



Identification of factors supporting the success of blue financing in the Seribu Islands Regency, Indonesia: A delphi method approach

Nurnaili¹, Marcely Susanti², Ali Basron³

Faculty of Engineering, Islamic University of Jakarta, Jl. Balai Rakyat, Utan Kayu, East Jakarta, Indonesia

Corresponding author: Nurnaili

DOI: <https://doi.org/10.66856/ijasr.2026.11.3.11058>

Abstract

Blue economy projects in the Seribu Islands Regency face increasing threats from land-based pollution originating in Jakarta, coastal erosion, marine debris, overfishing, and rising tourism pressure. These environmental challenges diminish resource resilience and jeopardize the livelihoods of local communities whose economic activities depend on healthy marine ecosystems. This study identifies the variables supporting the success of blue financing in the Seribu Islands Regency using the Delphi method. A descriptive-qualitative research approach was employed, involving 18 purposively selected experts. The findings reveal that, among 19 proposed variables, 17 achieved high consensus, while 2 did not meet the three established criteria. Of the 17 variables, four variables (government commitment, regulatory support, stakeholder cooperation, and social inclusion) are considered essential for successful blue financing in the region. These results demonstrate that the effectiveness of blue finance relies not only on financial capital but also on the creation of an enabling ecosystem that incorporates competent governance, high-quality blue-economy project development, sustainability-oriented management practices, and robust stakeholder capacity. Consequently, blue finance strategies should adopt a holistic perspective to strengthen institutional readiness, promote sustainable investment practices, enhance organizational capabilities, and foster collaborative governance to maximize the economic benefits and outcomes of the blue economy.

Keywords: Blue economy project, blue financing, Delphi method, Seribu Islands

Introduction

Indonesia, as the world's largest archipelagic nation, possesses abundant marine resources that significantly contribute to national economic growth, food security, environmental protection, and community livelihoods. As a result, the development of a blue economy has become a strategic priority for long-term national development. This is based on the notion that blue economic development will increase the sustainable use of marine and coastal resources, while balancing economic development with marine ecosystem conservation and increasing resilience to climate change and environmental degradation (Sujiwo & Purwanto, 2025) ^[15]. This approach is particularly critical for Indonesia's small islands, where local economies depend heavily on fisheries, marine tourism, aquaculture, and other marine-based activities, yet face vulnerabilities such as limited infrastructure, ecological fragility, and exposure to climate-related hazards. Implementing blue economy principles in these regions can foster economic diversification, increase employment opportunities, strengthen coastal community resilience, and preserve essential marine ecosystems that underpin local livelihoods. Thus, advancing a sustainable blue economy is vital not only for achieving Indonesia's national development objectives but also for ensuring equitable and robust development in its small island regions (Azka & Sujiwo, 2025) ^[5].

As governments increasingly commit to supporting sustainable ocean governance, financing mechanisms that support environmentally responsible ocean investments have become an essential part of the blue economy. In this regard, blue finance has emerged as an innovative approach to mobilize public, private, and mixed capital toward

activities that support sustainable ocean and coastal development. Blue finance covers a range of financial instruments, including blue bonds, sustainability-linked loans, conservation trust funds, impact investments, debt-for-nature swaps, and public-private partnership schemes that support marine conservation, sustainable fisheries, coastal ecosystem restoration, renewable marine energy, and environmentally friendly tourism (Broby & Camus, 2026) ^[6].

Compared with traditional public financing, blue finance offers greater opportunities to leverage private sector participation while promoting measurable environmental and social outcomes. Consequently, many countries have begun integrating blue finance into their national development strategies to bridge the significant funding gap needed for marine conservation and sustainable ocean management. However, achieving these ambitious goals requires substantial financial resources beyond conventional government budgets. Therefore, governments need to increasingly investigate innovative financing mechanisms, including blue finance, to support marine conservation programs, climate adaptation initiatives, and sustainable coastal development (Joshipura *et al.*, 2026) ^[11].

Among Indonesia's coastal regions, the Seribu Islands Regency is a key area for research on the implementation of blue finance. Located in Jakarta Bay and administratively part of the Special Capital Region of Jakarta, this regency is of high ecological importance due to its diverse marine and coastal resources. The region's coral reefs, seagrass beds, mangrove forests, and marine biodiversity also provide considerable economic value if managed properly. Concurrently, the region's economic growth is highly dependent on marine sectors, including fisheries, marine

tourism, small-scale aquaculture, and coastal ecosystem services (Azka & Sujiwo, 2025) ^[5]. However, the region's marine resources are increasingly threatened by various factors, including pollution from land in Jakarta, coastal erosion, marine debris, overfishing, and increased tourism pressure. These environmental issues not only reduce resource resilience but also threaten the livelihoods of local communities whose economic activities directly depend on healthy marine resources (Sujiwo & Purwanto, 2025) ^[15].

The aforementioned challenges emphasize the vital need for sustainable financing mechanisms that sustain marine resources while also providing economic benefits to local communities. Blue finance offers significant opportunities to finance projects that support sustainability, including coral reef restoration, mangrove forest rehabilitation, sustainable tourism infrastructure, community-based fisheries management, and marine protected area management. However, despite this considerable potential, the global implementation of blue finance practices remains limited (Schutter *et al.*, 2024) ^[14].

The implementation of blue finance is inherently multidimensional, involving various stakeholders, including the central government, local governments, financial institutions, private investors, environmental conservation organizations, academics, tourism operators, and local communities. Each stakeholder has different priorities and institutional interests. Therefore, identifying the drivers of blue finance success is key to strengthening the implementation of sustainable marine finance in Indonesia and ensuring that financial resources are directed effectively to blue economy initiatives (OECD, 2025) ^[4]. A complete understanding of these drivers provides an evidence-based foundation for designing effective policies, enhancing investment readiness, mitigating financing risks, and enhancing stakeholder cooperation. Furthermore, identifying the key determinants of blue finance success enables policymakers and financial institutions to focus on planned interventions, distribute resources more efficiently, and develop financing mechanisms that better support sustainable marine development.

Previous studies have shown that the success of blue financing is influenced by several connected factors. However, the importance of these factors often varies across geographic regions due to differences in governance structures, ecological conditions, economic characteristics, and local social contexts (Witantri *et al.*, 2024) ^[17]. Therefore, drawing on the work of Sujiwo *et al.* (2020), this study argues that further research to identify context-specific supporting factors for success is essential for designing an effective blue financing model in specific coastal areas, including the Seribu Islands Regency. Specifically, this study aims to identify factors influencing the success of blue financing in the Seribu Islands Regency using the Delphi method. The Delphi method is relevant because it can synthesize expert knowledge through multiple rounds of consultation. Unlike conventional survey methods, the Delphi method aids expert judgment in conditions of uncertainty and limited empirical evidence (Sujiwo *et al.*, 2020). As blue financing is still relatively new in Indonesia and empirical implementation experience remains limited, expert consensus will provide an important basis for identifying key success factors to develop policy recommendations.

The findings of this study contribute to the literature on sustainable finance and the blue economy in several

important ways. First, this study expands the existing blue economy literature by developing an understanding of the multidimensional factors influencing the success of blue finance. Rather than focusing on the mechanisms of blue finance, this study includes economic, environmental, social, technological, and institutional governance dimensions in the study's analytical framework. From a methodological perspective, this study puts forward an expert panel consensus approach to identify success factors for blue finance. This methodology permits combining varied disciplinary perspectives while reducing subjective bias and enhancing the credibility of expert judgment. Second, the findings of this study provide information to government agencies, development partners, financial institutions, environmental organizations, and private investors in designing more effective blue finance strategies. This study also offers several noteworthy novelties. First, it examined the supporting factors influencing the success of blue finance in the context of small island governance using an expert consensus approach. Unlike previous studies that focused on financing instruments or national policy analysis, this study appraises the institutional, financial, governance, environmental, technical, and community dimensions that collectively determine the success of blue finance implementation. Second, this study concentrates on the Seribu Islands Regency. While numerous studies have addressed the blue economy at the national level, relatively few have examined the challenges of local financing in small island regions defined by distinct ecological vulnerabilities, tourism dependence, and complex stakeholder interactions. This local perspective enables the development of policy recommendations directly relevant to coastal governance, while generating insights pertinent to similar island regions in Indonesia.

Research Methodology

1. Research Methods

To address the research objectives, a descriptive-qualitative research method was adopted as the primary approach. Descriptive-qualitative research facilitates an in-depth understanding of specific phenomena from the perspective of respondents with relevant knowledge and experience. According to Azka and Sujiwo (2025) ^[5], the descriptive-qualitative method is particularly suitable because the aim of the study is to provide a comprehensive description of a phenomenon without excessive theoretical abstraction, while maintaining methodological rigor and contextual depth (Azka & Sujiwo, 2025) ^[5]. Employing this method is appropriate given that the objective of this study is to identify, describe, and understand the factors supporting the success of blue financing in the Seribu Islands Regency, Indonesia. The implementation of blue financing constitutes a multidimensional policy issue involving diverse stakeholders, whose perceptions, experiences, and professional judgments are not adequately captured through quantitative methods alone. Accordingly, a descriptive-qualitative design provides a robust methodological foundation for exploring the factors underpinning the success of blue financing.

2. Research Location

This research was conducted in the Seribu Islands Regency, DKI Jakarta Province, Indonesia. This regency is one of the strategic coastal and marine conservation areas in Indonesia. The selection of this research location was based on several academic and applied considerations. First, the Seribu Islands Regency has high ecological value due to its diverse marine resources, which support fisheries, marine tourism, and coastal ecosystem services. Second, this area encounters substantial ecological stresses from marine pollution, coastal erosion, marine debris, and increasing tourism intensity. These environmental issues need considerable long-term financial investment for conservation and sustainable resource management. Third, this area has been identified as one of Indonesia's priority locations for executing sustainable marine development policies and blue economy initiatives. However, despite increasing government attention to marine conservation and sustainable tourism, financing constraints remain a major obstacle limiting program implementation. Therefore, this area provides an appropriate empirical setting to investigate the enabling conditions and implementation barriers associated with blue finance.

3. Data Collection Methods

This study uses two approaches to collect data: primary and secondary data. Primary data were obtained through a Delphi survey administered to selected experts over two iterative rounds. The Delphi questionnaire was developed on a comprehensive literature review of blue finance, sustainable finance, marine governance, environmental finance, and the implementation of the blue economy. The initial list comprised 19 variables that could support the success of blue finance in the Seribu Islands Regency. The study also asked respondents to recommend additional factors deemed relevant to the Seribu Islands Regency. Each Delphi round was conducted electronically using a standardized questionnaire to facilitate participation from geographically dispersed experts. The questionnaire survey was administered from April to May 2026. Meanwhile, secondary data were collected through extensive document analysis, including government regulations, national development plans, regional planning documents, scientific journal articles, international reports, policy papers, institutional publications, and previous empirical studies on blue economy development, marine conservation financing, and sustainable finance. Secondary information also supported the identification of initial Delphi variables and facilitated the interpretation of expert consensus within a wider policy and theoretical context.

4. Research Respondents

The respondents involved in this study were 18 experts selected using purposive sampling. Unlike conventional survey research that emphasizes statistical representativeness, Delphi research values participants with extensive knowledge, professional experience, and decision-making authority relevant to the research topic. Therefore, respondents were selected based on predetermined eligibility criteria, rather than random sampling. In this study, respondents were required to meet several criteria, including professional experience in the blue economy, blue finance, coastal resource management, environmental

policy, or marine conservation. Table 1 below summarizes the characteristics of the respondents involved in this study.

Table 1: Characteristics of respondents involved in this study

No	Institutions	Number of people
1	Ministry of Maritime Affairs and Fisheries	1
2	Ministry of Finance	1
3	Jakarta Provincial Government	1
4	Regional Government of Seribu Islands Regency	2
5	Businessmen	6
6	Academics	2
7	Environmental consultant	1
8	Financial institutions	2
9	Public figure	2
Total		18

5. Research variables

The initial list of variables included in the Delphi process was developed through a comprehensive review of the literature on blue finance, sustainable finance, marine resource governance, environmental finance, and blue economy development. Relevant studies published in reputable journals, reports from international organizations, government policy documents, and institutional publications were systematically examined to identify factors theoretically or empirically associated with successful blue finance implementation. Table 2 below shows the initial list of variables included in the Delphi process.

Table 2: Variables included in the study

Coding	Driving Variables	References
X1	Clear regulatory support	World Bank (2025) ^[18] UNDP (2022), Benzaken <i>et al.</i> (2024) March <i>et al.</i> (2024) Bappenas (2026) Bappenas (2026) World Bank (2025) ^[18] World Bank (2025) ^[18] Bappenas (2026) World Bank (2025) ^[18] Shiiba <i>et al.</i> (2022) UNDP (2022) Bappenas (2026) March <i>et al.</i> (2024) World Bank (2025) ^[18] March <i>et al.</i> (2024) Shiiba <i>et al.</i> (2022) UNDP (2022) Benzaken <i>et al.</i> (2024)
X2	Government commitment	
X3	Institutional quality	
X4	ESG Integration	
X5	Transparency and disclosure	
X6	Quality of blue economy projects	
X7	Risk management	
X8	Mixed financing mechanism	
X9	Blue financing instruments	
X10	Financial innovation	
X11	Digital technology and fintech	
X12	Investor awareness	
X13	Stakeholder collaboration	
X14	Financial market development	
X15	Availability of marine data	
X16	Social inclusion	
X17	Climate resilience	
X18	Environmental impact measurement	
X19	International cooperation	

As shown in Table 2, 19 initial variables are to be included in the Delphi process. This list of variables serves as an initial framework for the first round of the Delphi questionnaire, allowing the expert panel to evaluate each variable's relevance, propose additional factors as needed, and ultimately reach consensus on the key drivers of successful blue finance implementation in the Seribu Islands Regency.

Results and Discussion

1. Output of Delphi First Round

The first round of the Delphi process was conducted to identify the level of expert agreement on factors supporting the successful implementation of blue financing in the Seribu Islands Regency, Indonesia. The literature on the Delphi method widely acknowledges it as an effective approach for achieving consensus among experts on complex, multidimensional, and data-limited policy and sustainability issues. Unlike conventional surveys, the Delphi method stresses anonymous expert judgment, repeated feedback, and opinion revision (Arumsari *et al.*, 2025) [3]. Based on these explanations, this study argues that the Delphi method is relevant for blue financing research, where empirical evidence remains limited.

In this study, the first Delphi round involved 18 experts representing academia, local governments, marine conservation organizations, financial institutions, environmental practitioners, and blue economy specialists. Each expert evaluated 19 proposed success factors using a five-point Likert scale, starting from strongly disagree to strongly agree. The initial variables were developed through an extensive literature review on blue finance, sustainable finance, ESG implementation, marine conservation finance, and coastal governance. The nineteen variables comprised regulatory support (X1), government commitment (X2), institutional quality (X3), ESG integration (X4), disclosure and disclosure (X5), marine project quality (X6), risk management (X7), blended financing mechanisms (X8), blue finance instruments (X9), financial innovation (X10), digital technology and fintech (X11), investor awareness (X12), stakeholder collaboration (X13), financial market development (X14), marine data availability (X15), social inclusion (X16), climate resilience projects (X17), environmental impact measurement (X18), and international

cooperation (X19). These variables reflect the multidimensional characteristics of blue finance, which integrates environmental conservation, financial sustainability, institutional governance, and social inclusiveness into marine economic development.

In this study, the purpose of the first Delphi round was not to directly establish or eliminate variables, but rather to assess the level of expert consensus and identify variables that needed reconsideration in the second round. Following recommendations in the Delphi literature (Sunandar *et al.*, 2025) [16], this study used three indicators to assess expert responses: mean score, standard deviation, and level of consensus. The mean score indicates the perceived importance of each variable. The standard deviation measures the variability of expert opinions, with lower values indicating greater agreement. Meanwhile, consensus was calculated as the percentage of experts who scored 4 (agree) or 5 (strongly agree) for each variable.

Furthermore, following the work of Hohmann *et al.* (2025) [10], a variable will be considered relevant if it has a mean score ≥ 4.20 , a standard deviation ≤ 0.80 , and a consensus level ≥ 0.70 . Variables that meet these criteria are considered to have strong agreement and are tentatively accepted as important supporting factors. Meanwhile, variables with a mean score between 3.50 and 4.19, a standard deviation between 0.81 and 1.00, or a consensus level between 0.60 and 0.70 are classified as variables with moderate consensus. These variables have not yet achieved sufficient agreement; therefore, they are retained for re-evaluation in the second Delphi round. Finally, variables with a mean score below 3.50, a standard deviation exceeding 1.00, or a consensus level below 0.60 are categorized as low-consensus variables and removed from subsequent analyses. Table 3 below summarizes the outputs of the Delphi first round conducted in this study.

Table 3: Output of the Delphi first round conducted this study

Variables	Average	Standard deviation	Consensus level	Category
X1	4.61	0.61	0.94	High
X2	4.78	0.55	0.94	High
X3	4.28	0.75	0.83	High
X4	4.22	0.73	0.83	High
X5	4.44	0.70	0.89	High
X6	4.11	0.76	0.78	High
X7	4.17	0.79	0.78	High
X8	3.78	0.81	0.67	Moderate
X9	4.11	0.76	0.78	High
X10	3.61	0.85	0.50	Moderate
X11	3.78	0.88	0.61	Moderate
X12	4.28	0.75	0.83	High
X13	4.67	0.59	0.94	High
X14	3.83	0.86	0.67	Moderate
X15	4.22	0.73	0.83	High
X16	4.61	0.61	0.94	High
X17	4.17	0.71	0.83	High
X18	3.72	0.89	0.56	Moderate
X19	3.83	0.86	0.56	Moderate

As shown in Table 3, this study found that the expert panel generally considered the 19 proposed variables to be relevant contributors to the success of blue finance for blue economy activities in the Seribu Islands Regency. This is evident from the average agreement score higher than 4.00 across all variables. Government commitment (X2) had the highest average score ($M = 4.78$), followed by stakeholder

collaboration (X13), regulatory support (X1), and social inclusion (X16). These findings indicate that the experts consider institutional and governance factors to be the most fundamental prerequisites for the successful implementation of blue finance in the Seribu Islands Regency. Strong government commitment is seen as crucial because blue finance requires coordinated public policies, clear

investment priorities, and a long-term commitment to marine conservation. Similarly, a comprehensive regulatory framework reduces investment uncertainty and creates incentives for sustainable marine economic activities. Stakeholder collaboration also emerged as a crucial factor, reflecting the collaborative nature of blue finance, which relies on partnerships among governments, investors, coastal communities, conservation organizations, and the private sector.

Furthermore, the analysis results in Table 3 show that although most variables have high consensus, six variables show moderate consensus. In line with the work of Clark *et al.* (2024) ^[7], this study retained these six variables for re-evaluation in the second Delphi round. The six variables are blended financing mechanisms (X8), financial innovation (X10), digital technology and fintech (X11), financial market development (X14), environmental impact measurement (X18), and international cooperation (X19). The moderate level of consensus indicates that experts differ in their assessments of the importance of these six variables for blue financing in the Seribu Islands Regency.

2. Results of the Second Round of the Delphi Process

As mentioned in the previous section, the first Delphi round identified six variables that achieved only moderate consensus. This finding suggests the need for a second round before determining the relevance of these six variables in subsequent analyses. In the second round, this study included statistical summaries and qualitative comments synthesized from the expert panel's responses in the first round. Through this feedback mechanism, the study asked the expert panel to reconsider their assessments while maintaining their anonymity. According to the literature, the feedback mechanism is a key characteristic that distinguishes the Delphi method from conventional surveys, as it encourages convergence toward consensus without requiring face-to-face interaction (Clark *et al.*, 2024) ^[7].

Specifically, the second round aimed to determine the final relevance of the 19 proposed variables and to establish a validated list of factors supporting the success of blue financing in the Seribu Islands Regency. Although only six variables required reconsideration based on the statistical results of the first round, the study redistributed the full questionnaire to ensure the expert panel could revisit all variables after reviewing the summary of the panel's responses. The literature suggests that such a procedure is consistent with recommendations for Delphi research, which emphasize that expert panels should have an equal opportunity to revise all assessments after receiving structured feedback. Thus, the second round served not only to reassess variables with moderate levels of agreement but also to verify the stability of variables that had previously achieved high consensus (Hohmann *et al.*, 2025) ^[10].

In the second round, this study also conducted an evaluation using the same statistical indicators as those used in the first round to ensure methodological consistency. These three indicators are the mean agreement score (WA), standard deviation (SD), and consensus level (LC). The mean score reflects the expert panel's assessment of each variable's importance. The higher the mean agreement score for a variable, the higher its importance. The standard deviation measures the variability of panel members' responses. The lower a variable's standard deviation, the stronger the agreement, as panel members gave similar ratings for that

variable. The consensus level is calculated as the proportion of panel members who gave a score of 4 (agree) or 5 (strongly agree) to the total number of panel members. These three indicators were used because consensus must reflect not only a high mean score, but also low dispersion of assessments and a high level of consensus among panel members (Hohmann *et al.*, 2025) ^[10].

While the literature has varying views on determining threshold values in Delphi research, referring to the work of Arumsari *et al.* (2025) ^[3], this study determined that a variable is classified as relevant when it simultaneously meets three conditions: a mean score ≥ 4.20 ; a standard deviation ≤ 0.80 ; and a consensus level ≥ 0.70 . Variables that meet these three criteria are considered to have met expert consensus and are retained in the final framework. Conversely, variables that fail to meet these three criteria are classified as irrelevant because the expert panel does not demonstrate sufficient agreement regarding their direct contribution to the success of blue financing. Table 4 below summarizes the outputs of the second round of the Delphi process to identify variables that drive the success of blue financing in the Seribu Islands Regency, Indonesia.

Table 4: Outputs of the Delphi second round conducted this study

Variables	Average	Standard deviation	Consensus level	Category
X1	4.61	0.61	0.94	Very high
X2	4.78	0.55	0.94	Very high
X3	4.44	0.62	0.94	High
X4	4.28	0.75	0.83	High
X5	4.33	0.84	0.78	High
X6	4.44	0.70	0.89	High
X7	4.28	0.75	0.83	High
X8	4.44	0.62	0.94	High
X9	4.39	0.61	0.94	High
X10	4.33	0.84	0.78	High
X11	2.22	0.73	0.94	Low
X12	4.39	0.78	0.83	High
X13	4.67	0.59	0.94	Very high
X14	4.33	0.69	0.89	High
X15	4.44	0.62	0.94	High
X16	4.56	0.62	0.94	Very high
X17	2.39	0.70	0.94	Low
X18	4.22	0.81	0.78	High
X19	4.44	0.70	0.89	High

As shown in Table 4, the second Delphi round increased agreement among the 18 experts. In this case, the study found that of the 19 proposed variables, 17 met all predetermined criteria and were therefore retained as relevant factors supporting the success of blue financing in the Seribu Islands Regency. In this case, these variables had average assessment scores above 4.40, standard deviations below 0.80, and consensus levels above 0.70.

Furthermore, the analysis results in Table 4 show that of the 17 proposed variables, four variables have an average score above 4.50, with a standard deviation below 0.80 and a consensus level above 0.90. These four variables are government commitment (X2), regulatory support (X1), stakeholder collaboration (X13), and social inclusion (X16). This finding reflects strong agreement among panel members on the importance of these four variables in advancing blue financing in the Seribu Islands Regency. In other words, the majority of expert panel members believe these four variables are dominant and significantly influence the success of blue financing in this region.

Of the four variables mentioned above, government commitment is the most relevant, with an average score of 4.78, a standard deviation of 0.55, and a consensus level of 94 percent. This aligns with explanations in the literature, which states that government commitment is a key supporting requirement for the success of blue finance. Government institutions make significant contributions by formulating regulatory frameworks, coordinating stakeholders, providing investment incentives, and integrating marine conservation goals into regional development planning.

The second dominant variable is stakeholder collaboration. This variable has an average score of 4.67, a standard deviation of 0.59, and a consensus level of 94%. The literature explains that this variable can bridge the funding gap, mitigate investment risks, and ensure that blue economy projects have a positive impact on the environment and the local economy. After government commitment and stakeholder collaboration, the third dominant variable is regulatory support. This variable has an average score of 4.61, a standard deviation of 0.61, and a consensus level of 94%. As stated in the literature, regulatory support will provide legal certainty, transparency, and risk mitigation for investors. This is the foundation for the success of blue finance because it opens access to innovative funding, ensures sustainable governance, and prevents overexploitation in the marine and fisheries sector. The fourth dominant variable is social inclusion. This variable has an average score of 4.56, a standard deviation of 0.62, and a consensus level of 94%. This finding aligns with the literature, which states that social inclusion plays a crucial role in blue finance by ensuring that blue economy funding reaches vulnerable groups, such as small-scale fishers and coastal communities.

The second Delphi round also showed significant improvements in six variables that had received only moderate ratings in the first round. In this case, the variables blended financing mechanisms, financial innovation, financial market development, environmental impact measurement, and international cooperation all had higher mean scores and lower standard deviations compared to the first iteration. These improvements suggest that the feedback mechanism in the second Delphi round reduced disagreements among panel members and enabled them to reconsider their initial assessments after reviewing the summary of responses from the first round.

Despite the increase in overall consensus, two proposed variables failed to meet the established assessment criteria. The first failing variable was the adoption of digital technology and fintech (X11). At the end of the Delphi process, this variable achieved an average score of 2.22, a standard deviation of 0.73, and a consensus level of 0.94. Similarly, climate resilience projects (X17) were also excluded from the final list because they failed to meet the required statistical threshold. This variable had an average score of 2.39, a standard deviation of 0.70, and a consensus level of 0.94. These findings indicate that panel members strongly agreed that these two variables made a low contribution to the success of blue finance in the Seribu Islands Regency. Since a high level of consensus was achieved in the second round, a further Delphi round was not necessary.

Conclusion

Overall, the Delphi process conducted in this study successfully achieved consensus among the expert panel regarding the variables influencing the success of blue financing in the Seribu Islands Regency. In the first round, the study proposed a list of 19 variables. As a result, 12 variables reached a sufficient level of consensus, and 7 items reached a moderate level. In the second round, the study provided feedback in the form of statistical summaries of the first-round results to reduce response variability and strengthen agreement for variables that had only achieved a moderate level of consensus in the first round. As a result, 17 variables achieved high consensus, and 2 did not meet the 3 established criteria. Further analysis found that of the 17 proposed variables, four were considered essential for the success of blue financing in the Seribu Islands Regency. These four variables are government commitment, regulatory support, stakeholder collaboration, and social inclusion.

Overall, the findings of this study imply that the success of blue finance in the Seribu Islands Regency depends not only on the availability of financial capital but also on the establishment of a supportive ecosystem that integrates effective governance, high-quality blue-economy project development, sustainability-oriented management practices, and strong stakeholder capacity. Therefore, managerial strategies must adopt a holistic and long-term perspective that simultaneously strengthens institutional readiness, promotes sustainable investment practices, enhances organizational capabilities, and fosters collaborative governance to maximize the economic benefits and outcomes of the blue economy. These managerial priorities are expected to enhance the effectiveness, scalability, and long-term sustainability of blue finance initiatives while supporting regional blue economy development and sustainable coastal resource management.

References

1. Amran A, Khaw TY, Harymawan I. Navigating the Blue Economy: Challenges, Governance, and Pathways for Enterprises. *Journal of Cleaner Production*,2025;523:146407. doi: 10.1016/j.jclepro.2025.146407
2. Andaiyani S, Marwa T, Nurhaliza S. Blue Economy and Food Security: An Empirical Study of Island Provinces in Indonesia. *Indonesian Journal of Economics*,2024;13(1):69-85. doi: 10.52813/jei.v13i1.324
3. Arumsari P, Alisjahbana SM, Rarasati AD. Triangulation and Delphi method analysis of alternative management schemes for sustainable public-rented flats. *Journal of Facilities Management*,2025;23(5):913-928. doi: 10.1108/JFM-08-2024-0105
4. Askari M, Ray S, Suri S. Behavioral Barriers to Blue Economy Reform: A Policy Synthesis on ESG, Emissions, and Governance. *Marine Policy*,2025;184:106938. doi: 10.1016/j.marpol.2025.106938
5. Azka A, Sujiwo AS. Identification and Valuation of Blue Economy Sectors in the Seribu Islands Regency Based on Economic, Social and Environmental Performance. *Marine Zone: Journal of Ocean Science and Technology Innovation*,2025;6(2):295-302. doi: 10.62012/zi.vi.42327

6. Broby D, Camus JV. Blue Finance: Financial Innovation for Sustainable Oceans. *FinTech and Sustainable Innovation*. *FinTech and Sustainable Innovation*,2026:2(1):1-12. doi: 10.47852/bonviewFSI62027953
7. Clark PW, Williams LT, Lee J. Delphi Plus: A novel methodology for identifying evidence-based data standards for health service decision-making. *Health Informatics Journal*,2024:37(4):227-235. doi: 10.1177/09514848231218637
8. Darajati MR. The Urgency of Implementing the Blue Economy Concept in the Governance of the Indonesian Marine Sector. *Journal of Marine and Fisheries Socio-Economic Policy*,2025:14(1):15-26. doi: 10.15578/jksekp.v14i1.12972
9. Hendarman AF, Pritasari A, Desiana N. Current Research and Future Perspectives: A Literature Review on the Blue Economy of Indonesia. *BIOWeb Conference*,2024:92:1-13. doi: 10.1051/bioconf/20249201030
10. Hohmann E, Beaufils P, Beiderbeck D. Guidelines for Designing and Conducting Delphi Consensus Studies: An Expert Consensus Delphi Study. *Arthroscopy*,2025:41:4208-4224. doi: 10.1016/j.arthro.2025.03.038
11. Joshipura M, Nasrallah N, Mathur S. Blue and Biodiversity Finance: A Hybrid Review of Emerging Frontiers of Environmental Finance. *Journal of Economic Surveys*,2026. doi: 10.1111/joes.70082
12. Marwa T, Muizzuddin M, Bashir A. Determinants of the Blue Economy Growth in the Era of Sustainability: A Case Study of Indonesia. *Economies*,2024:12(11):299. doi: 10.3390/economies12110299
13. Mbiza N, Matenda FR, Mvunabandi JD. Enablers and Barriers to Corporate Blue Accounting Disclosure Adoption: A Scoping Review. *Journal of Risk and Financial Management*,2026:19(5):335. doi: 10.3390/jrfm19050335
14. Schutter MS, Cisneros-Montemayo A, Voyer M. Mapping flows of blue economy finance: Ambitious narratives, opaque actions, and social equity risks. *One Earth*,2024:7(4):638-649. doi: 10.1016/j.oneear.2024.02.009
15. Sujiwo AS, Purwanto US. Development of Sustainable Blue Economy-Based Island Ecotourism in Seribu Islands Regency. *International Journal of Multidisciplinary Research and Development*,2025:12(1):87-92. <https://allsubjectjournal.com/archives/2025/vol12/issue1/12006>
16. Sunandar A, Abd Karim SB, Zolkafli Z. Exploring Delphi Method Utilization Research Trends on Public-Private Partnership Infrastructure Studies. *Journal of Infrastructure Policy and Management*,2025:8(1):21-40. doi: 10.35166/jipm.v8i1.92
17. Witantri G, Giovanni A, Kurniasari E. Comprehensive Literature Review of Blue Finance. *Bengkulu International Conference on Economics, Management, Business and Accounting*,2024:2:789-796. doi: 10.33369/bicemba.2.2024.57
18. World Bank. *Accelerating Blue Finance: Instruments, Case Studies, and Pathways to Scale*. Washington, DC, 2025. Available at: <http://documents.worldbank.org/curated/en/099052925003028261>