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# Integrating Waqf and Blue Economy for Sustainable Development in Indonesia: an Analytic Network Process (ANP) Approach

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***Abstract:*** *Waqf is a potential Islamic economic instrument to support sustainable development, while the blue economy offers a welfare-based marine conservation approach. This study aims to integrate both as a development strategy in Indonesia using the Analytic Network Process (ANP) method to systematically determine policy priorities. The data for this study were obtained from nine experts comprising regulators, academics, and practitioners who were selected based on their competence and understanding of strategic issues in waqf management. The results of the analysis show that low nazhir capacity, limited data, and minimal business innovation are the main obstacles. Priority solutions identified include strengthening sectoral policies, improving human resource competencies, and developing waqf business models. The most superior strategies are based on data, research, and technology. These findings indicate that the integration of waqf and the blue economy can be an innovative approach in supporting the Sustainable Development Goals, by encouraging cross-sector collaboration and value-based policies. This study contributes to the integrative literature and can be a reference in formulating waqf-based sustainable maritime development policies.*

***Keywords:*** *ANP; Blue Economy; Strategic Policy; Sustainable Development; Waqf*

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## INTRODUCTION

Waqf is one of the most distinctive Islamic economic instruments and has experienced rapid development in various parts of the world. Historically, waqf has not only played a role as a driver of economic development, but also as a foundation for social renewal and the advancement of civilization that has led Muslim societies towards independence in the cultural, political, economic, and intellectual fields. In its heyday, the effectively managed waqf sector made Muslim countries major exporters of goods, services, intellectual thought, and cross-country social and economic relations. This success shows that waqf has great potential as a strategic instrument in realizing sustainable development that is oriented towards the welfare of the people (Abdu et al., 2023).

According to Khaf, waqf in the economic context can be understood as the transfer of funds and resources from current consumption into the form of investment in productive assets that generate income for future consumption. Thus, waqf is a combination of saving and investment activities. This mechanism works by diverting some resources from direct consumption to be placed in assets that support capital accumulation in the economy. Waqf reflects a form of sacrifice of current consumption for social interests in the future. The goal is to provide economic benefits and sustainable services for society and future generations (Budiman, 2014).

The blue economy emphasizes the importance of preserving marine resources and sustainably managing ecosystems to achieve community welfare. In Indonesia, which has a vast ocean area, the blue economy provides various opportunities for sustainable economic development. Through wise management, the marine sector can contribute to economic growth, create jobs, and maintain biodiversity (Akbar et al., 2022). Research shows that the application of the blue economy concept in coastal areas such as Kenjeran Surabaya has great potential for local economic contribution, as long as it is equipped with supportive policies and good governance (Buana et al., 2024).

However, the challenges faced in implementing the blue economy are significant. Issues such as environmental degradation, illegal fishing, and lack of infrastructure are obstacles that must be overcome (Adnan & Hasana, 2023). Recommendations from various studies state the need to strengthen policies that involve local communities in managing coastal and marine resources, as well as support for environmentally friendly technologies (Akbar et al., 2022). With a strong commitment from the government and all stakeholders, the blue economy can be a driving force in achieving sustainable development goals in Indonesia.

The integration of waqf and the blue economy is very relevant in facing the various challenges faced by Indonesia in its efforts to achieve the Sustainable Development Goals (SDGs). The emergence of the idea of combining the potential of waqf with the principles of the blue economy offers a solution to increasingly pressing environmental and social problems. The blue economy, which emphasizes the sustainable use of marine resources, plays an important role in supporting the achievement of the SDGs. On the other hand, waqf has great potential as a social and economic financing instrument that can provide broad benefits to society. The collaboration of the two can be an innovative approach in creating an inclusive, equitable, and long-term development model (Veríssimo et al., 2021).

Although the potential for integration between waqf and the blue economy has been widely recognized, its implementation in Indonesia is still relatively minimal (Hernanda et al., 2022). Previous studies tend to be separate, with different focuses between waqf and the blue economy. Most studies focus more on analyzing the blue economy without utilizing innovative ideas from Waqf (Sungkawati, 2024). Meanwhile, approaches that integrate waqf within the blue economy framework are still rarely found in academic literature (Qurrata et al., 2024). This condition reflects a lack of understanding and in-depth exploration of the potential synergy between the two in promoting social welfare and environmental conservation. More comprehensive and interdisciplinary studies are needed to bridge this gap and encourage the use of waqf in sustainable maritime economic development.

In this study, there is a fairly striking research gap; although a number of studies have discussed each concept separately, understanding how to integrate the two systematically and strategically is still very limited. This deficiency reflects the weakness of the existing literature in providing a structured framework and policy analysis that can support such integration. Based on this, this study offers a novel contribution through the application of the Analytic Network Process (ANP) approach as a method for formulating strategic policies that prioritize the integration of waqf and the blue economy.

Analytic Network Process (ANP) is an effective method in determining policy priorities because of its ability to overcome the complexity of problems involving many criteria and alternatives. The results of the analysis using ANP show advantages in assessing the interactions between various criteria and interrelated sub-criteria (Rusydiana et al., 2023). This approach also makes it easier for stakeholders to prioritize problems that need to be addressed immediately, so that resources can be allocated more efficiently. With the integration of ANP in the policy formulation process, it is hoped that there will be an increase in the effectiveness and relevance of the resulting policies, as well as a positive impact on economic development in various sectors (Tunggul et al., 2016). By involving relevant stakeholders, ANP also enables a more participatory decision-making process.

The urgency of this research lies in the importance of building a framework that can support more effective policy formulation, while responding to fundamental problems such as poverty, social inequality, and climate change in Indonesia. Given the various challenges faced by Indonesia in achieving the Sustainable Development Goals (SDGs), this study is a crucial initial step in directing the utilization of waqf and blue economy potential in a more sustainable manner. This research is also expected to open up space for discussion and policy innovation across sectors that are more inclusive and value-based (Imaniyati et al., 2024).

The linkage between Waqf and the blue economy, and its implementation through strong analysis-based policies, is expected to provide a significant contribution to achieving sustainability goals. This approach is expected to provide a basis for more objective and targeted decision-making in encouraging synergy between religious aspects and sustainable maritime development. In addition, this approach can also be a practical reference for stakeholders in designing policies that are responsive to social, economic, and environmental dynamics.

## RESEARCH METHODS

This study uses a multi-criteria decision-making (MCDM) method known as the Analytic Network Process (ANP). This method was introduced by Saaty as a development of AHP to address more complex and interconnected problems. ANP is considered comprehensive because it uses an absolute scale to assess priorities for both tangible and intangible elements. It can also handle multidimensional problems by considering the relationships among criteria and relies heavily on expert judgment (Hapsari et al., 2024; Ascarya et al., 2022; Saaty, 2004). The questionnaire results were then analyzed using ANP to determine the level of agreement among the experts.

The Analytic Network Process (ANP) methodology in the context of research can be described in five main points that are mutually integrated and important in policy formulation and complex decision making. The following is a discussion of the ANP methodology flow that can be adopted in various studies, including the integration of waqf with the blue economy.

1. Determining Objectives and Formulating Problems
   The initial stage in the ANP method is to determine the main objectives of the research and formulate the strategic problems to be solved. In this case, researchers need to specifically identify targets related to the integration of waqf in the blue economy, such as optimizing resource utilization or achieving long-term sustainability. Özdemir & Sagir, (2021), emphasize that setting clear objectives from the beginning of the process is very important, because it can help direct decision making more systematically and focused.
2. Network Structuring
   After the objectives are determined, the next stage is to design a network model that includes identifying the main elements, groupings (clusters), and the relationships between these elements. This process includes mapping the reciprocal relationships and dependencies between elements that influence each other. Huang & Chen, (2024) stated that ANP is an effective approach to represent complex situations, where various elements do not stand alone, but interact in a dynamic network structure.
3. Instrument Development and Information Collection
   The next step is to design a paired comparison-based questionnaire that will be used to obtain data from experts and related stakeholders. This instrument is designed to capture perceptions regarding the relative level of importance between elements in the network model. Susanti et al., (2024), highlighted the importance of involving informants who have competence and experience in the field of waqf so that the data collected is valid, relevant, and reflects real conditions in the field.
4. Priority Calculation with Supermatrix
   After the data from the experts has been collected, the next stage is to calculate the priority level of each element using software such as Super Decisions. This process utilizes the supermatrix approach developed by Saaty to process the relationships between elements in the network. Through this method, the weight of each element can be obtained, reflecting its level of importance in the overall system (Fauziah et al., 2021). Careful calculation of the supermatrix will

produce a limit matrix, which provides a comprehensive view of the priority structure in the model being built (Huang & Chen, 2024).

5. Determination of Priority Strategies or Policies
   The final stage of the ANP process is to interpret the results of the priority calculations to identify the most urgent strategies or policies that have the potential to have a significant impact on the main issues that have been formulated previously. This is a crucial phase in decision-making, where the results of the analysis are used to determine the direction of targeted policies. Voronova et al., (2018) emphasized that ANP provides researchers with the ability to ensure that the policy choices taken are truly in line with actual needs and have high effectiveness in solving problems.

The selection of respondents in this study was based on their level of understanding of the strategic priorities for optimizing waqf and the blue economy in Indonesia. A total of nine respondents were appointed as participants, each possessing competencies relevant to waqf management. The respondents were grouped into three categories: regulators, academics, and practitioners. Accordingly, this study involved informants with recognized expertise and proven track records in the field of waqf. The respondents included:

**Table 1.** List of Respondents

| No | Name | Affiliation | Representative of |
|---|---|---|---|
| 1 | Salahudin Ahmad | Badan Wakaf Indonesia | Regulator |
| 2 | Idris Parakassi | Majelis Ulama Indonesia Kota Makassar | |
| 3 | Nasrullah bin Sapa | Majelis Ulama Indonesia Provinsi Sulawesi Selatan | |
| 4 | La Ode Alimusa | Universitas Muhammadiyah Kendari | Academician |
| 5 | Bayu Taufiq Possumah | Indonesia Waqf Institute | |
| 6 | Azwar Iskandar | Institut Agama Islam (IAI) STIBA Makassar | |
| 7 | Putra Alam | Satu Wakaf Indonesia | Practicioner |
| 8 | Muhammad Ihsan | Gelora Wakaf | |
| 9 | Imam Nur | Asosiasi Nazhir Indonesia | |

## RESULTS AND DISCUSSION

### Problem Identification, Solutions, and Strategies

The crucial initial step in any research is identifying the problem, including in the application of the Analytical Network Process (ANP) method, which requires researchers to collect data through interviews and literature reviews in order to gain a deep understanding of the problem. After identification is carried out, the next stage is data collection and analysis by considering relevant criteria. Based on these criteria, ANP is used to formulate solutions and strategies that can produce the most appropriate decisions. In all these stages, stakeholder involvement plays an important role so that the decisions formulated are not only in accordance with needs, but can also be accepted and implemented effectively (Saaty & Vargas, 2013). The cluster of problems, solutions and strategies in integrating waqf and the blue economy in Indonesia, after conducting interviews with experts and review studies, are as follows:

**Table 2.** The Problem of Integration of Waqf and Blue Economy

| Aspect | Criteria of Problems | Reference |
|---|---|---|
| Fragmentation of Sectoral Policies | 1) Weak Integration<br>2) Weak Coordination<br>3) No Regulation<br>4) Separate Planning | (Fitri & Wilantoro, 2018), (Muhammad & Sari, 2021), (Quddus et al., 2022), (Azka, 2023), (Sobiyanto et al., 2024), (Kholifah & Parmono, 2024), (Bakti & Hakim, 2024). |
| Lack of Business Innovation | 1) Traditional Waqf<br>2) Limited Business<br>3) Minimal Incentives<br>4) Weak Partnerships | (Quddus et al., 2022), (Thaib, 2018), (Fitriyah, 2019), (Syamsuri & Al Mananaanu, 2021), (Rachman & Makkarateng, 2021), (Mentisa Herlina & Utami Mizani Putri, 2022), (Andrini & Zaki, 2023), (Andrini & Zaki, 2023), (Budiman et al., 2023), (Miftahuddin et al., 2023), (Maisyarah & Hadi, 2024), (Sobiyanto et al., 2024), (Muttaqim et al., 2025). |
| Low Nazir Capacity | 1) Low Literacy<br>2) Lack of Training<br>3) Limited Technology<br>4) No Competence | (Muntaqo, 2015), (Indriati, 2017), (Syamsuri et al., 2020), (Makhrus et al., 2021), (Rohim, 2021), (Nasution, 2022), (rahmat, 2022), (Rohmaningtyas, 2022), (Solihah & Abdulghani, 2022), (Rahmalina et al., 2023), (Lintang & Hamdan, 2024), (Maisyarah & Hadi, 2024), (Melinda, 2024), (Sobiyanto et al., 2024). |
| Lack of Database | 1) Minimal Data<br>2) Weak Research<br>3) No Database<br>4) Weak Evaluation | (Fitri & Wilantoro, 2018), (Muhammad Fathrul Quddus et al., 2022), (Nurul Faizah Rahmah, 2022), (Adnan & Hasana, 2023), (Paramitha Aryana & Nabila Hasan, 2024), (Sobiyanto et al., 2024). |

**Table 3.** Waqf and Blue Economy Integration Solution

| Aspect | Criteria of Solution | Reference |
|---|---|---|
| Fragmentation of Sectoral Policies | 1) Policy Synchronization<br>2) Collaborative Forum<br>3) Special Regulations<br>4) Planning Integration | (Fuadi, 2018), (Fitri & Wilantoro, 2018), (Kasanah, 2019), (Syamsuri & Al Mananaanu, 2021), (Iskandar et al., 2020), (Masrul & Huda, 2021a), (Ahyani & Muharir, 2021), (Haryadi & Molly Mustikasari, 2022), (Nasution, 2022), (Quddus et al., 2022), (Nurul Faizah Rahmah, 2022), (Eugenia et al., 2022), (Adnan & Hasana, 2023), (Azka, 2023), (Rahmadi, 2023), (Bakti & Hakim, 2024). |

| Aspect | Criteria of Solution | Reference |
|---|---|---|
| Lack of Business Innovation | 1) Waqf Education<br>2) Innovative Model<br>3) Incentive Scheme<br>4) Strategic Partnership | (Kuncorowati et al., 2018), (Fitri & Wilantoro, 2018), (Fuadi, 2018), (Said & Amiruddin, 2019), (Aisyah et al., 2020), (Rahmah, 2022), (Nasution, 2022), (Suratman et al., 2022), (Adnan & Hasana, 2023), (Lintang & Hamdan, 2024), (Maisyarah & Hadi, 2024), (Sobiyanto et al., 2024), (Bakti & Hakim, 2024), (Masyhadi, 2024). |
| Low Nazir Capacity | 1) Nazir Training<br>2) Capacity Program<br>3) Technology Access<br>4) Nazhir Standards | (Septiandika & Lailatul Fitria, 2022), (Vina Fithriana Wibisono et al., 2022), (Nasution, 2022), (Adnan & Hasana, 2023), (Rahmadi, 2023), (Rifan et al., 2024). |
| Lack of Database | 1) Waqf Mapping<br>2) Applied Research<br>3) Data System<br>4) Digital Evaluation | (Ilyas, 2017), (Bimo & Epita, 2018), (Abrori, 2022), (Redi et al., 2022), (Suratman et al., 2022), (Nureni, 2023), (Maria et al., 2024), (Rumelawanto, 2024), (Muttaqim et al., 2025), (Syaripudin & Nurhuda, 2025). |

**Table 4.** Integration Strategy of Waqf and Blue Economy

| Criteria of Solution | Reference |
|---|---|
| 1) Professional Policies and Institutions<br>2) Innovation and Business Models<br>3) Human Resources Capacity Building<br>4) Data, Research and Technology | (Ilyas, 2017), (Haryono et al., 2021), (Masrul & Huda, 2021b), (Nasution, 2022), (Selan & Wahyuni, 2022), (A. Qolbi & Sukmana, 2022), (Herwantono et al., 2023), (Airawati et al., 2023), (Masyhadi, 2024). |

## Analytic Network Process Network Model

Based on the problem clusters, solutions and strategies above, the next step is to create a network model, where elements such as criteria, sub-criteria, and alternatives not only have hierarchical relationships, but also influence each other through reciprocal relationships (feedback) and dependencies. The ANP network model allows for relationships between elements in one cluster or between clusters, thus reflecting the real dynamics of a more complex and realistic decision-making process.

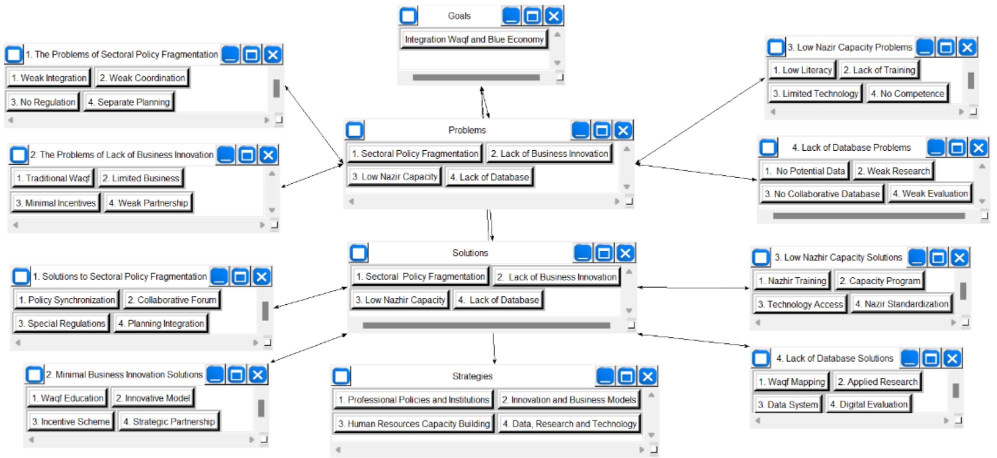


**Figure 1.** ANP Model in Super Decisions

## Priority Synthesis with Supermatrix

The results obtained in the form of a priority scale of problems, solutions and strategies in integrating waqf and the blue economy reflect the diversity of perspectives from stakeholders, as well as the complexity of the relationship between root causes and approaches to solving them. Based on the results of the data recapitulation (Table 5), the problem that is considered the most priority in integrating waqf and the blue economy is the low capacity of nazhir (32.6%). The next problem is the lack of a database (24.8%), minimal business innovation (23.7%), and finally the fragmentation of sectoral policies (18%). This is because academics and practitioners who are directly involved in waqf management see the limited capacity of human resources and information as the main obstacles in developing waqf, especially in the context of the blue economy which demands professionalism and technological literacy. Meanwhile, the problem of sectoral policy fragmentation is actually at the bottom of the ranking, because it is included in the macro study or is more the realm of regulators which requires a long time to implement.

**Table 5.** Priority Issues of Waqf and Blue Economy Integration

| **The Problem of Integration Waqf and Blue Economy** | | | | | |
|---|---|---|---|---|---|
| **Problems** | **Regulator** | **Academician** | **Practitoner** | **All** | **Rank All** |
| 1. Sectoral Policy Fragmentation | 0.174 | 0.204 | 0.163 | 0.187 | 4 |
| 2. Minimal Business Innovation | 0.333 | 0.204 | 0.240 | 0.237 | 3 |
| 3. Low Nazir Capacity | 0.149 | 0.295 | 0.359 | 0.326 | 1 |
| 4. Lack of Database | 0.341 | 0.295 | 0.237 | 0.248 | 2 |
| Inconsistency | 0.00119 | 0.0000 | 0.00108 | 0.00033 | |

Interestingly, the solution that received the highest ranking was actually sectoral policy (30.0%), followed by increasing nazhir capacity (24.7%) and business innovation (24.0%). This shows that although policy fragmentation is not the most pressing problem, strengthening regulations and sectoral policies are still seen as strategic solutions that can solve various problems at once. In other words, respondents tend to see regulations as a foundation that can support other solutions, including empowering nazhir and developing a sustainable waqf business model.

On the other hand, the solution to improving the database (21.1%) actually ranked the lowest, even though the data problem was recognized as quite significant. This indicates that data-related solutions have not been considered as steps that provide direct impact, but rather as supporting elements of the main solution. Strengthening the database will be more effective if it is directly linked to the implementation of empowerment policies and programs, so that its existence is not only as an administrative complement, but also as a strategic tool in decision-making.

**Table 6.** Priority Solutions for Integrating Waqf and Blue Economy

| **Solutions for Integrating Waqf and Blue Economy** | | | | | |
|---|---|---|---|---|---|
| **Solution** | **Regulator** | **Academician** | **Practitoner** | **All** | **Rank All** |
| 1. Sectoral Policy | 0.277 | 0.393 | 0.235 | 0.300 | 1 |
| 2. Business Innovation | 0.277 | 0.157 | 0.294 | 0.240 | 3 |
| 3. Nazir Capacity Building | 0.235 | 0.278 | 0.235 | 0.247 | 2 |
| 4. Database Building | 0.210 | 0.170 | 0.235 | 0.211 | 4 |
| Inconsistency | 0.00233 | 0.00135 | 0.0000 | 0.00012 | |

Meanwhile, in the strategy section, the highest ranking was the data, research, and technology-based strategy (28.3%), followed by the HR capacity building strategy (27.8%) and Innovation and Business Model (23.0%). Both of these strategies have a more fundamental and long-term approach, which does not only target one specific problem, but serves as a foundation for the success of the integration program as a whole. On the other hand, the strategy related to professional policies and institutions (20.7%) was ranked lowest, in line with the low urgency of the previous sectoral policy issues. This difference in ranking generally indicates that the root of the problem in the field is more technical and operational, while the solutions and strategies chosen tend to be structural and systemic to build a more robust waqf and blue economy integration ecosystem.

**Table 7.** Priority Policies for Integrating Waqf and Blue Economy

| **Policies for Integrating Waqf and Blue Economy** | | | | | |
|---|---|---|---|---|---|
| **Strategies** | **Regulator** | **Academician** | **Practitioner** | **All** | **Rank All** |
| 1. Professional Policies and Institutions | 0.209 | 0.184 | 0.222 | 0.207 | 4 |
| 2. Innovation and Business Models | 0.242 | 0.178 | 0.277 | 0.230 | 3 |
| 3. Human Resources Capacity Building | 0.289 | 0.328 | 0.222 | 0.278 | 2 |
| 4. Data, Research, and Technology | 0.258 | 0.307 | 0.277 | 0.283 | 1 |
| Inconsistency | 0.02408 | 0.00065 | 0.0000 | 0.00323 | |

To provide a more comprehensive understanding, the following figure presents the results of the synthesis of each cluster of sub-criteria that have been analyzed. This visualization aims to systematically describe how each sub-criteria in each cluster contributes to the determination of the final priorities, thus making it easier to examine the relationship between elements and their implications for the integration strategy of waqf and the blue economy. First, this finding presents the sub-criteria of the problem cluster.

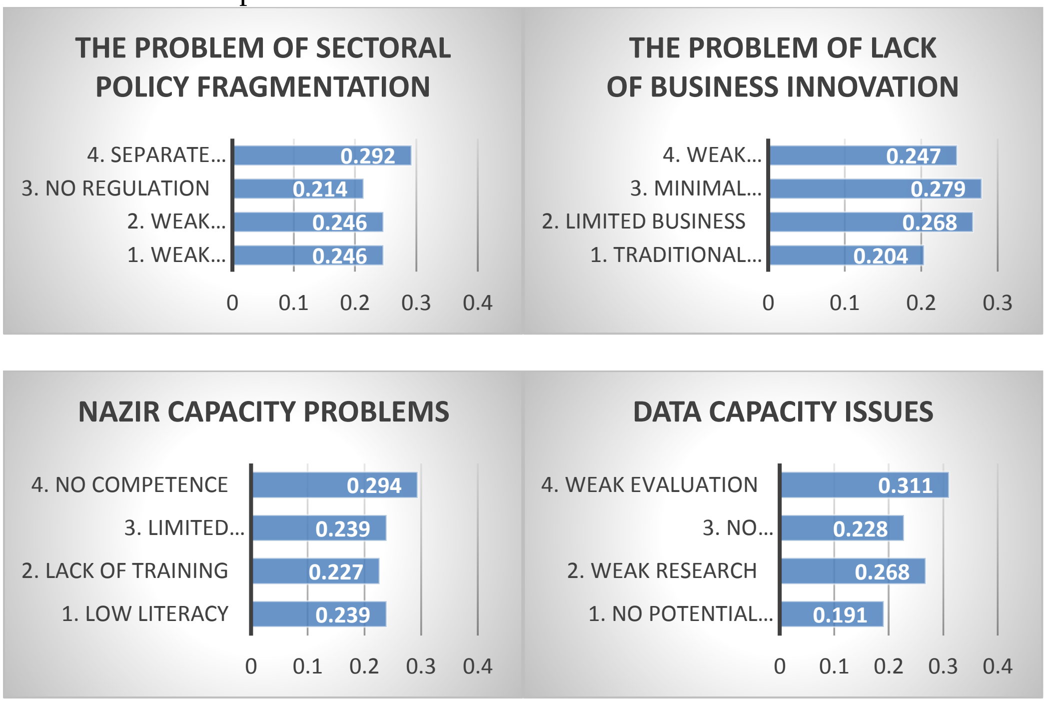


**Figure 2.** Sub-Criteria for the Problem of Integration of Waqf and Blue Economy

The problem of sectoral policy fragmentation is a major obstacle in synchronizing waqf and blue economy policies. From the diagram, it can be seen that Separate Planning has the highest weight (0.292), reflecting the lack of unity of direction in inter-sectoral planning which has an impact on the ineffectiveness of program implementation. Weak Coordination and Weak Integration each recorded the same weight (0.246), indicating that weak coordination between agencies and policy integration are also important issues. Meanwhile, No Regulation is in last place with a weight (0.214), indicating that although the absence of formal regulations is important, it is considered less urgent than the problems of planning and coordination.

The lack of innovation in the waqf business is a significant challenge in optimizing the potential of the waqf economy. The sub-criteria with the highest weight is Minimal Incentives (0.279), indicating that the lack of incentives hinders the interest and participation of economic actors. Limited Business Model follows with a weight (0.268), indicating limitations in the choice of innovative business models that can be applied. Weak Partnerships has a weight (0.247), indicating the need to strengthen strategic partnerships between various parties. Meanwhile, Traditional Waqf Practices has the lowest weight (0.204), showing that conventional waqf practices need to be transformed to be more relevant to current needs.

The capacity of the nazhir is a crucial factor in supporting the effectiveness of waqf management. No Competence has the highest weight (0.294), reflecting that low competence is the main obstacle in carrying out nazhir's duties. Limited Technology and Low Literacy both recorded weights of (0.239), indicating that limitations in mastering technology and low financial and managerial literacy also worsen the condition. Meanwhile, Lack of Training is in last place with a weight (0.227), but still shows the urgency for ongoing training to improve nazhir's professionalism.

The issue of data capacity is very important to support evidence-based and accountable policies. Weak Evaluation received the highest weight (0.311), indicating a weak evaluation system in monitoring and assessing the impact of waqf programs. Weak Research follows with a weight (0.268), confirming the lack of in-depth research as a basis for policy. No Collaborative Platform recorded a weight (0.228), indicating a lack of collaborative platforms between institutions in data integration. Meanwhile, No Potential Data had the lowest weight (0.191), indicating that strategic data on waqf potential has not been identified or utilized optimally.

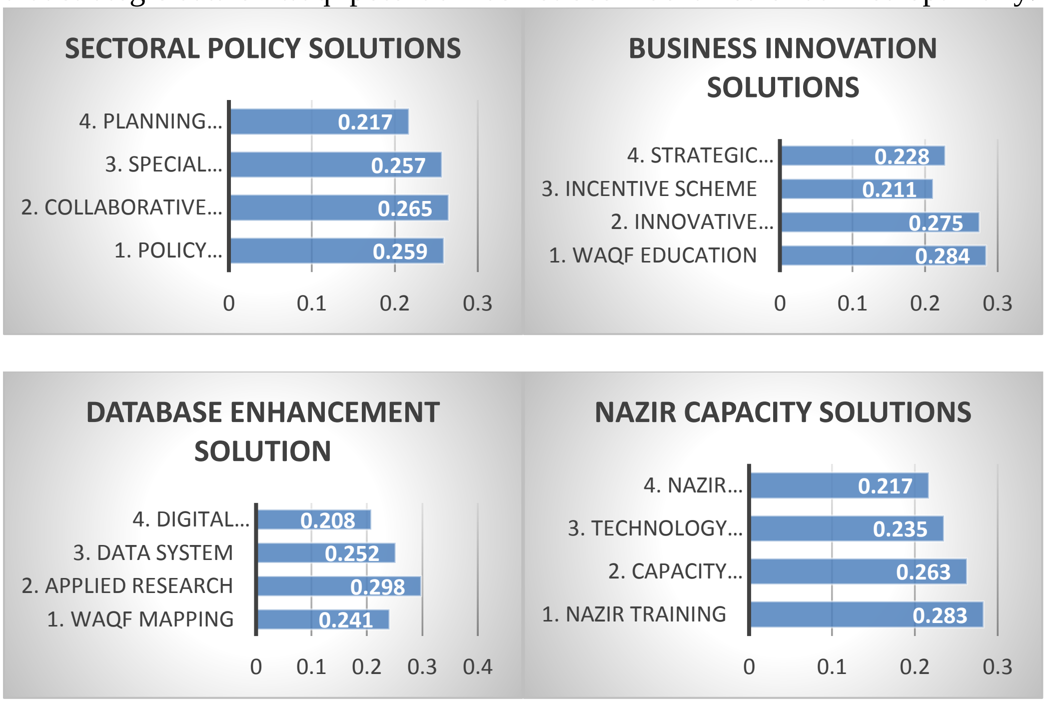


**Figure 3.** Sub-criteria for the Problem of Integration of Waqf and Blue Economy

In the Sectoral Policy Solutions category, the analysis results show that the most prioritized approach is the establishment of a Collaborative Forum with a weight of (0.265). This reflects the urgency of the need for cross-sector and inter-stakeholder synergy in developing a more effective and integrated waqf management system. Following after is Policy Synchronization with a weight of (0.259) which shows the importance of policy harmonization between institutions and ministries to avoid overlapping or conflicting policies. Then Special Regulations has a weight of (0.257), which means that special regulations that support waqf management remain important but have not become a top priority. Meanwhile, Planning Integration is in last place with a weight of (0.217), indicating that although integrated planning is needed, it is currently not considered the most urgent aspect compared to other elements in sectoral policies.

In the Business Innovation Solutions aspect, the highest weight is occupied by Waqf Education at (0.284), which shows that education and increasing public understanding regarding waqf are the most vital steps in creating sustainable business innovation. This reflects the need for stronger waqf literacy among the public, business actors, and related institutions. Furthermore, Innovative Model has a weight of (0.275) which shows that the implementation of new and adaptive waqf business models is an important concern to optimize the potential of waqf in supporting the people's economy. Strategic Partnership gets a weight of (0.228), showing that strategic collaboration between the public and private sectors is considered important but still below education and model innovation. Finally, Incentive Scheme has the lowest weight of (0.211), which indicates that although incentives can encourage participation, they are not the main priority in the context of current waqf business innovation.

In the solution to increase the capacity of Nazir, the data shows that Nazir Training is the most dominant element with a weight of (0.283). This shows that increasing the competence and practical skills of nazhir is considered very important to improve the quality of waqf management. Followed by Capacity Program with a weight of (0.263) which shows the importance of capacity development through sustainable and systematic programs as a support for existing training. Meanwhile, Technology Access has a weight of (0.235), indicating that the ease of nazhir in accessing technology is an important factor even though it is still below the training and capacity building program. In the last position is Nazir Standardization with a weight of (0.217), which shows that although it is important to compile standards for qualifications and the role of nazhir, this aspect has not been a top priority compared to increasing direct capabilities and technological support.

In the Database Enhancement Solution category, the solution with the highest weight is Applied Research with a value of (0.298). This shows that a research-based approach is considered very important for building a reliable, accurate, and real-needs-based waqf database system in the field. Data System follows with a weight of (0.252) which indicates that building a structured and easily accessible data system is an important pillar in managing waqf information. Waqf Mapping gets a weight of (0.241), indicating that comprehensive waqf asset mapping is considered important but not as important as the previous two aspects. Finally, Digital Evaluation with a weight of (0.208) is the lowest element, which shows that although digital evaluation has a role in monitoring and assessing performance, the main focus currently is still on system development and in-depth research.

**Integration of Waqf and Blue Economy for Sustainable Development**

The synthesis results show an interesting difference between perceptions of problems and preferences for solutions in the integration of waqf and the blue economy. Although the fragmentation of sectoral policies is not considered the most pressing problem and only ranks fourth in the scale of problem priorities. However, the solution in the form of strengthening sectoral policies actually received the highest ranking (30.0%). This shows that the preparation and harmonization of strong policies have a strategic role in addressing various problems as a whole. In the context of Indonesia’s complex and plural legal system, harmonization efforts play a crucial role in ensuring legal certainty, justice, and the effective implementation of public policies (Jansen et al., 2025). Thus, policy is not only seen as a response to a particular problem, but also as a systemic foundation that supports the entire waqf and blue economy ecosystem.

Waqf and the Blue Economy represent emerging fields of study focused on the sustainable utilization of marine resources, coastal areas, and the fisheries sector, making this discussion essential given the numerous challenges faced within Indonesia's blue economy. Sukmana et al., (2020), highlights the persistent poverty among fishermen and demonstrates that waqf-based financing can serve as an effective empowerment instrument. This aligns with the findings of Putra et al., (2025), which reveal that many fishermen remain trapped in usurious lending practices and are bound to sell their catch to middlemen at prices determined unilaterally, indicating that waqf financing integrated with zakat can offer a fairer alternative solution. Furthermore, Nisak, (2023), shows that the Cash Waqf Linked Blue Sukuk effectively supports marine ecosystem sustainability and enhances the welfare of coastal communities through mangrove conservation, the provision of environmentally friendly fishing gear, and the development of integrated fishing villages. These efforts align with the blue economy concept and contribute to achieving Sustainable Development Goal (SDG) 14 on the preservation of marine ecosystems (Aprilia & Mulyanie, 2023).

Meanwhile, the solution to increase the capacity of nazhir (24.7%) is in second place. Several studies have confirmed that strengthening the capacity of nazhir through training and certification is a strategic step that has proven effective in improving their performance (Qolbi et al., 2022; Hamidiyah et al., 2022; Nur et al., 2024). Business innovation (24.0%) is in the next place. Innovative cash waqf programs can be integrated into modern financial instruments to improve the effectiveness, accountability, and competitiveness of waqf management in the contemporary era (Azizuddin & Azam, 2021). Both of these solutions reflect a focus on technical and operational aspects, especially in strengthening the quality of human resources and encouraging more adaptive and sustainable business models. On the other hand, increasing the database, although in second place as a problem (24.8%), actually got the lowest solution ranking (21.1%). This indicates that data-based solutions are still considered as supporting components, not as the main intervention. However, data still plays an important role, especially when directly linked to policy programs and institutional strengthening.

In the context of strategy, the most preferred approach is data-based, research, and technology-based strategy (28.3%), followed by increasing human resource capacity (27.8%) and business model innovation (23.0%). These strategies have a long-term and systemic orientation, indicating an awareness that the success of the integration of waqf and the blue economy requires a scientific basis and improving the quality of implementers in the field. Interestingly, professional policy and institutional strategies are ranked lowest (20.7%), consistent with the low perception of sectoral policy issues. The difference in preferences between problems, solutions, and strategies reflects that stakeholders consider not only the current urgency, but also the long-term impact and the ability of interventions to form a waqf ecosystem that is stronger and more adaptive to developments.

## CONCLUSION

This study successfully shows that integration between waqf and the blue economy can be a strategic approach to support sustainable development in Indonesia. Using the Analytic Network Process (ANP) approach, this study identified that the low capacity of nazhir is the most significant obstacle, followed by weak databases and minimal waqf business innovation. Meanwhile, the most prioritized solution is strengthening sectoral policies, which are seen as the main foundation in building an ecosystem that supports synergy between waqf and the marine economy. In addition, data-based, research-based, and technology-based strategies are considered the most strategic in supporting policy sustainability. These findings answer the main objective of the study, namely to formulate policy priorities that can encourage effective collaboration between the two potential sectors systematically and participatively.

The implications of this study indicate that waqf not only has a historical role in the social development of the community, but can also be utilized innovatively to fund and manage strategic sectors such as marine and fisheries, in the spirit of the blue economy. However, the implementation of this synergy still faces challenges in technical and structural aspects, especially related to the quality of human resources and data infrastructure. Therefore, continuous efforts are needed to build nazhir capacity, develop innovative business models, and strengthen cross-sector collaboration. The limitations of this study lie in the scope of participation which is still limited to certain academics and practitioners, so that further research is expected to involve more stakeholders, including coastal communities and local business actors, to enrich the perspective and expand the scope of implementation of the waqf and blue economy integration model in various regions of Indonesia.

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