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PREPARATION OF FEASIBILITY STUDY FOR THE DEVELOPMENT OF BALOBALOANG LOMPO PORT IN PANGKAJENE ISLANDS REGENCY, SOUTH SULAWESI PROVINCE, FISCAL YEAR 2022

Zainul Aris Hasibuan[1]
Dyah Ersita Yustanti[2]
Universitas 17 Agustus 1945 Jakarta, Indonesia
Email: arishasibuan32@gmail.com, dyustanti@yahoo.com
*Corespondence: arishasibuan32@gmail.com

Abstract: This study aims to prepare a feasibility study for the development of Balobaloang Lompo Port in Pangkajene Islands Regency, South Sulawesi Province. The objective is to evaluate the potential and consider important factors in port development, including economic, social, environmental, and technical analyses. The research methodology involves field surveys, primary and secondary data collection, as well as quantitative and qualitative analysis. The gathered data will be used to identify development needs and opportunities for the port, as well as assess their impact on various related aspects. The findings of this study will provide a comprehensive understanding of the feasibility of developing Balobaloang Lompo Port. The study will consider various factors, such as environmental sustainability, economic contributions, social benefits, and existing infrastructure readiness. The feasibility study is expected to serve as a guide for the government, financial institutions, and other stakeholders in making decisions regarding the development of Balobaloang Lompo Port. With comprehensive information and careful analysis, it is anticipated that the port development can be carried out effectively and sustainably, while maximizing benefits for the local community and the surrounding region.

Keywords: Feasibility Study, Lompo Port, Fiscal Year

INTRODUCTION

In order to support and prepare for the construction of a good port and meet the requirements for the operation of ships safely, safely and smoothly, a study is needed that is able to provide a more comprehensive picture of the feasibility of several aspects that are considered important before the start of the construction of the port. In addition, the Regulation of the Minister of Transportation Number PM 112 of 2017 concerning Guidelines and Planning Process in the Environment of the Ministry of Transportation mandates the implementation of a Feasibility Study as one of the requirements for the development of a transportation infrastructure, including in this case ports, the Directorate General of Sea Port Development Sea Transportation needs to conduct a Feasibility Study for Sea Port Development**.**

Pangkajene and Islands Regency is part of South Sulawesi Province with an area of 12,362.73 km2 for a sea area of 11,464.44 km2 and a land area of 898.29 km2 with a total of 13 sub-districts, of which 9 sub-districts are located in the mainland area and 4 sub-districts are located in the archipelago area and 38 kelurahan. In order to increase shipping for the economic growth of people in remote and underdeveloped areas, especially in the Pangkajene Regency and Islands area, the main cause of the problem is the lack of infrastructure facilities and infrastructure in the field of transportation, especially ports. With the construction of ports on small islands, it is hoped that it can be a means to open access to isolated areas between islands / regions and can improve services for the economic growth of people in remote and underdeveloped areas, especially in Pangkajene Regency and Islands.

Balobaloang Lompo Island has been visited by the Pioneer Ship with the route R-60 Pangkalan Makassar with KM Ships. Nusantara Belt 66 and route R-21 Pangkalan Bima with KM Ships. Amukti Palapa. In addition to using the Pioneer Ship, the community also usually uses fishing boats to get to Balobaloang Besar Island from Makassar City or from Maccini Baji Port to go to the capital of Pangkajene Regency and Islands. The unavailability of ship berthing facilities on Balobaloang Lompo Island resulted in passenger boarding and unloading activities and loading and unloading goods from the ship experiencing difficulties and did not support the safety and security of passengers. Currently, passenger and loading and unloading activities from pioneer ships are carried out *ship to ship* in open water. Passenger boarding and unloading activities and loading and unloading goods from/to pioneer ships through small boats (fishing boats) from/to the mainland of Balobaloang Lompo Island. With current conditions, the people of Balobaloang Lompo Island and its surroundings expect the construction of docking facilities (piers) on Balobaloang Lompo Island to improve safety and security for passenger and loading and unloading activities.

Referring to the Decree of the Minister of Transportation Number KP 432 of 2017 concerning the National Port Master Plan, the location plan of

Balobaloang Lompo Port is listed in annex A2 (location plan) with the Local Port (PL) hierarchy. The construction of Balobaloang Lompo Port serves to open the isolation of areas in separate islands, as well as facilitate access, mobility of residents towards the creation of connectivity between villages, districts and cities in Pangkajene Regency and Islands.

In connection with the Balobaloang Lompo Port development plan, the Regent of Pangkajene and Islands requested the Ministry of Transportation to be able to prioritize the construction of docks/sea ports on Balobaloang Island, Liukang Tangaya District in accordance with the Letter of the Regent of Pangkajene and Islands Number 552.2/16/DISHUB dated February 19, 2020 regarding the proposed Balobaloang Lompo Island Sea Port Development. The Feasibility Study of Balobaloang Lompo Port Development of Pangkajene Regency and Islands aims to determine the current conditions of port development in alternative locations of Balobaloang Lompo Port based on spatial, social, economic, financial, environmental, and technical aspects of the port.

METHOD

The location of the Feasibility Study for the Development of Balobaloang Lompo Port is located in Liukang Kalmas District, Pangkajene Regency and Islands, South Sulawesi Province. For more details, the location of the Feasibility Study for the Construction of Balobaloang Lompo Port can be seen in the picture below. The method used is Literature Study: Conducting studies and analysis of related literature, including previous studies on port development, regional potential, government policies related to port development, and relevant technical and economic aspects.

RESULT AND DISCUSSION

Economic and Financial Feasibility Analysis

Investment Cost Analysis

The estimated cost of building Balobaloang Lompo Port includes the cost of building and revitalizing the aquatic environment to support shipping activities. All work is divided into 3 (three) important components, namely Preparatory Work, Marine Facility Work, and Land Facility Work.

The basic cost of construction is the cost required directly for the implementation of the construction of Balobaloang Lompo Port. The cost of each work item is obtained from the estimated unit price of work and lump sum for certain types of work. Other detailed components with more accurate analysis will be presented in the "*Detail Engineering Design*" work. The estimated budget needs for the construction of Balobaloang Lompo Port can be seen in the following table.

Table 1 Indication of Investment Cost Requirement Plan in Each Location Alternatif

No	Types of Jobs	Alt 1	Alt 2	Alt 3	Alt 4
1	Preparatory Work	478.912.500	478.912.500	478.912.500	478.912.500
2	Dock Works	65.512.434.055	73.171.589.270	61.891.742.498	118.987.263.194
3	Compaction Work	200.000.000	200.000.000	200.000.000	200.000.000
4	Pavement & Parking	3.121.336.442	3.121.336.442	3.121.336.442	3.121.336.442
5	Operational Buildings	1.336.500.000	1.336.500.000	1.336.500.000	1.336.500.000
6	Supporting facilities	3.282.423.202	3.282.423.202	3.282.423.202	3.282.423.202
7	Guard posts, gates and harbor fences	275.000.000	275.000.000	275.000.000	275.000.000
Total Investment		**74.206.606.198**	**81.865.761.413**	**70.585.914.642**	**127.681.435.337**

Source : Analysis Results 2022

Economic Feasibility Analysis

Economic Analysis on each alternative location, which is as follows.

Alternative 1

ECONOMIC ANALYSIS				
Total Investment Value	Rp 74.206.606.198,15			
Parameters Sequence :	**Result**			
Benefit Cost Ratio (**BCR**)	**1,00**		**2,50**	**Layak Ekonomi**
Net Present Value (**NPV**)	**-**	**Rp**	**470.325.149.365**	**Layak Ekonomi**
Internal Rate of Return (**IRR**)	**13%**		**24,78%**	**Layak Ekonomi**
Discount Rate	**12%**		**12%**	
Bank Interest	**13%**			

Alternatif 2

ECONOMIC ANALYSIS				
Total Investment Value	Rp 81.865.761.413,37			
Parameters Sequence :	**Result**			
Benefit Cost Ratio (**BCR**)	**1,00**		**2,48**	**Layak Ekonomi**
Net Present Value (**NPV**)	**-**	**Rp**	**470.325.149.365**	**Layak Ekonomi**
Internal Rate of Return (**IRR**)	**13%**		**24,56%**	**Layak Ekonomi**
Discount Rate	**12%**		**12%**	
Bank Interest	**13%**			

Alternatif 3

ECONOMIC ANALYSIS				
Total Investment Value	Rp 70.585.914.641,86			
Parameters Sequence :	**Result**			
Benefit Cost Ratio (**BCR**)	**1,00**		**2,51**	**Layak Ekonomi**
Net Present Value (**NPV**)	**-**	**Rp**	**470.325.149.365**	**Layak Ekonomi**
Internal Rate of Return (**IRR**)	**13%**		**24,88%**	**Layak Ekonomi**
Discount Rate	**12%**		**12%**	
Bank Interest	**13%**			

Alternatif 4

ECONOMIC ANALYSIS				
Total Investment Value	Rp 127.681.435.337,16			
Parameters Sequence :	**Result**			
Benefit Cost Ratio (**BCR**)	**1,00**		**2,35**	**Layak Ekonomi**
Net Present Value (**NPV**)	**-**	**Rp**	**470.325.149.365**	**Layak Ekonomi**
Internal Rate of Return (**IRR**)	**13%**		**23,21%**	**Layak Ekonomi**
Discount Rate	**12%**		**12%**	
Bank Interest	**13%**			

Based on the results of the economic feasibility analysis, the 4 alternative locations **are economically feasible** or can help the economy of the people of Balobaloang Village and Pangkajene Islands Regency.

Financial Feasibility Analysis

Financial feasibility analysis of each alternative location, which is as follows.

Alternatif 1

FINANCIAL ANALYSIS.			
Total Investment Value	Rp 74.206.606.198,15		
Parameters Sequence :	Result		
Benefit Cost Ratio (BCR)	1,00	0,00	Tidak Layak Finansial
Net Present Value (NPV)	-	Rp (78.614.287.764)	Tidak Layak Finansial
Pay Back Period (PBP)	20	> 20	Tidak Layak Finansial
Internal Rate of Return (IRR)	13%	5,99%	Tidak Layak Finansial
Discount Rate	11%	11%	
Bank Interest	13%		

Alternatif 2

FINANCIAL ANALYSIS.			
Total Investment Value	Rp 81.865.761.413,37		
Parameters Sequence :	Result		
Benefit Cost Ratio (BCR)	1,00	0,00	Tidak Layak Finansial
Net Present Value (NPV)	-	Rp (86.740.244.616)	Tidak Layak Finansial
Pay Back Period (PBP)	20	> 20	Tidak Layak Finansial
Internal Rate of Return (IRR)	13%	5,99%	Tidak Layak Finansial
Discount Rate	11%	11%	
Bank Interest	13%		

Alternatif 3

FINANCIAL ANALYSIS.			
Total Investment Value	Rp 70.585.914.641,86		
Parameters Sequence :	Result		
Benefit Cost Ratio (BCR)	1,00	0,00	Tidak Layak Finansial
Net Present Value (NPV)	-	Rp (74.772.926.343)	Tidak Layak Finansial
Pay Back Period (PBP)	20	> 20	Tidak Layak Finansial
Internal Rate of Return (IRR)	13%	5,99%	Tidak Layak Finansial
Discount Rate	11%	11%	
Bank Interest	13%		

Alternatif 4

FINANCIAL ANALYSIS.			
Total Investment Value	Rp 127.681.435.337,16		
Parameters Sequence :	Result		
Benefit Cost Ratio (BCR)	1,00	0,00	Tidak Layak Finansial
Net Present Value (NPV)	-	Rp (135.348.241.056)	Tidak Layak Finansial
Pay Back Period (PBP)	20	> 20	Tidak Layak Finansial
Internal Rate of Return (IRR)	13%	5,99%	Tidak Layak Finansial
Discount Rate	11%	11%	
Bank Interest	13%		

Based on the results of the financial feasibility analysis, the location is not **financially feasible** or can be interpreted as not business-viable.

Environmental Feasibility Analysis

Existing Port Activities and Physical Conditions

The location of Alternative 1 (South Location in RT 02) and Alternative 3 (North Location in RT 04) is the Cultivation Area, so it can be said to be feasible for port development. However, for the location of Alternative 2 (East Location in RT 03) and Alternative 4 (West Location in RT 04) are Protected Areas so coordination with the Regional Government is needed to use this area as a port.

Table 1 Existing Land Use in Alternative Location of Balobaloang Lompo Port

No	Alternative Locations	Physical Conditions of Land Use
1	Alternatif 1 Lokasi Selatan di RT 02	• Based on the RTRW, South Sulawesi Province has a designation of Settlement Areas (Kawasan Budi Daya), while the RTRW of Pangkajene and Islands Regency has a designation of Plantation Areas (Kawasan Budi Daya). • The existing condition is in the form of a fairly dense community settlement, close to Worship Facilities, Health Facilities, and Village Offices. • There is already a BM point and anchor berth for the pioneer ship R-21.
2	Alternatif 2 Lokasi Timur di RT 03	• Based on the RTRW, South Sulawesi Province has a designation of Local Protected Areas in the form of Beach Borders (Protected Areas), while the RTRW of Pangkajene and Islands Districts has a designation of Plantation Areas (Budi Daya Areas). • Existing conditions are in the form of coconut plantations and a few settlements. • Anchor berth of the pioneer ship R-60.
3	Alternatif 3 Lokasi Utara di RT 04	• Based on the RTRW, South Sulawesi Province has an Agricultural Area designation (Budi Daya Area), while the RTRW of Pangkajene and Islands Regency has a Plantation Area designation (Budi Daya Area). • Existing conditions are in the form of coconut plantations and a few settlements. • There is already a wooden pier.
4	Alternatif 4 Lokasi Barat di RT 04	• Based on the RTRW, South Sulawesi Province has a designation of Local Protected Areas in the form of Beach Borders (Protected Areas), while the RTRW of Pangkajene and Islands Districts has a designation of Plantation Areas (Budi Daya Areas). • Existing conditions are in the form of coconut plantations and a few settlements.

Source: Regional Regulation of South Sulawesi Province Number 3 of 2022 concerning Regional Spatial Plan of South Sulawesi Province of 2022-2041 and Regional Regulation of Pangkajene and Islands Regency Number 8 of 2012 concerning Regional Spatial Plan of Pangkajene Regency and Islands

Social Conditions of Population

All alternative locations are on Balobaloang Besar Island, which has a population of 820 people with 221 families in 2021. The population conditions in 4 (four) alternative locations can be seen in the table below.

Table 2 Population Conditions in Alternative Location of Balobaloang Lompo Port

No	Alternative Locations	Population
1	Alternative 1	The population is 820
2	Alternative 2	The population is 820
3	Alternative 3	The population is 820
4	Alternative 4	The population is 820

Source: Balobaloang Village Office, 2022

Conditions of Public Facilities and Main Infrastructure Support

The condition of public facilities and main infrastructure support at each alternative location of Balobaloang Lompo Port is described in the following table.

Table 3 Conditions of Public Facilities and Main Infrastructure Support at the Alternative Location of Balobaloang Lompo Port

No	Alternative Locations	Overview of Public Facilities and Main Infrastructure Support
1	Alternatif 1 (Lokasi Selatan di RT 02)	• There is a footpath as an external access road in the form of cement / paving (width ±2 m); • Vehicles on Balobaloang Island are large, there are only two-wheeled vehicles and there is no public transportation; • There are health facilities in the form of auxiliary health centers; • There are educational facilities in the form of kindergarten, elementary, and junior high schools; • There are worship facilities in the form of mosques; • The electricity network only runs for 4 hours from 18:00-22:00 WITA where this electricity facility uses diesel power and is divided per house only gets 1 amper; • Clean water network almost every house has wells and water reservoirs to collect rainwater; and • There is no cell phone or landline network, but there is a wifi network owned by the community and rented to the community that only lights up according to electricity.
2	Alternatif 2 (Lokasi Timur di RT 03)	• There are footpaths as access roads in the form of dirt and some are almost eroded by abrasion; • Vehicles on Balobaloang Island are large, there are only two-wheeled vehicles and there is no public transportation; • There are health facilities in the form of auxiliary health centers; • There are educational facilities in the form of kindergarten, elementary, and junior high schools; • There are worship facilities in the form of mosques; • The electricity network only runs for 4 hours from 18:00-22:00 WITA where this electricity facility uses diesel power and is divided per house only gets 1 amper; • Clean water network almost every house has wells and water reservoirs to collect rainwater; and • There is no cell phone or landline network, but there is a wifi network owned by the community and rented to the community that only lights up according to electricity.
3	Alternatif 3 (Lokasi Utara di RT 04)	• There is an access road in the form of cement/paving (width ±2 m); • Vehicles on Balobaloang Island are large, there are only two-wheeled vehicles and there is no public transportation; • There are health facilities in the form of auxiliary health centers; • There are educational facilities in the form of kindergarten, elementary, and junior high schools; • There are worship facilities in the form of mosques; • The electricity network only runs for 4 hours from 18:00-22:00 WITA where this electricity facility uses diesel power and is divided per house only gets 1 amper;

No	Alternative Locations	Overview of Public Facilities and Main Infrastructure Support
		• Clean water network almost every house has wells and water reservoirs to collect rainwater; and • There is no cell phone or landline network, but there is a wifi network owned by the community and rented to the community that only lights up according to electricity.
4	Alternatif 4 (Lokasi Barat di RT 04)	• There is an access road that does not yet have pavement (soil); • Vehicles on Balobaloang Island are large, there are only two-wheeled vehicles and there is no public transportation; • There are health facilities in the form of auxiliary health centers; • There are educational facilities in the form of kindergarten, elementary, and junior high schools; • There are worship facilities in the form of mosques; • The electricity network only runs for 4 hours from 18:00-22:00 WITA where this electricity facility uses diesel power and is divided per house only gets 1 amper; • Clean water network almost every house has wells and water reservoirs to collect rainwater; and • There is no cell phone or landline network, but there is a wifi network owned by the community and rented to the community that only lights up according to electricity.

Source: Survey Results, 2022

CONCLUSION

The conclusions that can be drawn from the feasibility study activities for the development of Balobaloang Lompo Port, Pangkajene Regency and the Islands of South Sulawesi Province are as follows:

1. **Study of Spatial Aspects**

   Balobaloang Lompo Port has been listed in the National Port Master Plan (RIPN) in sub-annex A-2, namely the port location plan. Based on the Regional Spatial Plan (RTRW) of South Sulawesi Province which has been integrated with the Zoning Plan for Coastal Areas and Small Islands (RZWP3K) of South Sulawesi Province, Balobaloang Lompo Port has been listed and its hierarchy is in accordance with RIPN, while the water area of Balobaloang Lompo Island is a Conservation Area, but there is a use of conservation areas in the indication of conditional allowed zoning directives for sea ports and sea shipping lanes. In the RTRW of Pangkajene Regency and Islands, Balobaloang Lompo Port has not been listed, but has been accommodated in the revised RTRW and its hierarchy is in accordance with RIPN. Furthermore, in the pre-feasibility study, Balobaloang Lompo Port was not included in the *shortlist*.

2. **Technical Aspect Study**

   The topographic characteristics of the four alternative locations of Balobaloang Lompo Port are relatively flat with an elevation of 1-3.6 meters. From the water side to reach a depth of -5 mLWS alternative location 4 (West) has the farthest distance, which is ±800 meters. Road accessibility is available in all alternative locations but only alternative 1 (South) and alternative 3 (North) have cement pavement, while 2 (two) other alternative road access

locations do not have pavement (in the form of soil / sand). There are wave problems at the four alternative locations, so the port operational time is <6 months a year. Current conditions for the four alternative locations are low, namely the largest 0.30 m/s in alternative location 3 (North) and alternative location 4 (West), while for the other 2 (two) alternative locations have a current speed of 0.10 m/s. Tidal conditions were a double mix of 2.38 meters high for all four alternate locations.

3. **Study of Economic, Financial and Development Cost Aspects**

   Based on the results of the analysis of cargo demand for ports, there are several commodities from plantations and fisheries produced in the *hinterland region* and have the potential to export out of the island.

   The estimated investment needed, including for construction and procurement of equipment and other facilities needed by Balobaloang Lompo Port, is calculated based on the initial plan of port construction so that construction costs are obtained. For economic analysis, the BCR value produced is more than 1, so the construction of Balobaloang Lompo Port is economically feasible with an EIRR value of >24%. While financial analysis, the FIRR value produced is 5.99% for the four locations, so financially the construction of Balobaloang Lompo Port is not feasible.

4. **Environmental Aspect Study**

   The construction of Balobaloang Lompo Port is estimated to have an important impact on the environment because based on the RTRW of South Sulawesi Province, the shipping area is a conservation area but can still be mitigated by preparing environmental documents that are adjusted to applicable laws and regulations. The status of the fourth land alternative location is community-owned land and has not been released. The fourth level of disaster care, alternative locations, is included in the medium category zone. For existing port activities, in alternative 1 (South) and alternative 2 (East) there have been existing port activities for the Pioneer Route rede transport, while 2 (two) other alternative locations have not had existing port activities.

5. **Study of Shipping Safety Aspects**

   The width and depth of the grooves in the four alternative port locations are very sufficient. In addition, there are no problems related to the need for water area for ship movement and navigational obstacles.

   Based on the results of the weighting that has been carried out in the previous chapter, it is known that of the **four** have **a feasibility status of C, namely NOT WORTH BUILDING UNLESS THE PROBLEM THAT IS THE CAUSE OF UNWORTHINESS IS RESOLVED**.

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