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Developing a Sustainable Coastal Economic Development Model in the Seribu Islands Regency: A Natural Resources-Based View Approach and Blue Growth

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Abstract

Coastal areas play a strategic role and possess significant potential in achieving national economic development goals. However, economic development in coastal regions faces various challenges, including limited knowledge regarding sustainable development roadmaps for these areas. This study aimed to develop a conceptual hierarchical model to guide coastal economic development based on the Natural Resources-Based View and Blue Growth approaches. This study employed a mixed-methods approach, combining qualitative and quantitative methods to collect and analyze data required to address the research objectives. The economic sectors examined were aquaculture and marine tourism activities operating on Untung Jawa Island and Tidung Island, Seribu Islands Regency, Jakarta Province. The study involved 14 expert respondents and 52 visitors as data sources. Data were analyzed using the Delphi method, Interpretive Structural Modeling (ISM), MICMAC analysis, and DEMATEL analysis. The results indicated that two economic sectors could be categorized as blue economy sectors, namely aquaculture and marine tourism. Furthermore, two key factors were identified as essential for supporting the sustainability of the aquaculture sector: effective governance and regulation, and a skilled workforce. Meanwhile, three critical factors supported the sustainability of the marine tourism sector: government support, natural resource protection, and integrated conservation. The findings highlight the importance of establishing clear and adequate regulatory frameworks to guide sustainable economic development practices in coastal areas.

INTRODUCTION

Coastal areas play a crucial role because they provide significant economic, social, and ecological benefits. From an economic perspective, coastal areas are essential for supporting maritime transportation, serving as centers for tourism and recreation, providing various raw materials, and facilitating the extraction of energy resources. Coastal areas also contribute to the development of aquaculture and fisheries, thereby supporting food security and local livelihoods (Bell et al., 2018; Gul et al., 2024; Kumaran et al., 2020; Lauria et al., 2018). Ecologically, coastal areas are vital for maintaining diverse ecosystems, carbon sequestration and storage, coastal protection, and the filtration and absorption of pollutants from terrestrial environments. From a social and cultural perspective, coastal areas support community

settlements, improve public health, and provide spaces for recreation and social activities (Amone-Mabuto et al., 2023; Lakshmi, 2021).

Although several scholars have emphasized the strategic role of coastal areas in national economic development (Zhang et al., 2023), others have highlighted that coastal economic development is a complex issue influenced by multiple factors. First, coastal areas are affected by dynamic interactions between environmental and geological conditions, variations in coastline characteristics, and high vulnerability to erosion and instability. Second, human activities and development pressures may increase the risks of habitat degradation, biodiversity loss, marine pollution, and competing interests among various development sectors. Third, climate change presents additional challenges, including sea-level rise and the increasing frequency of extreme weather events (Zuo et al., 2023).

Considering these conditions, previous studies have emphasized the importance of implementing sustainability principles in coastal economic development. In other words, coastal economic development must be conducted sustainably to ensure long-term economic growth while preserving ecosystems and improving community welfare (Kurniati et al., 2024). From an economic perspective, sustainable development ensures that coastal economic activities can continue without degrading natural resources, while encouraging economic diversification and minimizing negative environmental impacts. From a social perspective, sustainable development focuses on improving community welfare, protecting livelihoods, developing resilient infrastructure, and strengthening community adaptation to environmental and social changes. From an environmental perspective, sustainable development emphasizes ecosystem protection, biodiversity conservation, sustainable natural resource management, and enhanced resilience against environmental challenges (Singh et al., 2021).

Furthermore, previous studies have introduced various models and concepts for coastal economic development, including Blue Growth (hereinafter referred to as BG). Generally, Blue Growth refers to an economic approach that promotes the sustainable utilization of marine and coastal resources to support economic growth, improve livelihoods, generate employment opportunities, and conserve marine and coastal ecosystems (Govender et al., 2024). This concept, which emphasizes environmentally responsible economic practices in coastal areas, has been adopted by numerous countries. Blue Growth focuses on the sustainable management of marine and coastal resources, economic development, environmental protection, and social welfare improvement (Wang & Yu, 2025).

In addition, previous studies have proposed various perspectives regarding how organizations achieve competitive advantages, including the Natural Resources-Based View (Natural Resource-Based View, NRBV). The NRBV suggests that organizational competitive advantage can be developed through capabilities related to environmental sustainability, including pollution prevention, product stewardship, and sustainable development (Johnson-Hall & Hall, 2022). Pollution prevention provides benefits through improved productivity and reduced costs by minimizing waste generation and emissions at the source rather than managing them after production. Product stewardship refers to a company's capability to manage the environmental impacts of its products throughout the supply chain. Sustainable development reflects a company's ability to achieve long-term economic, social, and environmental sustainability, which can create new market opportunities and enhance overall organizational sustainability (Sumrit, 2024).

Although the literature has recognized NRBV and Blue Growth as strategic concepts for achieving sustainability, studies integrating these two concepts into sustainable coastal economic development remain relatively limited. This study aimed to address this research gap by developing a hierarchical model that represents a roadmap for sustainable economic development in coastal areas based on NRBV and Blue Growth. Referring to Singh et al. (2021), this study argued that sustainable economic development in coastal areas represents a complex challenge due to the involvement, interdependence, and competing interests of multiple sectors and stakeholders. To address this complexity, this study employed the Delphi method, MICMAC analysis, and Interpretive Structural Modeling (ISM) to identify the key elements supporting sustainable coastal economic development. The findings contribute to both theoretical and practical domains by identifying supporting factors, examining relationships among factors, determining their relative importance, developing a conceptual hierarchy model, classifying factors based on their driving power and dependence, and providing a visual roadmap for sustainable coastal economic development. This roadmap is expected to serve as a foundation for policymakers and practitioners in formulating strategies and implementing sustainable development practices in coastal areas.

METHODS

This study employed a mixed-methods approach combining quantitative and qualitative methods with a case study design. This approach was used to obtain a comprehensive understanding of coastal economic development and to develop a model representing a framework and roadmap for coastal economic development based on NRBV and Blue Growth.

Research Location

This research on coastal economic development based on NRBV was conducted through a survey on Tidung Island and Untung Jawa Island, located in the Seribu Islands Regency, Jakarta Province. The blue economy sectors studied were aquaculture and marine tourism. These two sectors were selected based on preliminary survey results, which indicated that they were considered to contribute significantly to coastal economic development in the region. However, the development of these two sectors is widely considered to have not yet balanced economic growth with environmental and social sustainability.

Data collection

In general, this research will utilize several methods to collect data, including literature review, in-depth interviews, questionnaire distribution, and field observations. The literature review and interviews aim to identify key factors deemed relevant to developing a coastal economy based on NRBV and BG. A field survey was conducted to obtain an overview of the business processes of coastal-based economic sectors. Interviews were conducted with various parties related to coastal economic sectors, including economic actors, academics, and visitors. A questionnaire was used to measure visitor perceptions and preferences regarding various aspects related to coastal economic sectors. Data collection was conducted from July to September 2025.

Analysis method

This research aims to develop a model that illustrates a framework and roadmap for developing a coastal economy based on NRBV and Blue Growth. To achieve a more holistic

goal, this research has integrated several approaches, including the Delphi method, ISM, and MICMAC.

RESULT AND DISCUSION

Delphi Process

The selection of elements for sustainable coastal economic development is a complex issue and requires careful consideration. Several factors must be considered in selecting these elements, including alignment with strategic objectives, actionability, stakeholder expectations, and relevance to the regional context . Therefore, the process of selecting these elements requires the views of a group of experts to assess their relevance. To this end, this study applies the Delphi method to select elements for aquaculture development based on the NRBV. The Delphi method was used to obtain opinions or consensus from a group of experts, who were asked about the relevance of elements identified from the literature to the real conditions of the *Seribu* Islands Regency. Furthermore, by referring to the work of Abdul-Shukor & Nag (2022), this study determines the relevance of elements for coastal economic development based on two parameters: the weighted average (WA) and the level of consensus (LC). In this case, elements with LC ≥ 0.7 and WA ≥ 4.0 are relevant for use in building the model. Table 1 shows the relevance of the elements of aquaculture development based on NRBV and BG, while Table 2 presents the relevance of the elements of marine tourism development based on NRBV in the context of the *Seribu* Islands Regency.

Table 1. Relevance of NRBV-based aquaculture development elements

Coding	Elements	WA	LC
AQ-1	Wastewater management water quality	4.25	0.88
AQ-2	Integrated systems and polyculture	4.13	0.75
AQ-3	Location selection	4.25	0.88
AQ-4	Production system	4.38	0.88
AQ-5	Innovation in feed and genetics	4.25	0.88
AQ-6	Disease management	4.50	0.88
AQ-7	Economic viability and profitability	4.13	0.75
AQ-8	Effective governance and regulation	4.25	0.88
AQ-9	Collaboration and co-management	4.13	0.75
AQ-10	Skilled workforce	4.13	0.88

Source: Primary data processed by the researcher (2025)

Table 2. Relevance of elements of NRBV-based marine tourism development

Coding	Elements	WA	LC
MT-1	Stakeholder collaboration	4.38	0.88
MT-2	Government support	4.13	0.88
MT-3	Effective management	4.13	0.88
MT-4	Protection of natural resources	3.75	0.75
MT-5	Integrated conservation	4.50	0.88
MT-6	Public awareness	4.00	0.75
MT-7	community empowerment	4.00	0.88
MT-8	Economic sustainability	4.63	0.88
MT-9	Community-based tourism	4.38	1.00
MT-10	High quality travel experience	4.88	1.00

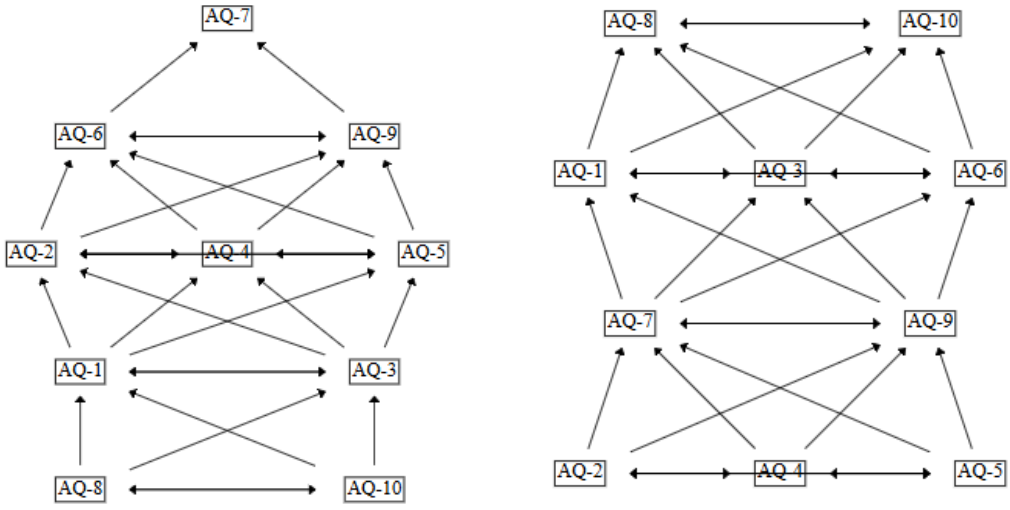
Source: Primary data processed by the researcher (2025)

As shown in Table 1, this study found that the 10 proposed elements had WA values higher than 4.0 and LC values higher than 0.70. Similarly, the results presented in Table 2 show that the 10 proposed elements also had WA values higher than 4.0 and LC values higher than 0.70. Referring to Olsen et al. (2021), this study believes that the elements presented in Table 1 are valid and relevant for use in the development of NRBV-based aquaculture in the context of the Seribu Islands Regency. Similarly, the elements presented in Table 2 are valid and relevant for use in the development of NRBV-based marine tourism in the context of the Seribu Islands Regency.

ISM Model

Referring to Govender et al. (2024), this study argues that sustainable coastal economic development is a complex issue due to the challenge of balancing economic growth with environmental and social sustainability. Several challenges arise, including: unclear roles and responsibilities, regional regulations that are not aligned with national goals, the involvement of multiple stakeholders, and limited resources. Challenges also arise from the requirement to balance economic benefits with the need to preserve marine and coastal ecosystems, limited data and access to information, environmental degradation issues, and the impacts of climate change.

Therefore, this study uses the Interpretive Structural Modeling (ISM) method to analyze and visualize the interrelationships between elements in a system and to create a hierarchical model of the elements forming the system . This is based on the view of Alqahtani & Makki (2023), who stated that the ISM method is an adequate approach in understanding the driving forces and dependencies of the elements forming the system and visualizing these elements in a conceptual hierarchical model. Figure 1 shows the ISM model for developing the aquaculture sector and the marine tourism sector based on NRBV in the context of the Seribu Islands Regency.



A. Aquaculture sector

B. Marine tourism sector

Figure 1 ISM model for developing the aquaculture sector and marine tourism sector based on NRBV in the context of the Seribu Islands Regency.

Source: Primary data processed by the researcher using ISM method (2025)

As shown in Figure 1, this study found that the hierarchical model of elements supporting the successful development of the NRBV-based aquaculture sector consists of five levels. Level 1 (the bottom of the model) consists of two elements: effective governance and regulation (AQ-8) and skilled labor (AQ-10). Level 2 also includes two elements: water quality, waste management (AQ-1), and site selection (AQ-3). Level 3 includes three elements: integrated systems and polyculture (AQ-2), production systems (AQ-4), and innovation in feed and genetics (AQ-5). Level 4 consists of two elements: disease management (AQ-6) and collaboration and co-management (AQ-9). Meanwhile, level 5 consists of one element: economic viability and profitability (AQ-7).

The ISM model in Figure 1 confirms that effective governance and regulation and a skilled workforce are at the bottom of the hierarchy. This suggests that these two elements are crucial for the sustainable development of the aquaculture sector. This finding aligns with the concept proposed in the literature that effective governance and regulation and a skilled workforce have a significant impact on the sustainability of the aquaculture sector. Governance plays a crucial role in establishing a framework for balancing economic growth with environmental protection and social responsibility. Meanwhile, a skilled workforce plays a crucial role in ensuring operational efficiency and product quality throughout the aquaculture supply chain (Brown-Webb et al., 2022; Usha-Rani & Padmaja, 2024).

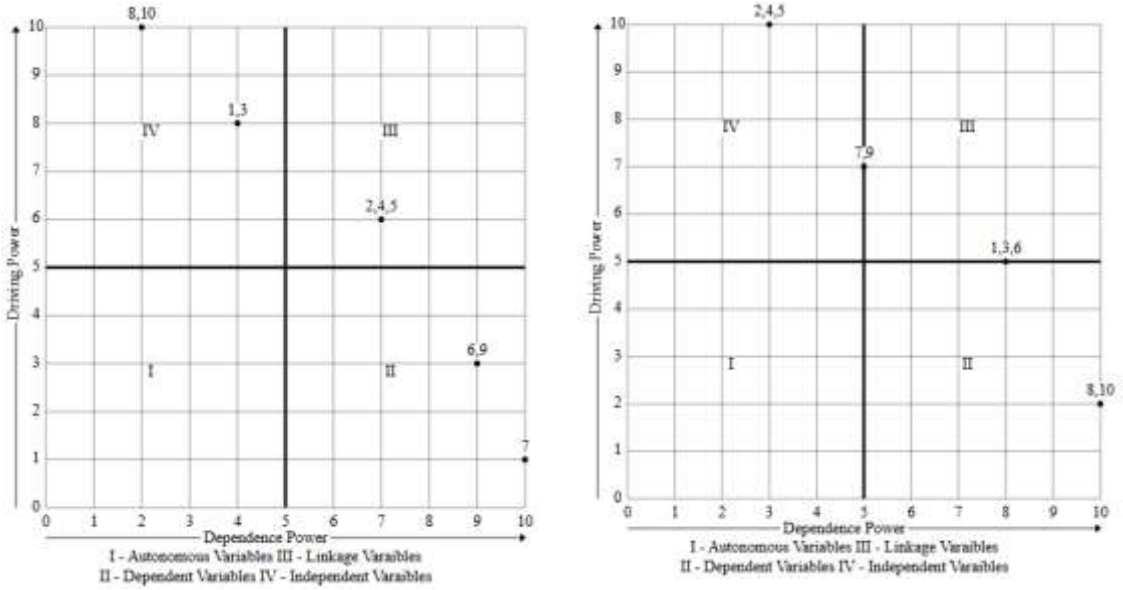
For the marine tourism sector, Figure 1 shows that the hierarchical model of supporting elements for the development of the marine tourism sector based on NRBV consists of four levels. Level 1 (the bottom of the model) consists of three elements: government support (MT-2), natural resource protection (MT-4), and integrated conservation (MT-5). Level 2 includes two elements: community empowerment (MT-7) and community-based tourism (MT-9). Level 3 includes three elements: stakeholder collaboration (MT-1), effective management (MT-3), and public awareness (MT-6). Meanwhile, level 4 consists of two elements: economic sustainability (MT-8) and high-quality tourism experiences (MT-10).

Furthermore, Figure 1 confirms that government support, natural resource protection, and integrated conservation are at the bottom of the hierarchy. This indicates that these three elements are the most crucial for developing the marine tourism sector sustainably. Consistent with the literature, this study confirms the importance of government support for sustainable marine tourism development. Government support plays a crucial role in infrastructure development and intersectoral collaboration. The government also plays a role in local community empowerment programs and raising public awareness about conservation (Govender et al., 2024). Natural resource protection and integrated conservation are also cited as elements that play a crucial role in sustainable marine tourism development. Sustainable marine tourism development must place high emphasis on natural resource protection, develop integrated conservation, and ensure the long-term preservation of marine and coastal ecosystems (Weng et al., 2023) .

MICMAC Analysis

This study applies the MICMAC method to gain a deeper understanding of the established ISM model. MICMAC analysis uses the driving forces and dependencies of the constituent factors to classify these factors into various categories. Referring to Alqahtani & Makki (2023), this study categorizes the elements of coastal economic development into four

categories: dependent elements, independent elements, autonomous elements, and linkage elements. Independent elements refer to elements with high driving forces but low levels of dependency. Dependent elements are elements with low driving forces and high levels of dependency. Linkage elements are elements with both high driving forces and high levels of dependency. Autonomous elements refer to elements with low driving forces and low levels of dependency. Figure 1 shows the MICMAC outputs for elements deemed important in the development of the sustainable aquaculture sector, while Figure 2 shows the MICMAC outputs for elements deemed important in the development of the sustainable marine tourism sector in the context of the Seribu Islands Regency.



A. Aquaculture sector B. Marine tourism sector

Figure 2 MICMAC outputs for elements deemed to play an important role in the economic development of coastal areas

Source: Primary data processed by the researcher using ISM method (2025)

As seen in Figure 1, the MICMAC analysis indicates the absence of autonomous factors, that is, factors with a weak driving force and a weak dependence. Autonomous factors are placed in quadrant I of the MICMAC diagram. The MICMAC analysis found three linkage factors, that is, factors with a strong driving force and a strong dependence. This category includes integrated systems and polyculture (AQ-2), production systems (AQ-4), and innovation in feed and genetics (AQ-5). These linkage factors occupy quadrant III of the MICMAC diagram. These factors are not fixed: meaning that any change in these factors affects the factors at the level above them. At the same time, these factors are also influenced by changes in other factors at the level below them. Furthermore, the MICMAC analysis shows the presence of three dependent factors, that is, factors with a strong level of dependence and a weak driving force. Disease management (AQ-6), economic viability and profitability (AQ-7), and collaboration and co-management (AQ-9) fall into this category. Internationalization (F12) and socio-cultural (F15) are also categorized as dependent factors. These dependent factors are placed in quadrant II of the MICMAC diagram.

Finally, the MICMAC analysis shows four factors categorized as independent, or factors with a strong driving force and a weak level of dependence. Water quality, waste management (AQ-1), site selection (AQ-3), effective governance and regulation (AQ-8), and skilled labor (AQ-10) are included in this category. These independent factors are placed in quadrant IV of the MICMAC diagram. Referring to Teymourifar & Trindade (2023), this study views that factors with a strong driving force and a weak level of dependence are included in the independent factors and are referred to as key factors. These factors are the main factors for the development of a sustainable aquaculture sector. Therefore, stakeholders must pay more attention when developing a sustainable aquaculture sector. In line with the ISM output, these factors occupy the lower level of the constructed hierarchical structure model.

For the marine tourism sector, the MICMAC results indicate the absence of autonomous factors, namely factors with a weak driving force and a weak level of dependency. The MICMAC analysis found five linkage factors: stakeholder collaboration (MT-1), effective management (MT-3), public awareness (MT-6), community empowerment (MT-7), and community-based tourism (MT-9). Furthermore, the MICMAC analysis revealed two dependent factors, namely factors with a strong level of dependency and a weak driving force. Economic sustainability (MT-8) and high-quality tourism experiences (MT-10) fall into this category. Finally, the MICMAC analysis revealed three independent factors: government support (MT-2), natural resource protection (MT-4), and integrated conservation (MT-5).

CONCLUSION

This study identified two economic sectors on Untung Jawa Island and Tidung Island that could be categorized as blue economy sectors and had the potential to be developed as models for sustainable coastal economic development. These sectors were aquaculture and marine tourism. In the aquaculture sector, 10 key factors were identified as relevant to supporting sustainable development. Among these factors, three were categorized as linkage factors, namely polyculture systems, modern production systems, and innovations in feed and genetics; three were categorized as dependent factors, namely disease management, economic viability and profitability, and collaboration and joint management; and four were categorized as independent factors, namely water quality and waste management, site selection, effective governance and regulation, and skilled labor.

For the marine tourism sector, this study also identified 10 key factors supporting sustainable marine tourism development in the context of Seribu Islands Regency. Five factors were categorized as linkage factors, including stakeholder collaboration, effective management, public awareness, community empowerment, and community-based tourism. Two factors were categorized as dependent factors, namely economic sustainability and high-quality tourism experiences. Meanwhile, three factors were categorized as independent factors, namely government support, natural resource protection, and integrated conservation.

The findings of this study provide two important implications. First, sustainable coastal economic development requires strong and consistent government support. Therefore, the government needs to establish clear and adequate regulations to guide coastal economic development practices, facilitate access to funding sources, strengthen intersectoral collaboration, and improve public awareness and education. Second, sustainable coastal economic development requires a shared understanding among stakeholders regarding the

importance of natural resource conservation. Stakeholders need to recognize that conserving natural resources is essential to achieving and maintaining long-term economic growth, environmental sustainability, and social welfare. Based on these findings, it is recommended that the government, particularly the Seribu Islands Regency and Jakarta Provincial Governments, establish supportive regulations, facilitate funding access, strengthen cross-sector collaboration, and enhance public education regarding coastal conservation. Business actors in aquaculture and marine tourism are encouraged to adopt sustainable practices, such as integrated polyculture systems, modern production technologies, and innovations in feed and genetics, while strengthening collaboration with local communities and government agencies. Future studies are recommended to employ quantitative approaches to measure the effects of identified independent factors on sector sustainability and expand the research scope to other coastal regions in Indonesia to evaluate the applicability and generalizability of the developed model.

REFERENCES

Abdul-Shukor, S and Ng, GK (2022) , "Environmental indicators for sustainability assessment in edible oil processing industry based on Delphi Method," Cleaner Engineering and Technology , Vol. 10 No. 1, pp. 1-18, DOI: 10.1016/j.clet.2022.100558.

Alqahtani, AY. and Makki, AA. (2023), "A DEMATEL-ISM Integrated Modeling Approach of Influencing Factors Shaping Destination Image in the Tourism Industry", Administrative Sciences , Vol. 13 No. 9, 201334, https://doi.org/10.3390/admsci13090201

Amone-Mabuto, Mubai, M., Bandeira, S. (2023), "Coastal communities' perceptions on the role of seagrass ecosystems for coastal protection and implications for management", Ocean & Coastal Management , Vol. 244, 106811, https://doi.org/10.1016/j.ocecoaman.2023.106811

Brown-Webb, B., Nesamvuni, A.E., de Bruyn, M. (2022), “Assessing the Critical Success Factors for Aquaculture Enterprise Development in South Africa”, Technium Social Sciences Journal , Vol. 29 No. 1, pp. 438–457. https://doi.org/10.47577/tssj.v29i1.5927

Govender, M., Das, J., Paul, S. (2024), “Toward blue justice in blue growth: Insights from local discourses on coastal megaprojects in Bangladesh”, Ocean & Coastal Management , Vol. 269, 107766, https://doi.org/10.1016/j.ocecoaman.2025.107766

Johnson-Hall, TD and Hall, DC (2022), “Redefining Quality in Food Supply Chains via the Natural Resource Based View and Convention Theory”, Sustainability , Vol. 14, 9456, https://doi.org/ 10.3390/su14159456

Kurniati, R., Widjajanti, R., Dewi, SP. (2024)", "Coastal Area Sustainability: How do the Components Impact the Economy of Community?", International Review for Spatial Planning and Sustainable Development, Vol. 12 No. 2, pp. 293-317, https://doi.org/10.14246/irspsd.12.2_293

Lakshmi A. (2021), "Coastal ecosystem services & human wellbeing", Indian Journal of Medical Research , Vol. 153 No. 3, pp. 382-387, https://doi.org/10.4103/ijmr.IJMR_695_21

Olsen, AA, Wolcott, MD, Haines, ST (2021), "How to use the Delphi method to aid in decision making and building consensus in pharmacy education", Currents in Pharmacy Teaching and Learning , Vol. 13 No. 10, pp. 1376-1385, https://doi.org/10.1016/j.cptl.2021.07.018

Singh GG, Cottrell RS, Cisneros-Montemayor AM (2021), “Governing the Land-Sea Interface to Achieve Sustainable Coastal Development”, Frontier Marine Science, Vol. 8,

709947, https://doi.org/10.3389/fmars.2021.709947
Sumrit, D. (2024), "Pathway to achieve net-zero emissions in healthcare sector based on the natural resource-based view theoretical lens: A hybrid DEMATEL-ISM-MICMAC approach", Cleaner Engineering and Technology , Vol. 25, 100916, https://doi.org/10.1016/j.clet.2025.100916
Teymourifar, A. and Trindade, MAM (2023) , “Using DEMATEL and ISM for Designing Green Public Policies Based on the System of Systems Approach”, Sustainability , 15, 10765. https://doi.org/10.3390/ su151410765
Usha-Rani, K. and Padmaja B. (2024), "Aquaculture sustainability: Strategies for responsible growth and development. In Sustainable Innovations in Life Sciences: Integrating Ecology, Nanotechnology, and Toxicology", Deep Science Publishing, pp. 69-82, https://doi.org/10.70593/978-81-982935-0-3_8
Wang, X., Kim, J., Koh, Y. (2024), "Application of Natural-Resource-Based View to Nature-Based Tourism Destinations", Sustainability, Vol. 16 No. 6, 2375, https://doi.org/10.3390/su16062375
Wang, Y. and Yu, Z. (2025), “Assessing blue growth in coastal China: Spatio-temporal disparities and guidance for sustainable marine governance”, Ocean & Coastal Management , Vol. 270, 107880, https://doi.org/10.1016/j.ocecoaman.2025.107880
Weng, D. and Sun, W. (2023), “Tourism development influences on environmental quality: how does renewable energy use and income matter?”, Environmental Science and Pollution Research , Vol. 30, 87228–87241, https://doi.org/10.1007/s11356-023-28001-1
Zhang, H., Liu, Y., Li, J. (2023), "Evaluation and analysis of coastal complex ecological resilience based on multidimensional data: A case study of East China Sea", Ecological Indicators , Vol. 155, 110981, https://doi.org/10.1016/j.ecolind.2023.110981
Zuo, J., Zhang, L., Chen, B. (2023), "Assessment of coastal sustainable development along the maritime silk road using an integrated natural-economic-social (NES) ecosystem", Heliyon, Vol. 9 No. 6, e17440, https://doi.org/10.1016/j.heliyon.2023.e17440
Bell, J. D., Cisneros-Montemayor, A., Hanich, Q., Johnson, J. E., Lehodey, P., Moore, B. R., Pratchett, M. S., Reygondeau, G., Senina, I., & Virdin, J. (2018). Adaptations to maintain the contributions of small-scale fisheries to food security in the Pacific Islands. *Marine Policy*, *88*, 303–314.
Gul, S., Shafiq, U., Mir, S. A., Iqbal, G., & Lone, H. Q. (2024). Enhancing global food security through sustainable fisheries and aquaculture: A comprehensive review. *Asian Journal of Agricultural Extension, Economics & Sociology*, *42*(10), 60–70.
Kumaran, M., Ghoshal, T. K., De, D., Biswas, G., Raja, R. A., Anand, P. S., Panigrahi, A., & Vijayan, K. K. (2020). Aquaculture-based production systems for the livelihood security of coastal farm families in the risk-prone agro-ecosystem of India: an appraisal. *Aquaculture International*, *28*(2), 805–814.
Lauria, V., Das, I., Hazra, S., Cazcarro, I., Arto, I., Kay, S., Ofori-Danson, P., Ahmed, M., Hossain, M. A. R., & Barange, M. (2018). Importance of fisheries for food security across three climate change vulnerable deltas. *Science of the Total Environment*, *640*, 1566–1577.