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Environmental and Economic Prospect Analysis in the Development of the Blue Economy in Patutrejo Village

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Abstract
The blue economy has the principle of sustainable management in various sectors between the ocean and the coast. The blue economy emphasizes economic growth and frames the sea and coast as a space for development. This research aims to identify and analyze key variables in environmental and economic aspects in the development of the blue economy in Patutrejo Village, Purworejo Regency. This research uses a mix method approach to achieve research objectives with interviews and analysis using ISM (Interpretive Structural Modeling). The results of this research show that there are three blue economy sectors, including aquaculture, beach tourism and commodity processing. The research results indicate that water conservation and increasing opportunities for the tourism industry are key variables for developing the blue economy.

Keywords : Blue Economy, Sustainable, Environmental, Economic, Strategy

1. INTRODUCTION

Decent work and economic growth is one of the goals of SDGs (sustainable development goals) in sustainable development in the economic sector. Economic development can be carried out in various fields, one of which is in the maritime sector or known as the blue economy.One thing that is the goal of the SDGs is the conservation and use of the sea and its resources its power continue continuously as exists sustainable development. Indonesia has great opportunities and potential in developing a blue economy because it has a vast sea landscape. The blue economy has the principle of sustainable management in various sectors between the ocean and the coast. The blue economy emphasizes economic growth and frames the sea and coast as a space for development (Campbell et al., 2021). Blue environmental growth can be realized through blue growth that focuses on various maritime sectors and businesses. The highlights of the blue economy industry development prospects are the fields of fisheries, shipping, maritime tourism, renewable energy, aquaculture, sea-bed mining and marine biotechnology. (Maryam Khokhar, 2024).

World Bank defined the “Blue Economy” as “the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem. The World Bank’s definition is a comprehensive concept embracing multi-aspects of oceanic sustainability ranging from sustainable fisheries to ecosystem health and preventing pollution. Importantly, the definition itself requires collaboration across borders and sectors through various partnerships and stakeholders. Yet, different stakeholders will

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favour particular focuses or interpretations of the definition to meet their own purposes. It implies that some potential conflicts or problems may arise due to different stakeholders' preferences or interests. Blue economy focused on the developments of multiple-use platforms and new production techniques for a range of industries including aquaculture, marine renewable energy, tourism, recreation, and maritime transport.(Asmit et al., 2020)

Apart from development, the blue economy also contains the principles of formulating comprehensive economic and environmental protection policies with the aim of realizing sustainable development by promoting clean production and encouraging creative and innovative investment. (Nasution, 2022) The blue economy aims to create a circulation of economic development as well as guarantee sustainability and protection on biodiversity and the environment in the maritime sector. (Dhani Akbar et al., 2022)

Protecting oceans is not a luxury. It is a necessity that contributes to our economy, our climate and our way of life. Working together, we can change the current course and chart a sustainable future.(Spalding, 2016) The most critical challenge to managing coastal tourism in a sustainable manner is how to achieve a positive economic impact without negative effects of human activities on the resources of the coastal environment.(Sotiriadis & Shen, 2020)

Implementing the Blue Economy concept in an area has implications for aspects of prosperity in local communities. Locally based economic development emerged as a concept that focuses on utilizing the potential of local resources and increasing the role of the community, local government and institutional groups in the community as part of local institutions. (Siregar et al., 2024) Local institutions basically function to providing social services that are useful for the welfare of local communities through opportunities or collective action as an effort to fulfill needs.(Alim & Darwis, 2024)

Several previous studies have examined several blue economy initiatives in many countries, including providing some insight into blue economy initiatives. In addition, several studies emphasize the importance of data supporting the blue economy which includes governance to achieve various blue economy goals. Strategies and measures are needed to address the above outlined issues and challenges in order to achieve a sustainable tourism management in coastal zones.(Sotiriadis & Shen, 2020)

2. METHODS

The data collection method was carried out by involving five experts and actors in the development of the Maritime Tourism sector in Patutrejo Village, consisting of the Village Government represented by the Head of Patutrejo Village, tourism managers from local

tourism awareness groups and other supporting figures. Apart from conducting FGDs with respondents to breakdown the supporting elements of the blue economy, analysis was carried out using the Interpretive Structural Method to determine driven power. Governance theories and models were developed to describe the structural configuration of decision-making processes to achieve conservation, livelihood and sustainable development goals. (Partelow et al., 2020)

Governance for the development of blue economy potential includes many elements, each of which has dependencies. The elements used in this research are environmental and economic elements with the following breakdown:

Coding	Description	Source
Environmental Aspects		
L1	Environmental Conservation: a series of protection, preservation and sustainable use measures to prevent and minimize damage.	(Hindayani et al., 2021)
L2	Carrying capacity The ability of the environment to support activities	
L3	Environmental Quality Environmental conditions that can provide optimal carrying capacity for human survival in an area	
L4	Natural Resources Conservation management of biological natural resources whose utilization is carried out wisely	
L5	Threat of Disaster Natural occurrence, by-product of human activity or a combination of both	
Economic Aspects		
E1	Tourism Industry Opportunities tourism elements that are interrelated in order to fulfill tourists' needs in organizing tourism.	(Hindayani et al., 2021)
E2	Retribution levies imposed on visitors to tourist destinations	
E3	Citizen Income Income or potential income from the tourism sector for local communities	
E4	Entrepreneurship Identify opportunities and develop tourism products	
E5	Local Business	
E6	Willingness to Pay A person's willingness to pay for environmental conditions and natural services in order to improve environmental quality	
E7	Tourism Funding Allocation arranging and distributing financial resources for certain goals or activities in accordance with established priorities and needs	

3. RESULTS AND DISCUSSION

- Potential and Challenges of Blue Economy Development in Patutrejo Village

The blue economy in Patutrejo Village has the potential to be developed because of the favorable geographical conditions, it has a coastal landscape that can be used for marine tourism. requires integration and good planning of various elements to support blue economy development in the region. Even though the blue economy in Patutrejo Village has the potential to develop, it has several challenges. The factors that can influence blue economic growth in the region include:

1. There are no areas officially designated as significant marine conservation areas.
2. Access to marine tourism locations is not yet optimal to deal with the surge in visitors at certain events or on *peak season*
3. It has a beach with large waves, so it requires more supervision from tourism managers.
4. Management of local MSMEs has not been integrated optimally
5. There is still a need for empowering actions regarding marketing and management for tourism managers to support the development of the blue economy

- Blue Economy Development Element Structure

Government capacity and community support depend more on supporting environmental and economic conditions. Management

No.	Sector	Description
1.	Aquaculture	It is an activity of cultivating aquatic organisms. Aquaculture in Patutrejo Village is basically the practice of aquaculture in the form of seafood, namely shrimp.
2.	Beach Tourism	Beach tourism in Patutrejo Village is seen as a leading sector for blue economic development. Field observations show that the destination is equipped with supporting facilities such as games, public space, music entertainment, MSMEs, photo spots and educational tourism.
3.	Commodity Processing	Has a special product in the form of salt. The salt production location is used for educational tourism on salt making and health therapy facilities.

This research aims to identify two blue economy governance systems, namely environmental and economic elements through strategy. Blue economy governance is a road map for improving environmentally friendly management and sustainability through strategy.(Fisheries and Maritime Affairs & Sahid Sujiwo, 2023) Using the Structural Self-Interaction Matrix (SSIM), a contextual method for developing blue economy development strategies. The matrix functions as a determinant of specific power drivers to help develop the blue economy, priority strategies are interpreted through a structural hierarchy. The strategy must be manageable, and interlinked and proven methods can help

drive strong achievements for blue development. In addition, various natural problems are included from the beginning of this cycle because they can contribute to the proposed framework or industrial business continuity. (Maryam Khokhar, 2024) The matrix is prepared based on the opinions and recommendations of special experts in the field of managing blue economy potential in the marine tourism sector of Patutrejo Village which can be explained as follows:

Figure 1. Structural Model of Environmental Elements

	L1	L2	L3	L4	L5
L1		V	V	X	V
L2			V	V	V
L3				X	V
L4					X
L5					

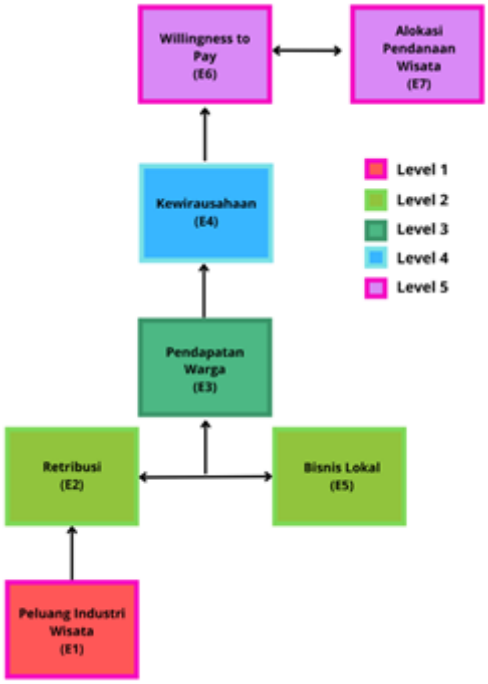
As can be seen in Figure 1, the environmental element of water conservation (L1) is a key element in the goal of sustainable blue economy governance. considered more priority and dominant compared to carrying capacity (L2), environmental quality (L3), and disaster threats (L5), marked with the code "V" in this relationship. This shows that environmental conservation actions are prioritized first to maintain carrying capacity, quality and mitigate disaster threats.

In the context of Interpretive Structural Modeling, hierarchy is a graphical representation of related elements, referring to elements that are organized and arranged

logically through a Structural Self-Interaction Matrix (SSIM) supported by a reachability matrix to determine direct and indirect influences between sub-elements. Sub-elements that have a high value will influence or be influenced by elements that have a lower value. Structural hierarchy aims to clarify and simplify the complexity of the relationships between elements and sub-elements in a system. The hierarchy is arranged based on the output of the Interpretive Structural Modeling program which has formed sub-elements at certain levels.(Intan Alicia & Prassetiyo, 2023)

Water conservation (L1) is a key variable in the Environmental element. This means that environmental conservation aspects have an important role as a basic strategy to support the successful implementation of other strategies. Water conservation efforts by determining pond zoning and controlling waste to reduce negative impacts on the environment and water sustainability. The success of water conservation is considered to be an attraction in itself and determines the next strategy stage, namely increasing supporting capacity in the form of master plan planning to improve infrastructure in tourist areas and improving the quality of tourism management and local supporting MSMEs. The next supporting strategy is natural resource conservation in the form of planting trees on the shoreline to reduce abrasion and support the attractiveness of tourist areas. The next strategy is disaster mitigation, related to the geographical condition of Patutrejo Village, which is coastal, has large waves, so disaster mitigation efforts are needed in the form of outreach and warnings to tourists as well as disaster evacuation training by related institutions.

Figure 2. Structural Model of Economic Elements



	E1	E2	E3	E4	E5	E6	E7
E1		V	X	V	X	V	V
E2			V	V	V	V	X
E3				V	A	A	A
E4					X	O	V
E5						V	V
E6							V
E7							

Tourism Industry Opportunities (E1) has high dominance over many elements, including levies (E2), entrepreneurship (E4), willingness to pay (E6), and tourism funding allocation (E7), indicating that tourism industry development opportunities are considered an important factor that can encourage overall tourism economic growth. Tourism industry opportunities are also as important (X) as the income of residents (E3) and local businesses (E5), indicating that the development of the tourism industry must be accompanied by an increase in the income of residents and local businesses. Tourism Industry Opportunities (E1). This is a key variable showing that the development of the tourism industry opens up opportunities for people to get involved in economic activities related to tourism. Beach tourism development factors are things that influence the development of beach tourism where there are potential elements that become drivers in the development of beach tourism. The tourism development factor is also a complete component in beach tourism, where the more complete the components in tourism will influence tourists to return to visit and cause a multiplier effect in the aspects of income, sales and employment. (Asmit et al., 2020)

4. CONCLUSION

Patutrejo Village has 3 blue economy commercial activities in the form of aquaculture, beach tourism and salt commodity processing. These activities require efficient management of environmental and economic elements, the goal of developing a blue economy is to preserve the condition of coastal and marine ecosystems while providing sustainable economic benefits.

Efficient governance is needed to develop a sustainable blue economy from environmental and economic aspects in this region with the right strategy. Strategy formulation can be done using the Interpretive Structural Method in formulating priority strategies for developing the blue economy. The research results indicate that Water Conservation (L1) is the driver power or key variable in environmental aspects. Meanwhile,

Tourism Industry Opportunities (E1) are the driver power or key variable in the economic aspect.

5. LIMITATION

This research uses two aspects of blue economy development, namely environmental aspects and economic aspects. The development of blue economy areas requires the integration of more aspects. For further researchers, it is expected to be able to analyze more aspects of blue economy development.

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