emphasis supported by quantitative survey data from 300 fisheries-related business respondents. The study focused on four key areas: financial literacy, access to finance, sustainability practices, and the relationship between financial management and ecological awareness. Quantitative data were collected through structured questionnaires, while qualitative insights were obtained through in-depth interviews, focus group discussions, and a case study of selected small-scale fisheries businesses. Findings reveal that financial literacy among most business actors remains low, with poor financial planning, minimal record-keeping, and limited use of financial reports. Access to formal financial institutions is also constrained, pushing many actors to rely on informal credit sources that do not support long-term business growth. The adoption of sustainable practices, such as the use of eco-friendly fishing gear, marine conservation, and waste management, is uneven and mostly observed among individuals who have received training or institutional support. A positive correlation was identified between financial literacy and the willingness to adopt sustainability principles. This study proposes a synergy model that integrates financial education, inclusive financing mechanisms, and coordinated institutional mentoring as a strategic*

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*framework to support a resilient and inclusive blue economy. The case study from Barru offers practical insights into the challenges and opportunities faced by coastal microenterprises and can serve as a policy reference for developing sustainable coastal business ecosystems in similar regions.*

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**KEYWORDS:** Blue Economy, Financial Governance, Sustainability, Coastal Fisheries, Barru Regency.

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## 1. INTRODUCTION

The concept of the blue economy has evolved into a strategic development framework emphasizing the productive, inclusive, and sustainable utilization of marine resources (Elston, Pinto, & Nogueira, 2024). This approach not only focuses on maximizing marine resource potential but also highlights the necessity of responsible usage to safeguard ecosystems and ensure equitable benefits for all stakeholders, especially coastal communities (Xue et al., 2023; Wang et al., 2022). As such, the blue economy is increasingly recognized as a critical pathway toward achieving the Sustainable Development Goals (SDGs), as it integrates environmental, social, and economic dimensions into the development of fisheries sectors.

Indonesia, with over 17,000 islands and vast maritime territory, has significant blue economy potential, particularly in fisheries, coral reefs, and renewable marine energy (Wahyudin et al., 2025; Hadi et al., 2019). However, this potential is undermined by ongoing challenges, including overfishing, pollution, and marine ecosystem degradation (Setianti et al., 2024).

Within this context, the fisheries sector plays a dual role as both an economic driver and a primary livelihood source for coastal communities (Marwa et al., 2024; González-Cancelas et al., 2025). Therefore, advancing sustainability in this sector is vital for building long-term economic resilience. Yet, sustainable transformation requires more than ecological awareness; it demands effective financial governance and institutional support to promote responsible business practices and inclusive growth.

Barru Regency, located on the west coast of South Sulawesi Province, is a region with high marine biodiversity and economic potential in capture and aquaculture fisheries (Budiyanto et al., 2023). Despite its resource wealth, fishery enterprises in Barru face persistent barriers: low financial literacy, informal record-keeping, limited access to formal credit, and inadequate incorporation of sustainability principles in business operations (Luna-Arocas et al., 2020; Mozumder et al., 2018; AL-Fayez, 2022; Ali, 2022). Institutional constraints such as low trust, lack of collateral, and limited financial infrastructure also hinder the development of a resilient, sustainable fisheries sector.

These deficiencies not only reduce competitiveness but also jeopardize ecological sustainability and increase socioeconomic vulnerability for coastal populations. While prior studies have addressed either sustainability in marine resource management or financial inclusion

in coastal economies, there is limited empirical research exploring the interrelationship between financial governance and sustainability practices in the context of small-scale fisheries, especially in Indonesian coastal regions. Most existing literature treats these domains in isolation, failing to consider how financial behavior influences environmental decision-making or how integrated governance can support community-based resilience. This study addresses that gap by examining the synergistic effects of financial management and sustainability strategies as a dual framework for advancing the blue economy at the local level.

This study aims to explore how financial governance through literacy, access to finance, and institutional support interacts with sustainability practices to support the development of a resilient and inclusive blue economy, with a focus on fisheries businesses in Barru Regency. By integrating qualitative case studies with quantitative data from 300 respondents, the study seeks to identify the key enablers and barriers to sustainable fisheries development and propose an adaptive policy model tailored to the socio-ecological context of coastal Indonesia.

This study stands out for addressing challenges through the lens of natural resource management, technical cultivation, and the financial capacity of microenterprises and local fishermen. Its goal is to foster resilient business practices that support marine sustainability. The findings are expected to inform a sustainable financial governance model, relevant for Barru and adaptable to other coastal regions in Indonesia. Beyond academic value, this research offers practical solutions to help transform coastal economies into more competitive, equitable, and sustainable systems.

**To guide the investigation, the following hypotheses are proposed:**

H1: Higher levels of financial literacy among fisheries business actors are positively associated with the adoption of sustainable business practices.

H2: Access to formal financial institutions increases the likelihood of investment in environmentally responsible technologies and conservation efforts.

H3: Institutional support, including integrated financial and environmental training, strengthens the alignment between financial governance and sustainability behavior.

By framing financial governance and sustainability as mutually reinforcing pillars of the blue economy, this study contributes a novel

perspective to academic discourse and offers actionable insights for policymakers. The findings aim to inform the development of inclusive, resilient, and ecologically sound fisheries governance systems that can be replicated in other coastal areas facing similar structural challenges.

## 2. BACKGROUND

The blue economy has become a coastal development paradigm that emphasizes the sustainable, inclusive, and equitable use of marine resources [Wang, L., et al. (2025)]. In this context, the fisheries sector holds significant importance, as it not only supplies food and livelihoods for coastal communities but also leads initiatives to maintain the productivity and sustainability of marine ecosystem [González-Cancelas, N., et al. (2025); Sadik-Zada, E. R., et al. (2023)]. However, the successful implementation of the blue economy is largely determined by the quality of business governance, especially in the aspects of financial and environmental sustainability. The financial management of fisheries enterprises continues to be inadequate and fails to incorporate sustainability principles in numerous coastal regions of Indonesia, such as Barru District.

Barru Regency is a coastal area with great potential for marine resources, both in capture fisheries and aquaculture. However, most fisheries businesses in this area still face limitations in financial management, such as minimal business records, low financial literacy, and difficult access to formal financing.

On the other hand, the implementation of sustainable practices such as the use of environmentally friendly fishing gear, marine conservation, and ecosystem-based management is still sporadic and has not been integrated into the business strategies of business actors.

These issues demonstrate the importance of an integrative approach between financial governance and sustainability strategies within a blue economy framework. This research is important to identify how the quality of financial management affects the readiness of businesses to implement sustainable practices. In addition, this study seeks to formulate a synergy model between financial education, institutional assistance, and access to inclusive financing as a strategy to strengthen community fisheries businesses. Focusing on Barru Regency, this study aims to offer ideas and practical help for improving coastal economic management that can adapt, withstand challenges, and plan for the long term.

## 3. MATERIALS AND METHODS

### 3.1. Research Approach: Mixed Methods

This research uses a mixed-method approach, which combines the strengths of qualitative and quantitative methods to obtain a more comprehensive understanding of the phenomenon being studied. This approach was chosen because issues of financial governance and sustainability in the fisheries sector are not only related to numbers and measurable data but also to complex and contextual perceptions, values, and social practices. Qualitative methods dominate this research, meaning the main focus is deeply exploring the meaning, dynamics, and synergy between the financial practices and sustainability strategies implemented by fishery entrepreneurs in Barru Regency.

Through in-depth interviews, focus group discussions (FGDs), and observations, the researchers strive to capture subjective experiences, structural barriers, and local adaptations to the principles of the blue economy. Meanwhile, the researchers use a quantitative approach as a supporting method to map general patterns related to financial literacy, access to formal financing, and business sustainability practices.

The use of questionnaires and descriptive statistical analysis provides an overview of the extent to which business actors understand and apply the principles of financial governance and sustainability in their daily activities. With this combination, the research is expected not only to capture the social reality in depth but also to present quantitative data that can strengthen the validity and generalization of findings at the coastal community level.

### 3.2. Location and Research Subjects

This study was carried out in Barru District, located in South Sulawesi, an area recognized for its considerable potential in both capture fisheries and aquaculture industries. Given its advantageous geographical position and rich marine resources, Barru presents an excellent opportunity for an investigation into financial governance and sustainability in relation to a blue economy. However, Barru faces several challenges, including limited access to formal financing, low financial literacy, and a lack of sustainability principles in the business practices of fishermen and coastal micro, small, and medium enterprises (MSMEs).

The research subjects consisted of various parties representing the entire fisheries business ecosystem. The main focus was fishermen and small-scale fish

farmers because they directly carry out economic activities and face direct impacts from environmental and policy changes. Coastal MSMEs were also included to represent micro-enterprises based on marine resources. Additionally, the Marine Affairs and Fisheries Agency, as the regulator and coach, and local financial institutions, such as cooperatives, BUMDes, and microbanks, were important subjects for exploring the role of institutions in supporting the sustainability and financing of coastal businesses. Facilitators from the MSME and fisheries sectors were engaged to obtain both technical and social insights regarding community empowerment.

Although this research received ethics approval from the relevant institutional review board prior to fieldwork, all participants were provided with clear and comprehensive information about the purpose, procedures, and their rights in the study, and explicit written consent was obtained before data collection began.

### 3.3. Data Collection Techniques

This study utilizes a mixed-methods approach, integrating both qualitative and quantitative data collection techniques to attain a thorough and nuanced understanding. The qualitative approach involved in-depth interviews with fishermen, fish farmers, and coastal micro, small, and medium enterprises (MSMEs), along with policymakers, including representatives from the Marine and Fisheries Office.

The interviews explored the participants' experiences, viewpoints, and practices related to financial governance and business sustainability. Furthermore, focus group discussions (FGDs) were carried out with coastal community groups to gain insights into their shared perceptions, the challenges they encounter, and their expectations concerning financial system support and sustainability strategies. Participatory observations were conducted to directly observe business patterns, financial management, and socioeconomic conditions within the fishing community. In the meantime, the quantitative method involved the distribution of structured questionnaires to participants.

The questionnaire aimed to assess the extent of financial literacy, availability of financing, sustainability practices, and business management strategies. The quantitative data will serve to outline overarching trends, pinpoint deficiencies, and provide statistical support for the qualitative insights. This integration of methodologies yields data that is both more valid and contextually rich.

### 3.4. Data Analysis Techniques

The data analysis techniques in this research are divided into two parts according to the mixed method approach used, namely qualitative data analysis and quantitative data analysis, with the aim of complementing and strengthening the interpretation of the research results. The analysis of data in the qualitative approach is conducted through thematic analysis. The procedure involves several stages, including data reduction, categorization, and the identification of significant themes that arise from interviews, focus group discussions (FGDs), and field observations. The primary themes explored encompass (1) the practices and comprehension of financial governance among coastal business participants, (2) the incorporation of sustainability principles within fisheries enterprises, and (3) the influence of local institutions and policies in fostering synergy between the two. This analytical process uncovers narrative patterns, perceptions, and social experiences that form the foundation for understanding the local context. The quantitative method utilizes descriptive statistics to delineate the traits of participants and the distribution of research variables. The variables include frequency, percentage, and mean concerning financial literacy levels, access to financing, and the implementation of sustainability practices. Furthermore, fundamental correlation analysis investigates the relationship between two variables, such as the degree of financial literacy and the adoption of sustainability practices in fisheries. This dual analysis approach offers a comprehensive understanding of phenomena and illustrates quantifiable connections between variables, leading to dependable and pertinent insights for informed decision-making.

### 3.5. Validity and Triangulation

To ensure the validity of the research results, a systematic approach to triangulating sources and methods is employed. This process is an important step, as the issue being researched—financial governance and sustainability strategies in the blue economy—is complex, multidimensional, and involves multiple actors. Consequently, a variety of perspectives and viewpoints are essential to guarantee that the findings are thorough and accurately reflect the real-world conditions in the field. Source triangulation encompasses a diverse array of informants from various sectors, including small-scale fishermen, fish farmers, coastal micro-, small-, and medium-sized enterprises (MSMEs), officials from the Marine and Fisheries Office, and managers of local financial institutions like

cooperatives, village enterprise development (BUMDes), and microbanks. MSME/fisheries facilitators are also involved. This approach allows researchers to obtain information that confirms or complements each other among stakeholders. This step is important because business actors, regulators, and financing providers often have different perceptions and experiences regarding the barriers and potential of sustainability-based financial governance. Method triangulation integrates various qualitative data collection techniques, such as in-depth interviews, focus group discussions, and participatory observation, alongside quantitative methods like questionnaires. Qualitative data allows for an in-depth examination of social dynamics, values, and local practices, whereas quantitative data serves to reinforce generalizations via descriptive statistical analysis and correlation. This combination of methods enables researchers to compare results from different methods to identify consistency or discrepancies in emerging information. Additionally, member checking is carried out in the qualitative process by confirming the interpretation results with key informants. This ensures that the researcher's interpretation accurately reflects the reality and views of the research subjects. This validation strategy maintains the integrity of the research data, making the results more reliable for policy formulation and model replication in other coastal areas.

## 4. RESULTS AND DISCUSSION

### 4.1. Profile of Respondents

The aim of the respondent profile of fishery business actors in Barru Regency in this study is to offer a contextual description of the subjects' fundamental characteristics, thereby enhancing the accuracy, relevance, and accountability of the data interpretation and analysis. Knowing the respondents' age, education level, gender, and length of time in business allows researchers to understand their initial capacity, needs, and limitations in managing finances and applying sustainability principles. Respondent characteristics are important for assessing the representativeness of the findings for the general population of fishery business actors. For instance, if most business actors have low education levels, it is reasonable to expect low financial literacy, necessitating an appropriate intervention approach. Profiles can be used to compare financial and sustainability practices by business type, age, or education level. This information elucidates the differences in behavior or reactions to policy interventions. Profiling data allows for the development of training, mentoring, and financing programs that are more aligned with the actual conditions faced by businesses. This information enhances the clarity of the methodology and specifies the primary data source of the study.

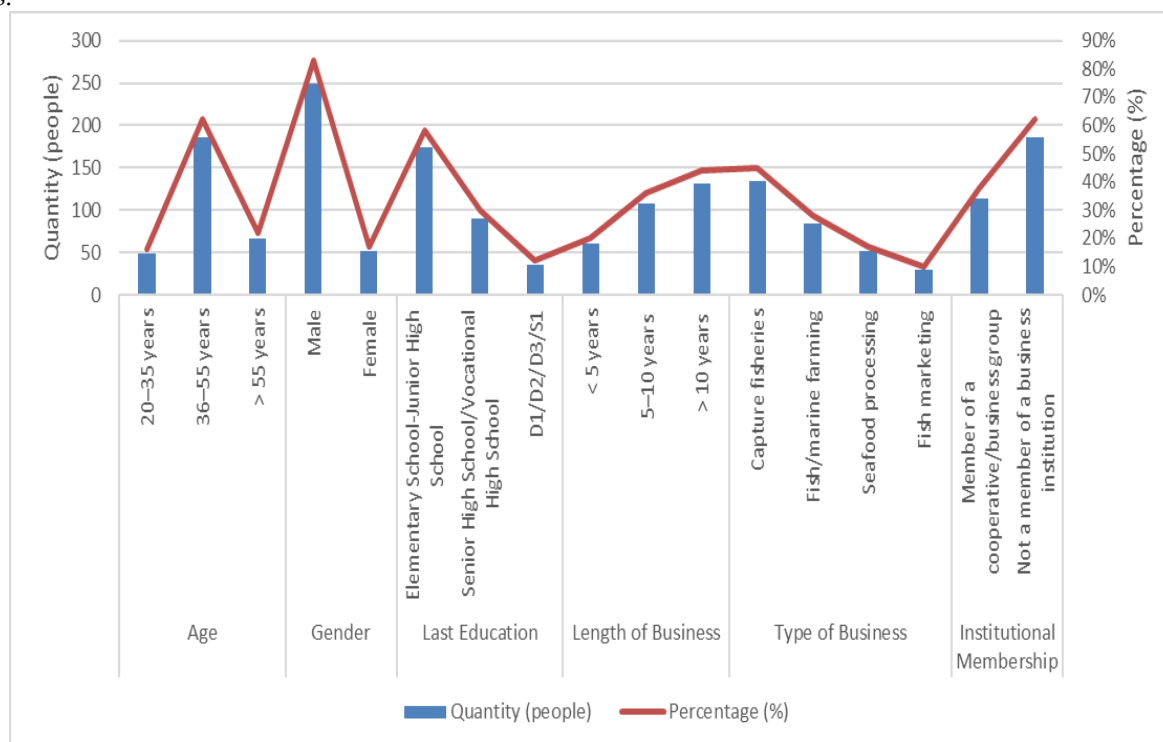


Figure 1: Profile of Respondents of Fishery Business Actors in Barru Regency.

Figure 1 provides a comprehensive overview of the characteristics of the 300 fishery business respondents in Barru Regency. A significant portion of the participants, representing 62%, were aged between 36 and 55 years. This indicates that the fisheries sector mainly consists of individuals who are in their peak working years and have substantial practical experience.

The group aged 20-35 accounted for only 16% of the respondents, highlighting that rejuvenating the workforce in this sector remains a considerable challenge. In the meantime, individuals aged over 55 represented 22% of the respondents. The gender distribution among the respondents revealed that 83% identified as male, while 17% identified as female.

The women generally played a role in the seafood processing and marketing sector rather than in fishing or aquaculture activities. Respondents' education levels showed that 58% had only received an education up to the elementary or junior high school level, and only 12% had an education beyond the senior high school level.

This indicates limited formal literacy, particularly with regard to business management and access to financing information. Regarding length of time in business, 44% of business owners have been in the sector for over 10 years, reflecting considerable experience. However, this experience is not always accompanied by adequate managerial capacity or institutional access.

The business landscape is categorized into four primary sectors: capture fisheries, which account for 45%, followed by fish farming at 28%, seafood processing at 17%, and fish marketing at 10%. This classification illustrates the local economic framework, which continues to rely significantly on primary marine activities. Analyzing the data, it is evident that merely 38% of businesses are affiliated with cooperatives or business groups, leaving a significant 62% unassociated with any formal organization. The figure suggests considerable potential to strengthen competitiveness and access wider financing by increasing institutional involvement.

#### **4.2. Quantitative findings**

**Furthermore, the quantitative findings of the fisheries business actors in Barru Regency (N = 300) aim to provide an objective and measurable overview of the actual conditions of these business**

**actors, including the following:**

1. **Measuring the level of financial literacy of business actors:** Quantitative data allows researchers to statistically evaluate business actors' understanding of and adherence to financial practices, including their business records, budgeting, and comprehension of financial reports. Mapping access to formal and informal financing: By analyzing the number and percentage of respondents who have or have not accessed financing, as well as the obstacles they face, this research can identify the most significant financial bottlenecks in the field.
2. **Empirical Assessment of Business Sustainability Practices:** This study utilizes quantitative data to evaluate the extent to which businesses have adopted environmentally friendly practices, including selective fishing gear, conservation efforts, or restrictions on fishing seasons, while also identifying areas where implementation is lacking.
3. **Examining the connection between variables:** A straightforward correlation analysis is employed to assess whether a positive relationship exists between the degree of financial literacy and the adoption of sustainability practices. This information is crucial for evaluating the theoretical conjectures or hypotheses of the study.
4. **Establish a foundation for policymaking:** These findings can act as evidence-based information for local authorities, financial entities, and business advisors when developing focused training initiatives, funding strategies, and sustainability measures.
5. **Objectively complement qualitative data.** Quantitative data complement and compare with qualitative findings, which are more narrative and contextual in nature. This approach makes the research results more comprehensive and convincing. In other words, quantitative findings support the generalization of research results and form the basis for data-driven strategies and policies for developing the blue economy in Barru Regency. If you would like, I can also help you create a quantitative infographic of the main findings.

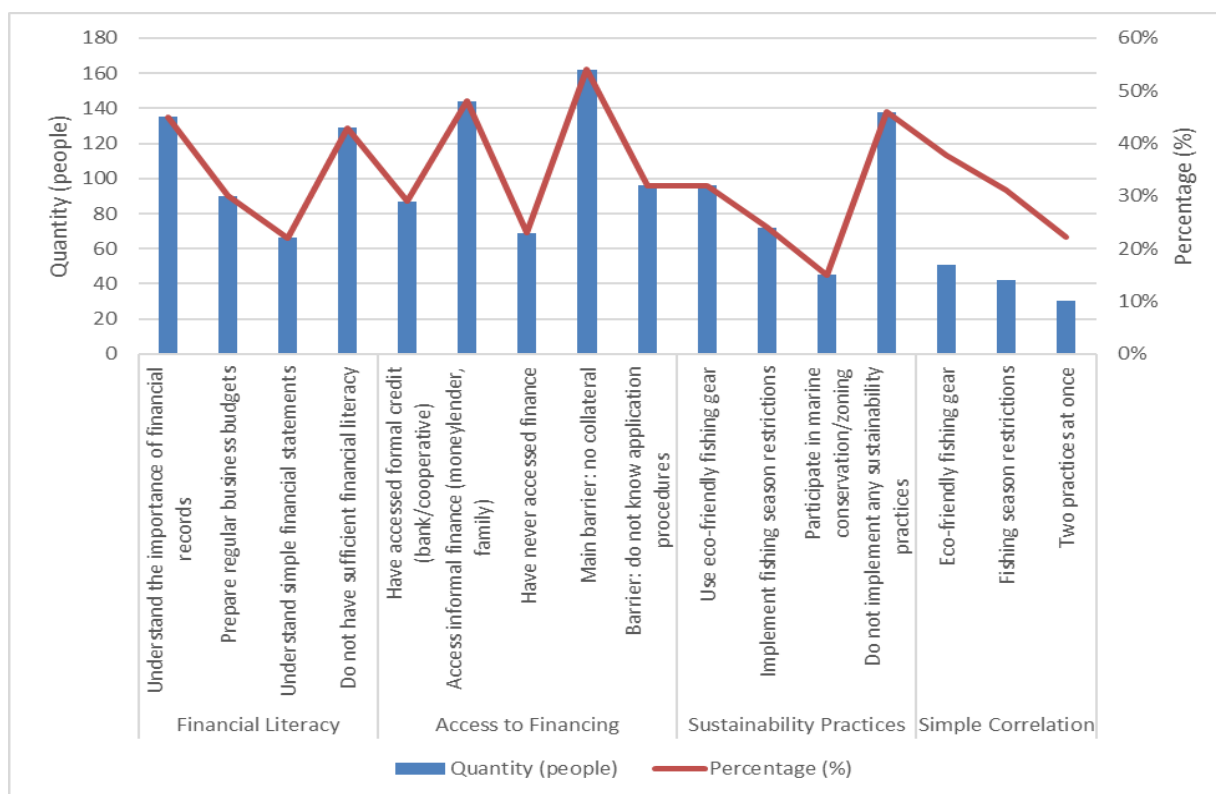


Figure 2: Quantitative Findings of Fishery Business Actors in Barru Regency (N = 300).

Figure 2 presents descriptive data from 300 respondents from the fishing industry. Four primary facets were examined: 1. Financial literacy levels: 45% of participants demonstrated an understanding of and maintained records for their business finances, 30% engaged in regular budgeting practices, and 22% generated basic financial reports.

The results indicate that a significant number of business owners may not possess the necessary skills for formal financial management, potentially obstructing their capacity to secure financing or strategize for long-term sustainability. 2. Access to formal and informal financing: 29% utilized financing from banks or cooperatives, 48% relied on informal sources like moneylenders or family, while 23% had not accessed any form of financing.

The data suggests a significant dependence on informal financing, which tends to be costlier and does not foster long-term sustainability for businesses. 3. Business sustainability practices: approximately 32% of businesses have implemented environmentally friendly practices, such as using selective fishing gear or adhering to conservation zones.

The remainder have not yet integrated environmental considerations into their business practices, primarily due to a lack of knowledge and costs. 4. Simple correlation and statistical analysis

show a positive correlation between financial literacy and the implementation of business sustainability practices.

This means that businesses that have a better understanding of finance also tend to be more concerned and ready to implement sustainability principles. Thus, Picture 2 illustrates that financial literacy and access to adequate financing play an important role in supporting the transformation of fisheries businesses towards a sustainable blue economy. However, policy interventions, training, and institutional strengthening are necessary to address the significant gaps.

#### 4.3. Qualitative Findings

Qualitative findings based on thematic analysis are research results obtained from interviews, focus group discussions (FGDs), observations, and other non-numerical data sources. These results are then analyzed by grouping answers or information into main themes relevant to the research focus. Qualitative findings based on thematic analysis are at the heart of an in-depth understanding of the behaviors, perceptions, and experiences of businesses and are an important complement to quantitative data.

These two approaches form a strong foundation for the mixed-methods research in this study.

*Table 1: Qualitative Findings Based on Thematic Analysis.*

Main Theme	Sub-theme/Focus	Field Findings
<b>a. Financial Governance</b>	Daily financial recording practice	Most fishermen do not keep regular records. Only one in five fishermen record their catches and expenses manually.
	Barriers to accessing financing	Business owners admitted that they do not have collateral, do not understand the application procedures, and fear default. The cooperative cited lack of documents and training as obstacles.
	Survival strategies during financial difficulties	The majority rely on informal loans from moneylenders or relatives. Some have sold small assets or reduced the frequency of fishing.
<b>b. Sustainability Practices</b>	Actors' perception of sustainability	Some fishermen do not understand the term "sustainability." However, they have realized that catches are declining and the sea is deteriorating.
	Environmental awareness (fishing gear and conservation)	Some fishermen have started changing their fishing gear after participating in a training program. Nevertheless, overfishing still occurs due to economic necessity.
	Support/barriers from institutions	Support from the agency remains sporadic. Not all groups have access to training. The main obstacles are bureaucracy and a lack of human resources.
<b>c. Finance and Sustainability Synergy</b>	The relationship between financial literacy and sustainability	Informants with good records tend to participate in training and implement conservation. Financial literacy strengthens environmental planning.
	Institutional role in integrating the two aspects	Some cooperatives have started to require environmental training as a prerequisite for loans. However, this is still limited to pilot projects.

Source: Data processed, 2025.

Table 1 summarizes the qualitative data analysis results, which are grouped into three main themes: (1) financial governance, (2) sustainability practices, and (3) finance and sustainability synergy. Each theme includes sub-themes that illustrate the dynamics, challenges, and perceptions that emerged from the informants, including fishermen, farmers, coastal MSMEs, and other stakeholders.

**1. Financial Governance:** Daily Financial Recording Practices: Most business owners do not keep regular records. Business and household money are mixed, making it difficult to clearly determine the business's profit and loss. Barriers to accessing financing: Entrepreneurs admitted to having difficulty meeting the administrative requirements of formal financial institutions. Some said they were afraid of getting into debt, while others said they did not understand credit application procedures. When capital is scarce, many rely on family or moneylenders or sell their tools. Some limit the fishing season or delay harvesting.

**2. Sustainability practices and actors' perceptions of sustainability:** Some actors do not fully understand the meaning of "sustainability." Practices such as dumping waste into the sea or catching small fish remain common. Environmental awareness: Environmental awareness tends to be low except among groups that have received training from agencies or NGOs. Institutional support or barriers: Government assistance is uneven. Training is sometimes merely symbolic and not sustainable.

**3. Financial and Sustainability Synergies:** The

relationship between financial practices and sustainability: Businesses with strong financial records are more likely to implement sustainability training programs and cover the cost of environmentally friendly fishing gear. Integrative Programs: Few financial institutions require sustainability practices as part of creditworthiness assessments. Integrated finance-environment programs remain limited. Table 1 shows that the main challenges in promoting a blue economy are technical, financial, and related to business literacy, institutions, and awareness. These findings underscore the need for a comprehensive approach combining financial training, sustainability mentoring, and local financing reforms.

**Case Study:** The Dual Faces of Financial Integration and Sustainability Practices

**Case 1:** Bahari Mandiri Fishermen Group (Example of Success)

The "Bahari Mandiri" group in Bojo Village, Mallusetasi District, is one positive example of the integration of financial governance and sustainability. The group consists of 18 traditional fishermen who are members of a community-based fishermen cooperative. Since receiving training from the Marine Office and partner NGOs in 2022, they have begun to implement manual daily financial records and develop a spending plan for the fishing season. In terms of sustainability, the group replaced small trawl nets with eco-friendly fishing gear and followed local agreements regarding the prohibition

of fishing during the spawning period. With better financial management, they were able to access an unsecured capital loan of IDR 15 million from the cooperative, as they were able to show a business cash report. As a result, the group's income increased by 20% in two seasons, and fishing conflicts with other fishers decreased.

**Case 2: MSME Fish Processing "Laut Kita" (Example Challenge)**

In contrast to the first group, the MSME "Laut Kita" in Madello Village experienced difficulties in managing finances and maintaining sustainability. This housewife-owned dried fish processing business does not have a system for recording expenses and income, so all profits are mixed with household needs. Notwithstanding their sustainability training, they acknowledged a lack of financial resources to execute environmentally friendly activities, like organic waste management and sustainable packaging. Applications for credit from cooperatives were also denied due to the absence of company reports. Consequently, the enterprise is stationary and incapable of increasing production.

## 5. DISCUSSION

This research examines the relationship between financial governance and sustainability strategies within the blue economy framework in the fisheries sector in Barru District. The main findings show that the success of sustainable fisheries development is strongly influenced by the ability of businesses to manage finances effectively and their readiness to implement environmentally friendly business practices. In general, the profile of respondents shows that fisheries businesses in Barru are dominated by men of productive age (36-55 years old), with a relatively low level of education (the majority only attended elementary or junior high school) and a fairly long business experience (more than 10 years). However, many actors still operate individually and have not joined cooperatives or business groups. This has an impact on their low capacity to access formal financing and ongoing training programs. Quantitative findings show that only a small proportion of business owners have adequate financial literacy. For example, only 45% routinely record business transactions, 30% prepare budgets, and 22% are able to make simple financial reports. Meanwhile, access to formal financing is also still limited, with 48% of respondents relying on informal sources such as moneylenders or family. Business sustainability practices are also uneven; only around 32% of businesses have implemented

environmentally friendly practices, such as using selective fishing gear and conserving fishing areas. A simple correlation analysis showed a positive relationship between the level of financial literacy and the implementation of sustainability practices. Businesses that are disciplined in financial recording and management tend to be more open to sustainability training programs and have a better understanding of the long-term impacts on their environment and economy. Qualitative findings from interviews and FGDs indicate that businesses encounter a variety of obstacles. In terms of finance, they experience limitations in preparing financial statements, difficulties in meeting formal credit requirements, and a high reliance on informal financing. Many businesses cited ignorance of credit application procedures and fear of debt risk as key barriers. On the sustainability side, most businesses do not fully understand the concept of sustainability. Many businesses continue to dispose of waste into the sea, utilize environmentally unfriendly fishing gear, or fish during off-season periods. Awareness of the importance of conservation tends to increase in groups that have received training or mentoring from external institutions such as the fisheries agency or NGOs.

An interesting point that emerged in the qualitative findings is the indication that businesses with financial records tend to be more ready to adopt sustainable business practices. This indicates a potential synergy between two dimensions: finance and sustainability. However, neither local financial institutions nor local government policies have systematically facilitated this synergy. A case study from a fishermen group in Mallusetasi sub-district shows that an integrated program intervention (financial + conservation training) conducted by the Department of Marine Affairs and Fisheries together with NGOs succeeded in increasing the awareness and skills of business actors in managing their businesses and protecting the environment. In contrast, fishermen groups in the Tanete Rilau area that did not receive similar interventions tended to stagnate, both in terms of business performance and understanding of sustainability. Relevant literature supports this finding. Favero, F., & Hinkel, J. (2024) showed that coastal businesses with higher financial literacy have greater opportunities to access formal financing and manage their businesses sustainably. Midlen, A. (2023) also emphasized the importance of integrating finance and sustainability principles in driving the blue economy. However, there are major challenges in its implementation. Research by George, G., et al. (2020) and Bennett, M., March, A.,

& Failler, P. (2024) shows that without support systems like easy access to money, rewards for environmentally friendly businesses, and help from organizations, it will be hard to connect finance and sustainability effectively. Thus, this discussion confirms that strengthening financial literacy and governance is a strategic entry point in promoting sustainable fisheries business practices. At the same time, policy interventions must be cross-sectoral and sustainable so that the synergy between finance and sustainability does not stop as a discourse but is realized in practice and institutions. The conceptual model of actualizing the synergy between finance and sustainability developed from this research recommends four main components: (1) inputs in the form of financial and environmental education, (2) processes in the form of business coaching and conservation training, (3) outputs in the form of access to finance and adoption of environmentally friendly practices, and (4) outcomes in the form of more economically resilient, ecologically sustainable, and socially just businesses. This model is expected to serve as a reference for replication in other coastal areas in Indonesia.

## 6. CONCLUSION

This research highlights that the success of the blue economy in Barru Regency's fisheries sector is strongly shaped by the synergy between sound financial governance and the adoption of sustainable business strategies. Using a mixed-method approach, the study reveals how business characteristics, financial behavior, and environmental awareness are interconnected and jointly influence long-term business viability. One key finding is the persistently low level of financial literacy among business actors, evidenced by weak financial planning, lack of record-keeping, and limited reporting capacity. Most microenterprises rely on informal financing sources, which are inadequate for fostering sustainable growth. Meanwhile, environmental practices such as marine conservation, use of eco-friendly fishing tools, and waste management are unevenly applied, particularly among unaffiliated or untrained

business owners. Importantly, the study finds a positive association between structured financial management and the willingness to adopt sustainability practices. Businesses with regular financial records demonstrate greater awareness of the link between ecological preservation and economic resilience. This finding is reinforced by qualitative evidence showing that integrated training in finance and sustainability enhances both business capacity and environmental responsibility. Theoretically, this research contributes to the discourse on the Sustainable Development Goals (SDGs), particularly Goal 14 (Life Below Water), Goal 8 (Decent Work and Economic Growth), and Goal 17 (Partnerships for the Goals), by proposing a model that integrates inclusive financial systems with environmental stewardship. It offers a conceptual foundation for an inclusive blue economy, one that not only protects marine ecosystems but also empowers local communities through institutionalized financial education and access to sustainable finance. This supports a more equitable and participatory approach to coastal development. Therefore, building a resilient blue economy requires more than technical or ecological interventions. A robust institutional framework is needed, one that combines financial literacy, inclusive financing mechanisms, and environmental training. Only through this integrated and localized approach can we establish a fisheries sector that is economically viable, environmentally sustainable, and socially inclusive.

This study has certain limitations. Its geographic focus on Barru Regency limits generalizability to other coastal areas with distinct socio-cultural or institutional settings. The quantitative analysis relies on descriptive and correlational methods, which may not capture causal relationships. The respondent pool was not fully representative, particularly of fisherwomen and micro-scale processors. Furthermore, the qualitative insights are subject to informant bias and limited perspectives. Future research should expand in scope, apply more rigorous analytical methods, and aim for broader stakeholder inclusion.

**Author Contributions:** All authors contributed equally to the conception and design of the study. All authors have read and approved the published version of the manuscript.

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