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Analysis Of Transportation Infrastructure In Improving The Welfare Of The Bandar Sri Junjungan Dumai Ro-Ro Port Community

Salsa Bila Pitu Legiana¹, Ufira Isbah², Yelly Zamaya³

¹ Ilmu Ekonomi Prodi Ekonomi Pembangunan Universitas Riau, salsa.bila2466@student.unri.ac.id

² Ilmu Ekonomi Prodi Ekonomi Pembangunan Universitas Riau

³ Ilmu Ekonomi Prodi Ekonomi Pembangunan Universitas Riau

Corresponding Author: salsa.bila2466@student.unri.ac.id¹

Abstract: This research aims to identify the strengths and weaknesses of the existing transportation infrastructure, as well as the opportunities and threats faced in improving the welfare of the community around the port. This research was conducted with a descriptive analysis approach using SWOT to explore the experiences and views of the community around the Bandar Sri Junjungan Dumai Ro-ro Port. Based on the SWOT analysis, it shows that the port has strengths in the form of a strategic location that connects the Dumai region with various regions around the Malacca Strait. Opportunities that can be utilized for the development of transportation infrastructure at this port include increasing the capacity of the dock, developing logistics facilities and better road access, and utilizing digital technology to expedite port traffic management and monitoring systems. This port has considerable potential in supporting the welfare of the community around the port.

Keyword: Ports, transportation infrastructure, community welfare

INTRODUCTION

Indonesia is an archipelagic country that cannot be separated from sea transportation. Indonesia has several islands totaling 17,508 islands. Sea transportation encourages the movement of people and goods from one island to another to improve the economy of the Indonesian people. Sea transportation is used to connect islands that cannot be reached by air and land transportation. Sea transportation has become an alternative choice for Indonesian people.

One of the cities in Riau Province, Dumai City, which is located on the coast of East Sumatra Island, is the busiest city in several sectors, one of which is the sea transportation sector which is a place for people coming in and out from various regions (Ayu., 2023). Dumai has abundant natural resource potential and has a great opportunity to become the center of economic growth in the Sumatra region. The logistics sector is one of the backbones of the Dumai City economy. With good management and support from various parties, this sector can continue to develop and make a significant contribution to the welfare of the people of

Dumai. However, optimizing this potential is very dependent on the availability and quality of adequate transportation infrastructure.

Transportation infrastructure plays a crucial role in economic development and societal welfare. One significant type of infrastructure is ports, which function as key points in the distribution of goods and human mobility. Roro is the most popular transportation for people who want to travel who have to use sea transportation. One of the sea transportation tools used by the community is the Roro ship. Roro ships are a type of sea transportation for carrying passengers. Apart from passengers, the Roro ship also transports vehicles and goods such as motorbikes, buses, cars and trucks with a crossing duration of 45 minutes (Ayu 2023). Roro Port (Roll-on/Roll-off) Bandar Sri Junjungan in Dumai is one of the strategic ports in Indonesia, connecting the mainland with the surrounding islands. It is hoped that the existence of this port can improve connectivity between regions, facilitate the flow of goods and facilitate population mobility.

According to (Patmasar et al, 2024) Ports play an important role in managing the flow of products and information effectively and efficiently because this transportation node is very necessary. Bandar Sri Junjungan Ro-Ro Port is located on the east coast of Sumatra, this port has great potential to encourage local economic growth, increase accessibility, and facilitate trade activities and has an important role in supporting the economy of Riau Province, especially Dumai City. This port is like a gateway that connects Dumai with the outside world, both in terms of trade, transportation and tourism. The construction of the Bandar Sri Junjungan Dumai Port is a form of synergy between the Central Government and the Regional Government, where the operation of the pier and sea side is under the supervision of the Dumai KSOP Office, while the land side services are managed by BUMD PT. Dumai Berseri Harbor. In 2019 Bandar Sri Junjungan Port was chosen as the Dumai-Malaka Ro-Ro Port and during the implementation of the construction of the Bandar Sri Junjungan Ro-Ro international port in Dumai City there was pressure. Because it is hoped that the construction implementation can be completed in July 2024. With the availability of the Bandar Sri Junjungan Ro-Ro port, it is hoped that community entry and exit activities both to Malaysia and between regions will be smoother. Budi Karya Sumardi as Minister of Transportation said that Dumai port has great potential. However, the port's function has not been maximized. So he will call Pelindo to maximize the potential that exists at this port.

The condition of transportation infrastructure at Bandar Sri Junjungan Harbor continues to improve. Bandar Sri Junjungan Harbor is equipped with the construction of 2 (two) phontons for berthing/mooring facilities for 500 GT passenger ships. However, there are still many challenges that need to be overcome to make this port more modern, efficient, and able to compete with other ports in Indonesia.

However, even though the potential of Roro Bandar Sri Junjungan Harbor is quite large, there are still various challenges that hinder the optimization of transportation infrastructure at this location. Among these are problems in operational management, lack of supporting facilities, as well as environmental impacts that may arise. Apart from that, the welfare of people who depend on transportation accessibility is also a concern, because inadequate infrastructure conditions can have a direct impact on people's quality of life.

This condition raises questions about how existing transportation infrastructure can be utilized to improve community welfare. Good infrastructure not only makes it easier to access transportation, but can also create new job opportunities, support the development of local businesses, and increase access to basic services such as health and education. Therefore, it is important to analyze the factors that influence the transport infrastructure at this port.

The SWOT analysis method (Strengths, Weaknesses, Opportunities, Threats) is the right tool to evaluate this situation. Through SWOT analysis, this research aims to identify the strengths and weaknesses of existing transportation infrastructure, as well as the opportunities and threats faced in port development. By understanding these factors, we can formulate more

effective strategies to improve port infrastructure, which in turn can support community welfare.

It is hoped that this research can provide a clearer picture of the relationship between transportation infrastructure and the welfare of the community around Roro Bandar Sri Junjungan Port. With a descriptive approach, this research will explore the experiences and views of the community, as well as provide recommendations for developing better infrastructure. It is hoped that the results of this research can contribute to efforts to improve the quality of life of the community and economic development in the Dumai area.

Based on this background, the author moves to research the influence of transportation infrastructure in improving the welfare of the community around Roro Bandar Sri Junjungan Dumai Harbor using a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis approach by highlighting this in a research proposal entitled: "Infrastructure Analysis Transportation in Dumai City in Improving Community Welfare at Bandar Sri Junjungan Dumai Ro-Ro Port)"

METHOD

This research was carried out at Roro Bandar Sri Junjungan Harbor, Dumai, Riau. The selection of this location was based on the importance of the port as a strategic transportation point in the region, as well as its role in supporting community mobility and distribution of goods. This port is also a center of economic activity which can have a significant impact on the welfare of the surrounding community. Port address Jl. TPI, Pangkalan Sesai, Kec. Dumai Bar., Dumai City, Riau 28826. This research will be conducted for approximately three months starting from September to November 2024.

The population in this study includes users of transportation services at the port, port managers, and the surrounding community. Samples will be taken purposively involving 50 respondents from various backgrounds, including passengers, traders and port workers. The type of data used in this research is qualitative data, namely research that adheres to the phenomenological school, which focuses on scientific research activities by describing and understanding the social phenomena that are observed (Hardani et al, 2020:39). The data source used in this research is primary data, namely the main data taken and obtained directly through observations of phenomena or objects studied directly in the field, interviews and questionnaires with sources or informants around the port of Ro- Ro Sri Junjungan Dumai. Data is a collection of information needed for decision making. The data used in this research is data obtained through several techniques, namely:

Researchers will carry out direct observations at the location to observe the condition of infrastructure, operational activities at the port, as well as community interactions with existing facilities.

According to Sugiyono (2018:231) an interview is a meeting of two people to exchange information and ideas through questions and answers, so that meaning can be constructed on a particular topic. Interviews will be conducted with the community, service users and stakeholders to obtain information regarding their experiences regarding transportation infrastructure at the port, as well as its impact on their welfare.

The questionnaire will be designed to collect data about people's perceptions of transportation infrastructure and its impact on their well-being.

In this research, analysis of transportation infrastructure at Roro Bandar Sri Junjungan Dumai Harbor will be carried out using SWOT analysis and a descriptive approach. A descriptive approach is used to provide a clear picture of existing conditions and the relationship between transportation infrastructure and community welfare. The analysis technique used in this research is SWOT analysis. SWOT analysis is an analysis that systematically identifies various factors to formulate a strategy. SWOT is an analysis tool developed by Humphrey (2005) which is used to find the best strategy for making decisions

based on internal strengths and weaknesses as well as opportunities and challenges originating from external factors. SWOT analysis is used to evaluate internal and external factors that influence transportation infrastructure. The reasons researchers use SWOT analysis are:

1. Strength (Strength)

Identify positive aspects of existing transportation infrastructure, such as strategic port locations, operational efficiency, and government support. This helps in understanding the potential that can be utilized to improve community welfare.

2. Weaknesses

Analyze factors that are obstacles, such as limited facilities, lack of investment, or maintenance problems. By knowing these weaknesses, corrective steps can be formulated

3. Opportunities (Opportunities)

Identify opportunities that can be exploited for further development, such as increased connectivity with new routes, policy support, or local economic growth.

4. Threats

Analyze external factors that could hinder development, such as competition from other modes of transportation, regulatory changes, or environmental impacts

RESULTS AND DISCUSSION

SWOT Analysis Results in Transportation Infrastructure in Improving Community Welfare at the Bandar Sri Junjungan R0-Ro Port.

Internal Factor Analysis

The IFE (Internal Factor Evaluation) Matrix is a tool for evaluating and summarizing the main strengths and weaknesses of a company. The IFE matrix is used to determine the role of internal factors in the port. The following are the factors identified along with their weights and ratings: Tabel 4.1 Matriks IFE

Table 1

Internal Factors	Weight	Rating	Weight x Rating
Port Accessibility	0.15	4	0.60
Adequate port facilities	0.20	3	0.60
Sustainable Development Projects	0.25	4	1.00
Limited Support Facilities	0.10	2	0.20
Limitations in service management	0.15	3	0.45
Building Condition	0.15	3	0.45
Total	1.00		3.40

Based on the results of the analysis carried out through the data obtained, the following is an identification of the strengths and weaknesses of the transportation infrastructure at Roro Bandar Sri Junjungan Dumai Port.

1. Strengths

Analysis of the strengths, situations and conditions that are part of the port's current strengths. The results of the observations that the author has made at this port are the visible forces, including:

a. Port Accessibility

Roro Bandar Sri Junjungan Harbor is strategically located and easily accessible from various directions, facilitating the transportation of goods and passengers. This is

important to support connectivity between regions and countries, especially with international routes such as Dumai-Melaka which are being developed

b. Adequate Port Facilities

Facilities at the port include a passenger terminal, parking facilities and service office buildings which are adequate for Ro-Ro ship operations. This supports efficiency in passenger and goods services

c. Sustainable Development Project

The government is collaborating with PT. Pelindo is carrying out ongoing port facility improvement projects, including construction of a new passenger terminal which is expected to be completed in 2024. This shows the government's commitment to improving transportation infrastructure.

2. Weaknesses

Weakness analysis is a situation or condition that is a weakness of the port at this time. This is a way to analyze weaknesses in a port which are obstacles in the progress of the Bandar Sri Junjungan ro-ro port.

a. Limited Supporting Facilities

Even though the main facilities are adequate, there are several shortcomings in supporting facilities such as comfortable waiting rooms and sufficient toilets to accommodate the high number of visitors during moments such as group holidays, etc.

b. Limitations in Service Management

Service management at ports needs to be improved to ensure that all processes run smoothly, especially when passenger volumes increase. This includes queue management and more responsive customer service.

c. Building Condition

Some parts of the port infrastructure may require further maintenance to ensure user safety and comfort. Routine maintenance is very important to maintain optimal building conditions. So that port service users feel more comfortable.

Analisis Faktor Eksternal
The EFE (External Factor Evaluation) Matrix is a strategic management tool used to assess a company's external environment and identify opportunities and threats. The EFE Matrix can help companies respond to external variables that influence their growth and competitiveness.

Table 2 EFE

External Factors	Weight	Rating	Weight x Rating
Economic Growth Potential Around	0.20	4	0.80
Tourism Sector Development	0.15	3	0.45
Increased International Connectivity	0.25	4	1
Threats To Productivity	0.15	2	0.30
Climate Change	0.15	2	0.30
Compatibility With Other Ports	0.10	3	0.30
Total	1.00		3.25

Based on the results of the analysis carried out through the data obtained, the author will identify opportunities and threats that exist in the external environment, including market potential, government policies, and competition with other ports.

1. Opportunities

Opportunity analysis is a situation or condition that is an opportunity outside the port and provides opportunities for the development of the port in the future.

a. Potential for Economic Growth in the Area

Roro Port has a strategic position close to economic centers such as Singapore and Johor. This opens up opportunities to increase trade and the flow of goods between Indonesia and neighboring countries.

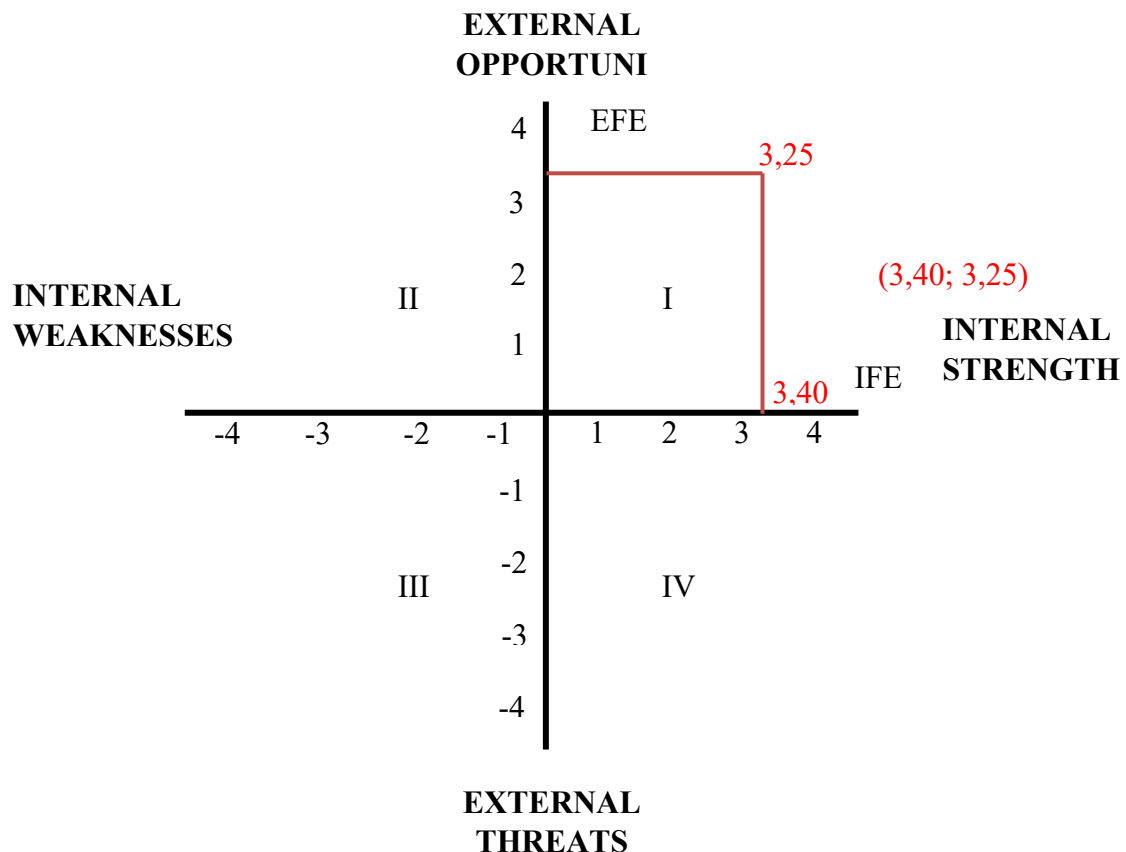
- b. Tourism Sector Development
With the plan to build a Dumai-Melaka ferry port, the potential for developing the tourism sector becomes even greater. This can attract more tourists to the area and increase local income.
- c. Increased International Connectivity
The planned Dumai-Melaka ferry port construction project can strengthen international trade relations and facilitate access to foreign markets, which has the potential to increase the volume of exports and imports

2. Threats

Obstacles experienced by the Bandar Sri Junjungan ro-ro port.

- a. Threats to Productivity
Uncertainty in government policies regarding maritime transportation can pose a threat to port productivity. Changes in regulations or policies that do not support port development can hamper operational growth.
- b. Climate Change
The threat of climate change, such as rising sea levels and extreme weather, can affect port operations and existing infrastructure. This can also disrupt shipping routes and ship safety
- c. Competition with Other Ports
Other ports such as Tanjung Priok and Batam have more modern and efficient facilities. This competition could threaten the attractiveness of Roro Port for service users, especially if there are no improvements in infrastructure and services.

Discussion of SWOT Analysis in Transportation Infrastructure in Improving Community Welfare at the Bandar Sri Junjungan R0-Ro Port



Based on the results of the 4-Quadrant SWOT analysis that the author has processed, it can be seen that the position of Bandar Sri Junjungan Ro-ro Port in improving community welfare is in quadrant I position, namely the value of internal factors (3.40) and the value of external factors (3.25). It can be concluded that the position of Peabuhan Ro-ro Bandar Sri Junjungan in improving community welfare has a very good response to internal and external factors. This position suggests strategies for maintaining and sustaining existing forces while enhancing responses to external threats.

From the explanation that has been given by the author regarding the analysis of internal and external factors faced by ports. There are 4 strategies in analyzing supporting and inhibiting factors for implementation in improving port quality in improving community welfare, namely

S-O Strategy (Strengths-Opportunities)

To create opportunities for Bandar Sri Junjungan Ro-Ro Port to improve community welfare, strategies can be implemented by maximizing the potential of port transportation infrastructure. One way is to improve transportation connectivity, such as developing new routes that connect remote areas to economic centers, which in turn will facilitate community mobility and distribution of goods. Apart from that, the construction of supporting facilities such as tourist information centers and recreation areas around ports is also important to develop the tourism sector. This can encourage an increase in regional income as well as open up job opportunities for residents around the Bandar Sri Junjungan Dumai Ro-ro Port.

W-O (Weaknesses-Opportunities) Strategy

The strategy implemented is to reduce existing weaknesses, as well as turn them into opportunities to improve the welfare of communities around the port, including by improving port infrastructure. One way is to build better docks, including building new docks that have a larger capacity to accommodate more ships, as well as speeding up the loading and unloading process. This development can also provide employment opportunities for the community around the port, which in turn can increase their income and create prosperity around the Ro-ro Port of Bandar Sri Junjungan.

S-T Strategy (Strengths-Treats)

This strategy is implemented by utilizing existing strengths to reduce the various threats faced. Bandar Sri Junjungan Ro-ro Port needs to utilize the latest information technology to increase operational efficiency. The construction of the Dumai-Malacca route that has been carried out also contributes to improving the standards and connectivity of the Bandar Sri Junjungan Ro-ro Port.

W-T Strategy (Weaknesses-Treats)

This strategy is implemented to overcome weaknesses and minimize existing threats. Ports need to develop mitigation plans to deal with the impacts of climate change, such as by building infrastructure that is resistant to extreme weather. Apart from that, it is important for the port to involve the community in planning and monitoring port operations, so that they can also feel the benefits of the economic activities developing around the Bandar Sri Junjungan Dumai Ro-ro Port.

Table 3 SWOT Matrix

Internal Ekternal	Strength	Weakness
Opportunity	Maximizing the potential of port transport infrastructure. One of them is by	Building better docks, including the construction of new docks that have greater

	improving transport connectivity, such as developing new routes connecting remote areas to economic centers, which in turn will facilitate people's mobility and distribution of goods. In addition, the construction of supporting facilities such as tourist information centers and recreation areas around the port is also important to develop the tourism sector. This can encourage an increase in local income as well as open up job opportunities for residents around the Port of Ro-ro Bandar Sri Junjungan Dumai	capacity to accommodate more ships, as well as speeding up the loading and unloading process. This development can also provide employment opportunities for people around the port, which in turn can increase their income and create prosperity around the Port Ro-ro Bandar Sri Junjungan.
Threat	Ro-ro Port Bandar Sri Junjungan needs to utilize the latest information technology to improve operational efficiency. The construction of the Dumai-Malacca route has also contributed to improving the standards and connectivity of the Bandar Sri Junjungan Ro-ro Port.	Develop mitigation plans to deal with the effects of climate change, such as by building infrastructure that is resistant to extreme weather. In addition, it is important for the port to involve the community in the planning and supervision of port operations, so that they can also benefit from the growing economic activity around the Port of Ro-ro Bandar Sri Junjungan Dumai.

CONCLUSION

Based on research that has been carried out regarding the analysis of transportation infrastructure at the Ro-ro Port of Bandar Sri Junjungan Dumai, it can be concluded that:

The port has one of its strengths, one of which is its strategic location which connects the Dumai area with various areas around the Malacca Strait. The infrastructure owned by the port is relatively in good condition, the ro-ro transportation system is adequate, as well as support from the government in developing transportation infrastructure to support the smooth mobility of goods and people.

Weaknesses in transportation infrastructure at this port include limited capacity in several facilities, such as dock areas and parking areas, which sometimes causes congestion and reduced operational efficiency. Apart from that, limited road access to the port is not yet optimal, as well as a lack of supporting facilities such as waiting rooms and other public facilities are also problems.

Opportunities that can be exploited for developing transportation infrastructure at this port include increasing dock capacity, developing logistics facilities and utilizing digital technology to streamline port traffic management and monitoring systems. Apart from that, with the potential for regional economic growth, the development of the tourism and industrial

sectors can also accelerate the development of transportation infrastructure. Threats that could hamper the development of transportation infrastructure at this port include climate change which could damage facilities, as well as competition with other ports in similar areas. In addition, a lack of coordination between various government agencies and the private sector can slow down the development process. The influence of transportation infrastructure on the welfare of communities around ports is very significant. Good infrastructure facilitates the mobility of goods and people, which contributes to improving the local economy, employment, and improving people's quality of life through better accessibility to various services and basic needs.

Based on the conclusions above, there are several suggestions for improving transportation infrastructure and improving the welfare of the people living around the Ro-ro Port of Bandar Sri Junjungan Dumai, namely as follows: Expansion and modernization of port facilities, such as docks and maintaining greater cleanliness around the port to maintain the comfort of port service users and increase operational efficiency. Increasing the capacity and quality of human resources involved in port management and operations so that they are more professional and skilled in managing existing transportation infrastructure. Increased coordination between the government and the private sector to maximize investment potential in infrastructure development, as well as involving the community in planning and monitoring development. Utilization of digital technology to simplify management and reporting processes, thereby increasing port operational efficiency and minimizing bureaucratic obstacles. Increase public awareness regarding the benefits of good transportation infrastructure, so that it can maximize the positive impact on community welfare, including in the economic, social and educational sectors

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