

OPPORTUNITIES AND CHALLENGES FOR UTILIZING THE SOCIAL POTENTIAL OF INFRASTRUCTURE TOWARD A BLUE ECONOMY



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Abstract

Since it first became popular around 2008, the blue economy has become an interesting topic in recent years. This principle is the future of water and sea-based economic governance. Geographically, Sijantung Village is located at 0°45'10.7"N 104°12'17.3"E and is one of the villages/sub-districts of Galang District, Batam City Government, Riau Islands Province. Sijantung Village consists of 12 islands. The area of Sijantung Village is approximately 39.62 Km². With the potential for social infrastructure and historical tourism potential (heritage), Sijantung Village deserves to be the center of attention of the Batam City Government in developing the Blue Economy, as an integral part of the Central Government as a city that has a vision and mission to create a civilized, modern and prosperous society. The Blue Economy concept is very appropriate to be developed in Sijantung Subdistrict to answer the challenges of local and global economic systems which tend to be exploitative and damage the environment due to excessive exploitation of natural carrying capacity. The Blue Economy is sustainable development and is a correction and enrichment of the Green Economy with the motto "Blue Sky - Blue Ocean" where the economy grows, society prospers, nature is protected, and the sky and sea remain blue.

Keywords: Opportunities, Challenges, Social Potential, Infrastructure

INTRODUCTION

Batam City has five large islands; Batam Island, with an area of 415 km² (41,500 Ha), Rempang Island, located 2.5 km to the Southeast of Batam Island, with an area of 165.83 km² (16,583 Ha), Galang Island, located 350 m to the Southeast of Rempang Island, with an area 80 km² (8,000 Ha), Galang Baru Island, Located 180 m to the South of Galang Island, with an area of 32 km² (3,200 Ha), Total Bareleng Area which is connected by bridge, Batam Island, Rempang, Galang and the surrounding islands have area of 715 km² (71,500 Ha), plus Bulan Island, located 2.5 km southwest of Batam Island, with an area of 100 km² (10,000 Ha). As an archipelago, Batam has a water/sea area of 318,298.28 Ha. Batam City has more than 400 (four hundred) islands, 329 (three hundred and twenty-nine) of which have been named, including the outermost and foremost islands in the country's border areas.

Sijantung Village is one of the villages/sub-districts in Galang District, Batam City, Riau Islands Province. Geographically, the Village is in the position 0°45'10.7"N 104°12'17.3"E Sijantung consists of 12 islands. The total area of Sijantung Village is less than more than 39.62 Km², 12 percent of the total area of Galang District, Agricultural Land Area 39.62 Km².

As a sub-district located on the coast, Sijantung is suitable for implementing development with the blue economy concept. The blue economy is a concept model for a development approach that does not over-exploit natural resources and the environment. The development model applied to the blue economy concept is economic practice for long-term sustainability by driving a low-carbon economy (Hampl, 2022).

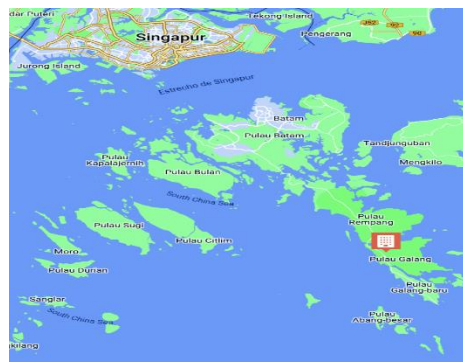


Figure. 1.

Map of Batam Island

The purpose of this research is to carry out a comprehensive analysis to explore the utilization of the potential that exists in Sijantung Village, Galang District, Batam City towards the blue economy is an integral part of Batam City's economic development:

1. Exploring the existing potential of Sijantung Village, Galang District as an implementation opportunity Blue Economy
2. Looking for answers to challenges from the existing potential of Sijantung Village, Galang District towards implementing the Blue Economy

This research aims to obtain data and map the potential of Sijantung Village, Galang District, aiming to determine strengths, weaknesses, opportunities, and threats. This analysis is intended to describe the situation that is currently being faced or that may be faced by the Batam City Government, especially the Sijantung sub-district, Galang District towards Implementation Blue Economy.

As an area far from the center of Batam city, Sijantung Subdistrict has problems in welcoming the Blue Economy, including:

1. Not yet mapped the potential in Sijantung Village, Galang District, Batam City in developing the Blue Economy
2. There has not been comprehensive development of Infrastructure Development in Sijantung Village, Galang District, Batam City in developing the Blue Economy

This is a challenge that must be resolved, especially in regional planning, if the potential has been mapped, and supported by infrastructure development, existing problems can be overcome by the Batam City Government so that the Sijantung sub-district, Galang sub-district can implement the Blue Economy.

RESEARCH METHOD

This research uses a qualitative description method where the author collects existing data through exploration, literature study, dialogue, and observation so that a detailed explanation of the topics discussed in this paper can be obtained. Furthermore, this research also uses the SWOT method. In this research, a description will be presented in a table regarding the potential of Sijantung Subdistrict as well as challenges in implementing

the Blue Economy obtained based on observation data in the field which according to the author has potential and then an analysis of strategic planning and solutions will be carried out. problems with SWOT regarding the potential.

RESULTS AND DISCUSSION

Blue Economy Definition

Even though it has been known as a new economic concept for quite some time, the definition of this concept continues to "change"/adapt in various countries (Patil et al., 2018). Several theories define the blue economy as follows:

- a. The blue economy is the concept of generating wealth from ocean-related activities while protecting and supporting marine ecosystems (Phelan et al., 2020);
- b. The blue economy was born from increasing worldwide interest in the growth of water/ocean-based activities (Graziano et al., 2019);
- c. The blue economy seeks to limit biodiversity loss while stimulating economic development, thereby integrating environmental protection and economic interests (Schutter & Hicks, 2019);
- d. The blue economy is a general idea of national development and can be integrated with land and sea-based socio-economic sustainable development (Kathijotes, 2013);
- e. The blue economy leads to commercial sustainable development of the oceans (Kaczynski, 2011);
- f. The blue economy is a new concept that encourages the use of a low-carbon economy so that it is able to minimize the interdependence between ecosystems and the economy and overcome negative impacts such as climate change and global warming which are the result of economic activities (Prayuda & Sary, 2019);
- g. The blue economy is the use of the sea and its resources for sustainable economic development (Bari, 2017).

From the several definitions of the blue economy above, it can be interpreted that the blue economy promotes sustainable marine economic development, and is usually described as a policy of increasing the three dimensions of marine use which are realized in

the sustainable development paradigm: social, environmental and economic simultaneously. This is in line with what was stated in the study (Patil et al. 2018).

Blue Economy in Indonesia

Indonesia is a maritime country. The term maritime country refers to a country that has a water area that is larger than its land area. Since it first became popular around 2008, the blue economy has become an interesting topic in recent years. This principle is predicted by many scientists as the future of water and sea-based economic governance. If you refer to Law Number 27 of 2007 concerning the Management of Coastal Areas and Small Islands. According to the law, the meaning of the blue economy is economic activities that occur in coastal areas or small islands.

Blue Economy-Based Development Planning

In simple terms, the blue economy is an activity that can produce results that will be owned and carried out by residents and are not limited by natural resources alone. The blue economy is not only limited to the fisheries and aquaculture sectors but can also be developed into tourism, transportation, and mining.

Starting from fisheries, renewable energy, tourism, water transportation, waste management, and climate change mitigation. If several of these sectors can be managed with a sustainable concept, then each of these sectors will certainly be able to help create a more prosperous country. From the definition and explanation of the Blue Economy concept, future development planning for the City of Batam must be directed at the Blue Economy concept, to maintain the health and sustainability of the sea, the blue economy can also open up investment opportunities, employment opportunities, and equal economic growth in the City of Batam

Blue Economy in Sijantung Village, Galang District, Batam

There are several ways to develop the Sijantung sub-district through the blue economy concept so that it can rise. The following are several ways that can be used to make the blue economy rise sustainably.



Figure 2.

Vio-Vio Beach Blue Tourism Potential

Making Existing Tourism Blue Tourism or Bluer

With tourism potential, the sub-district has three famous beaches; Mirota Beach, Melur Beach, and Vio-vio Beach, have heritage/historical tourism potential, have local wisdom tourism potential, all of this can be made bluer by referring to blue economy principles considering that global marine tourism is estimated to have a value of 390 billion US dollars as well as providing significant support to the country's GDP.

Avoid Overfishing and Increase Aquaculture

In contrast, marine natural resources increase quite significantly during difficult seasons. When humans can resist the urge to engage in excessive fishing activities, it turns out that it also has a significant positive impact on improving the ecosystem and fish breeding, alternatives to developing aquaculture become an option, such as ponds, floating cages, and so on.



Figure 3.

Example of a Floating Solar Cell

Renewable Energy

Blue economy sustainability is the concept of combining renewable energy from marine resources with a sustainable economic approach in the marine and fisheries sector. The potential for renewable energy in Sijantung sub-district is quite large, whether it is using the Sungai Gong Dam as a Floating Solar Cell area, using marine kinetic waves as an electricity generator and using sea plants as bio fuel / bio diesel and wind power plants.



Figure 4.
Sei Gong Dam

Maintaining the Existence of Marine Plants

If you look at it, currently only around 7.4 percent of the ocean can be protected. The existence of a marine park will provide many benefits for marine biodiversity and will be able to help increase the population of farmed fish which in turn will also provide other additional benefits such as sustainably increasing the blue fisheries sector, as well as in Sijantung the potential for seagrass beds and wild seaweed or seaweed cultivation quite promising to be developed.



Figure 5.
Seagrass (Endemic Shallow Marine Plant)

Utilizing the Sea to Meet Food Needs

The process of developing aquaculture or marine farming is expected to provide nutrition for local communities from vulnerable groups while minimizing the impact on the environment. Investments like this can take an example from the agricultural sector which is considered very environmentally friendly and able to improve nutritional status. This concept is quite well-developed in Sijantung .



Figure 6.

Seaweed (Endemic Shallow Marine Plant)

Digitalization of the Ocean

The Batam City Government needs to create a marine fisheries digitalization program in the city of Batam, especially in the Sijantung sub-district, which can help the marine industry in carrying out the data collection process which is very necessary in order to increase catches, enforce laws and protect species that are included in the endangered group. Electronic monitoring system based on Artificial Intelligence (AI), which can help fishermen. One way to accelerate the growth of the blue economy in Sijantung Village is to implement marine digitalization. Starting from Data Collection, Mapping, Seeding, Cultivation, Harvesting to Marketing marine products using computerization



Figure 7.

Digitalization of the Ocean (Accessing the Laut Nusantara Application before Fishing)

SWOT Analysis

The author conducted this research in Sijantung Village, Galang District, Batam City. The methodology used in this research is observation, qualitative descriptive, and SWOT analysis (strengths), weaknesses, opportunities, and threats. Observations are carried out to observe directly and collect information through existing monitoring. in the field and also see directly the structure of local community life, map the potential for supporting the Blue Economy, and analyze the strengths and weaknesses of the area then a study will be carried out from these observations. The following is a SWOT analysis regarding the implementation of blue economy principles in Sijantung Village, using the SWOT analysis method to analyze the opportunities and challenges of implementing the blue economy in the Sijantung sub-district including strengths, opportunities, weaknesses, and also threats that form the basis for evaluation. This analysis helps authors organize and utilize strengths, opportunities, weaknesses, and threats in organized data.

Research Result

Table 1.
SWOT Analysis

No	Potency	Strength	Weakness	Opportunit y	Challenge
1	Blue Tourism	The condition of resources for ecotourism. The beauty of the sea panorama that	Scattered land rubbish is mostly caused by tourists, many coral reefs and	The strategic location of tourist attraction, very	Lack of cleanliness in the area around tourist attractions, the

		<p>Bangsrin Beach in Banyuwangi has is a very dominant indicator as an attraction for tourists. Accessibility and good road conditions. Support from the community. Friendly and satisfying services and people will provide tourist comfort.</p>	<p>ornamental fish in the area are damaged and die due to being stepped on by tourists, the quality of human resources for tourism managers and activists is still relatively low, there are tourism products that have not been developed optimally, there is a lack of product socialization to traveler</p>	<p>beautiful underwater potential of Sijantung Beach, Developing ecotourism products that are different from other tourist attractions, Creating welfare for local communities , Many tourists from schools and agencies conducting marine education</p>	<p>occurrence of high wave seasons on the coast in certain months, damage to the coastal ecosystem, competition with other tourist attractions or beaches</p>
2	Aquaculture	<p>Sijantung Subdistrict has potential for fish cultivation, potential natural resources/suitability of cultivation locations, easy cultivation and low risk, acceptance of fish products on the market, availability of production infrastructure.</p>	<p>Does not have an independent hatchery, the quality of human resources for fishermen and fishermen groups is low, the quality of fish, distribution transportation facilities are limited, fish markets are still low, Batam does not yet have a fish auction place</p>	<p>Awareness and campaign for fish consumption and the nutritional value of fish, increased demand for fish, support from the Batam City government, in this case the marine fisheries department, safe and controlled environmental conditions</p>	<p>Access to Capital and Bank Credit, Increase in Prices of Feed and Cultivation Equipment, Business Competition with other Subdistricts/Other Regions</p>

3	Renewable Energy	Decentralized energy production, Zero Carbon emissions, Sustainable, Energy security	Insufficient network infrastructure, high capital/development costs, technological obstacles	Abundant renewable energy sources, expensive electricity price per kWh, creating new jobs	Slow regulations and policies by the Batam city government, electricity authority is a provincial matter, institutional capacity is inadequate, information dissemination is uneven
4	Plants / Marine Plants	High potential for marine plants/plants, many endemic marine plants such as seaweed, seagrass, and mangroves	There is no public awareness of cultivation and community culture	There is a Cut and Fill activity so that when the rain comes it brings sediment to the coast and makes the seawater murky and muddy. High sea waves and tornadoes cause coastal areas to sink, abrasion occurs,	Having a long enough coastline can be developed
5	Utilizing the Sea to Meet Food Needs	Sea in Sijantung Jernir Village (not yet polluted), potential for developing floating cages, aquaculture	Abrasion in water areas, changes in the ecosystem, damage to the habitat of various underwater plants and animals, due to human activities when cultivating	Needs continue to increase, Easy to do	Certain seasons of high waves, Pollution by international shipping

			seaweed haphazardly		
6	Digitalization of the Ocean	Digital, structured and standardized data handling is a key prerequisite for innovative solutions and processes,	Investment costs are one drawback	Structured digital enables accelerated execution times and data reuse and verification	In other countries/regions, expedition companies, customs brokers, and other logistics service providers have widely used electronic tools for planning, warehouse management, fleet management, customs declarations, and creating transportation or other documents.

CONCLUSION

The blue economy concept is a solution to the dynamic demands for services, the increasing living needs of people in the islands, especially Sijantung Village. Batam, which has a vast sea and water area, demands professional management and management mechanisms to provide new jobs, increase people's income, encourage food security, maintain marine quality, and ensure environmental sustainability. In addition, the development of island regions based on the blue economy stimulates the growth of new, more competitive economic sources. Through the blue economy, society and stakeholders are invited to increase economic growth and promote social justice.

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