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STUDY OF PONTIANAK PORT FACILITIES AS A MAIN PORT IN WEST KALIMANTAN AREA

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Abstract

Increasing economic growth in West Kalimantan has made the need for smooth loading and unloading at ports increase. At present, the port in the middle of Pontianak City also handles the loading and unloading of various commodities such as crude palm oil (CPO), rubber, processed alumina mining materials, and various other basic needs of the community. For this reason, efforts are needed to improve port services in order to support West Kalimantan's economic growth. Pontianak Port has shortcomings in that the depth of the Pontianak port is the range of - 3.7 to - 5.3 m LWS, while the requirement is a minimum port pool depth of - 9 m LWS. Have a dock with a minimum capacity of 10,000 DWT. The existing quay has a length sufficient to serve ships weighing 10,000 DWT, but the depth of the port berth pool is -3.7 m LWS - 5.3 m LWS, making ships of this size limited to be able to enter during high tide. The port land area is at least 50 hectares, while the area of the Port of Pontianak is 202,422 m² or around 20 hectares, and it is difficult to develop further. By looking at the results of the calculation of equipment performance, the Quayside Container Crane (QCC), Gantry Crane and Reach Stacker equipment have performance above 80%, so that it has experienced saturation, meanwhile the existing stacking area of 47,794 m² has not fulfilled the requirements because it has reached YOR of 86.86%. Therefore, the Port of Pontianak cannot meet the level of service fully as a Main Port, among others in terms of the availability of port facilities and infrastructure and port land development.

Keywords: Port, Pontianak, Economic Growth, Facilities, Infrastructure.

1. Introduction

The port in its activities has an important and strategic role for industrial and trade growth and is a business segment that can contribute to national development. This has consequences for the management of the port business segment so that operations can be carried out effectively, efficiently and professionally so that port services become smooth, safe, and fast with affordable costs. Basically the services provided by the port are services to ships and services to cargo (goods and passengers). Theoretically, as part of the sea transportation chain, the function of the port is a meeting place (interface) of two or more modes of transportation and interfaces of various interrelated interests. Goods transported by ship will be unloaded and moved to other modes such as land mode (truck or train). On the other hand, goods transported by truck or train to the loading port will be loaded onto the ship. Therefore various interests meet at the port such as banking, shipping companies, customs, immigration, quarantine, syahbandar and other centers of activity. On this basis it can be said that the port as one of the transportation infrastructure, can generate economic activity in a region because it is part of the chain of transportation and logistics systems.

But if we look at the reality, we must admit that the ports in Indonesia are still not well managed. As we all know, two-thirds of Indonesia's territory is water. Thousands of islands line up from Sabang to Merauke. The position of this country is very strategic because it is at the crossing of world trade routes. Ironically, Indonesia is unable to take advantage of this golden opportunity. As an archipelago, the port's role is vital in the Indonesian economy. The presence of adequate ports plays a major role in supporting the mobility of goods and people in this country. The port is the most important means to connect between islands and between countries.

Pontianak Harbor, which is located on the edge of the Kapuas River, is the economic nerve and connects an area of 146.8 thousand km² in West Kalimantan Province. An area that is comparable in size to Java and Madura, including Pontianak, Sintete, Sambas, Sintang, Sanggau, Kapuas, Hulu, Telok Air, Ketapang and Singkawang. There are 2 harbor areas under the auspices of PT. (Persero) Pelindo II Pontianak Branch namely: Sintete Port and Ketapang Port. The port hinterland is dominated by the plantation, forestry, mining sector and raw material processing industries. To anticipate an increase in economic activity in the region, Pelindo II has operated a Container Terminal for Pontianak harbor that has been equipped with container cranes as well as various modern equipment capable of providing optimal support for loading and unloading activities in the region.

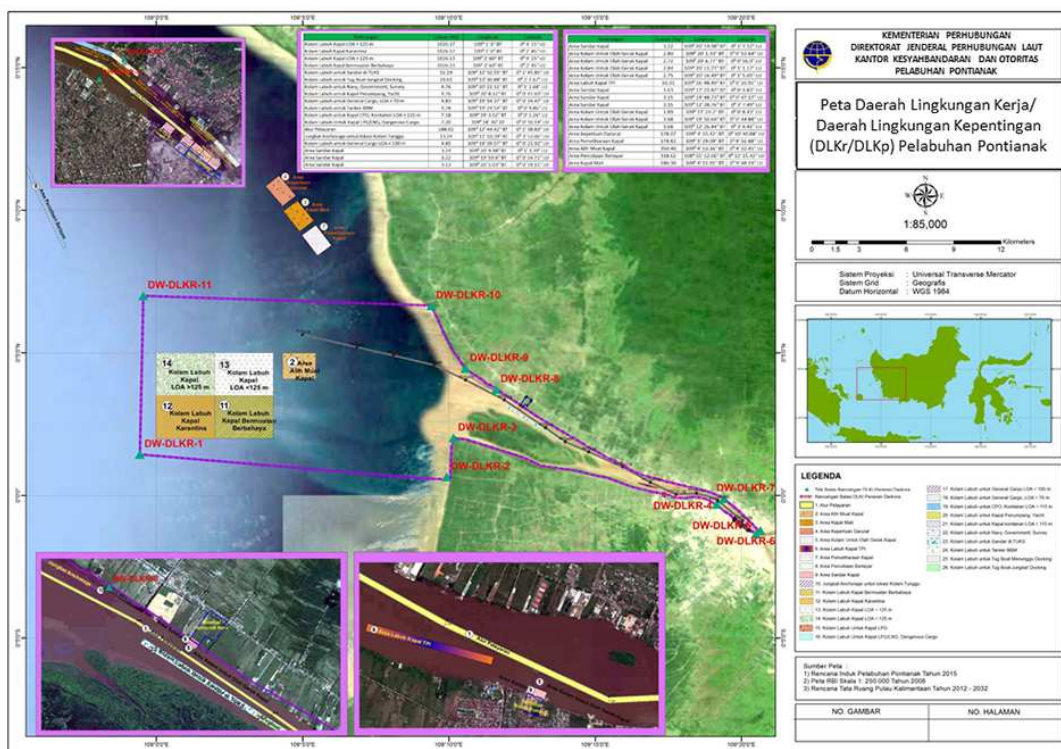


Figure 1. Map of Regional Work Areas / Port Interest Areas (Dlkr / Dlkp) Pontianak

The Minister of Transportation has explained that the sea toll program is a program that has a positive impact on the sustainability of the national economy. Especially on the certainty of movement of goods and also the certainty of the price of the goods themselves. Many ports have been inaugurated by President Jokowi, equipped with adequate facilities such as a collection area or a large piling yard. As part of the sea transportation system, port infrastructure has an important role in trade and development by functioning as a gateway for goods and passengers in the area where the port is located / hinterland (Jinca, 2011). In this context, the maintenance and improvement of the sea transportation infrastructure becomes an obligation in order to guarantee regular and scheduled movements, moreover that the transportation sector in the region contributes an average of 4.21% to West Kalimantan's GRDP in 2017. In addition, another positive impact is the increase in ship visits and the volume of goods at the port. For the province of West Kalimantan, the increase is significant enough to realize

the status of the port as a center for goods consolidation. This embodiment is needed because the era of transportation competition is increasingly competitive in the face of global transportation. As a regulator of course the government needs to have strategic planning in dealing with global competition.

PT Pelabuhan Indonesia II / Indonesia Port Corporation (IPC) stated that due to the low container stay time or dwelling time at the Pontianak Indonesia Port II West Kalimantan branch, making the trend of container flow at the port continues to increase. Pontianak TPK IPC Container Terminal has experienced a growth in the volume of container loading and unloading (throughput) at the Pontianak Port on average, rising 8% to 12% per year. In 2017 the throughput at this port recorded 244,485 twenty foot equivalent units (TEUs), an increase from 209,520 TEUs in the previous year, while the yard occupancy ratio (YOR) averaged 50%. "This achievement is thanks to the cooperation with the shipping line, which did not wait for a long time after the loading and unloading process was finished, moving the cargo to the depots as a buffer area.

With a throughput of 240,000 TEUs and an existing terminal capacity of 300,000 TEUs, accelerating the flow of goods in and out of ports is really a priority. The result, with dwelling time and YOR that are both low, congestion can be avoided. Scheduled ship services or windows systems and re-laying of the stacking yard also helped smooth the loading and unloading of containers at this port. From the superstructure side, Pelindo II / IPC management has modernized dismantling tools and channel maintenance to reduce sedimentation rates. With these various efforts, the terminal capacity which was originally only 100,000 TEUs has now increased to 300,000 TEUs.

Increasing economic growth in West Kalimantan makes the need for smooth loading and unloading at the port also increased. At present, the port in the middle of Pontianak City is handling loading and unloading various commodities such as Crude Palm Oil (CPO), rubber, processed alumina mining materials, as well as various other basic needs of the community, continuously striving to improve port services in order to support West Kalimantan economic growth.

2. Literature Review

Law Number 17 Year 2008 explains that a port is a place consisting of land and / or waters with certain limits as a place of governmental activities and commercial activities which are used as a place for ships to lean on, up and down passengers, and / or loading and unloading goods, in the form of terminals and berths which are equipped with shipping safety and security facilities and port support activities as well as intra-and intermodal transportation places. Pontianak has a port that has a strategic position because it is located in an area that has access to and out of and from supporting areas (hinterland) which is very potential for industrial development and is on the international shipping route (ALKI I).

The success of the port can be measured by its performance in serving inter-island and especially international ships. The performance of a port in providing services to users of port services depends on the service time of the ship while in the port. High port performance shows that the port can provide good services (Triatmodjo, 2010). The Government, through Decree of the Director General of Sea Transportation Number UM.002 / 38/18 / DJPL-11 dated December 15, 2011 concerning Port Operational Service Performance Standards, stipulates that operational service performance is a measurable work result achieved at ports in carrying out ship, goods, utility facilities and equipment within a specified time period and unit.

Various regulations have been issued to strengthen and spur the development of transportation infrastructure. In the port development and development plan, regulation as a legal umbrella of policy to support the implementation of the program, especially in relation to sea transportation, among others; Law Number 17 of 2008 concerning Shipping, Government Regulation Number 61 of 2009 concerning Ports, Minister of Transportation Decree Number KP 901 of 2016 concerning National Port Master Plans, Minister of Transportation Regulation Number 49 of 2005 concerning National Transportation Systems (SISTRANAS), and Regulations Minister of Transportation Number 51 of 2015 concerning Sea Port Management.

Law Number 17 Year 2008 regulates sea transportation as a unified system consisting of transportation in waters, ports, safety and security, as well as maritime protection. Government Regulation No. 61 of 2009 regulates the National Port Order, Port Master Plans and Regional Work Environments and Regional Areas of

Interests of the port, implementation of activities at the port, construction and operation of ports, special terminals and terminals for self-interest, tariffs, ports and special terminals open to trade and port information systems. Decree of the Minister of Transportation Number KP 901 of 2016 concerning the National Port Master Plan is an embodiment of Law 17/2008 mandating the need to formulate the RIPN as a policy framework to facilitate the achievement of the vision of development in the port sector namely "Efficient, competitive and responsive port system that supports international trade and domestic economic growth and regional development ". Minister of Transportation Decree No. 49 of 2005 concerning the National Transportation System, is a system of transportation organized systematically to be used as a guideline and basis for planning, development, and organization of transportation in order to be able to realize the provision of effective and efficient transportation services.

3. Methods

To answer the problem formulation that has been explained in the previous chapter, the research that will be used is quantitative descriptive research. Descriptive research / research is a type of research that wants to explain or describe something that is described quantitatively. The process is carried out through analysis of existing and actual data and information on the need for the realization of the Pontianak Port to function as the Main Port, which is the port where consolidation and distribution of cargo / goods.

The method of data collection is done in 2 ways namely literature study to obtain secondary data, while primary data is obtained by direct observation in the field.

1. Secondary Data

Secondary data was obtained in the form of empirical data from business actors or related institutions as well as literature studies. Literature study is one of the techniques of collecting data and information from various sources including books, journals and scientific magazines and articles in libraries and / or the internet / online relating to the research being carried out. Empirical data to be obtained include ship visits, port performance, stevedoring activities, population potential, economy (GRDP), etc.

2. Primary Data

Primary data obtained by direct observation in the field

To see the economic potential of the regions in the study area, an analysis tool in the form of the Economic Base Theory will be used. This theory uses the Simple Location Quotient (SLQ) method. In this theory, if the quota value is <1, then the sector is included in the non-base sector category.

However, what is meant by the base sector is not only the sector that has export capability, but other sectors that need to be supported by financial assistance, especially financial assistance from the government and are considered to have advantages over other sectors in an effort to contribute to regional production.

The basic calculation used is the following formula

$$LQ^R = \frac{X^R / X^R}{X^N / X^N}$$

LQ	= LQ coefficient
XR	= sector i contribution in Regional GRDP
XR	= Regional GRDP
XN	= sector i contribution in the National GDP
XN	= National GDP

Another assumption that underlies the above calculation is if $LQ < 1$, then the assumption is that the production of the sector is only consumed for the local area. Meanwhile, if $LQ > 1$, in addition to being referred to as the base sector, the sector is also assumed to have a surplus production capacity that can be exported outside the region. For the purpose of the export (the export referred to here is not only abroad or outside the province, but transportation can also occur between regency areas or even between sub-districts in one district), it requires transportation facilities and infrastructure. Therefore, if an area has $LQ > 1$, then it is assumed that the area needs infrastructure and transportation facilities that connect it with other regions, both within one

district or with other regions outside the district. In analyzing the economic potential of each region to identify the potential of the region, the analysis is only used for 5 (five) sectors only, of which the five sectors that are considered most in need of transportation support.

4. Results and Discussion

Economic basis analysis based on economic potential is carried out to find out what economic potential West Kalimantan Province has to prepare commodities to be exported out of this area. Analysis is carried out using the Simple Location Quotient (SLQ) method, where if a sector gets a value of > 1, then this sector has the ability to become the regional economic base for exports.

Table 1. National GDP Based on Business Field According to Constant Prices 2015-2018 (in billions of rupiah)

No.	Business field	Year			
		2015	2016	2017	2018
1	Agriculture, Forestry, and Fisheries	1.171.445,80	1.210.955,50	1.257.875,50	1.307.025,70
2	Mining and excavation	767.327,20	774.593,10	779.678,40	796.505,00
3	Processing industry	1.934.533,20	2.016.876,90	2.103.466,10	2.193.266,40
4	Electricity and Gas Procurement	94.894,80	100.009,90	101.551,30	107.108,60
5	Water Supply, Waste Management, Waste and Recycling	7.369,00	7.634,60	7.986,10	8.421,80
6	Construction	879.163,90	925.040,30	987.924,90	1.048.082,80
7	Wholesale and retail trade; Car and Motorcycle Repair	1.207.164,50	1.255.760,80	1.311.762,50	1.376.937,40
8	Transportation and Warehousing	348.855,90	374.843,40	406.679,40	435.185,30
9	Provision of Accommodation and Food and Drink	268.922,40	282.823,40	298.079,40	314.955,20
10	Information and Communication	421.769,80	459.208,10	503.420,80	538.874,60
11	Financial Services and Insurance	347.269,00	378.279,40	398.959,30	415.579,10
12	Real estate	266.979,60	279.500,50	289.730,40	300.106,70
13	Company Services	148.395,50	159.321,70	172.763,80	187.691,10
14	Government Administration, Defense and Mandatory Social Security	310.054,60	319.965,00	326.570,70	349.506,60
15	Educational Services	283.020,10	293.887,60	304.762,10	321.083,60
16	Health Services and Social Activities	97.465,80	102.490,20	109.504,10	117.314,90
17	Other services	144.904,20	156.507,50	170.177,30	185.468,90
TOTAL BRUTO DOMESTIC PRODUCTS		8.982.517,10	9.434.613,40	9.912.703,60	10.425.316,30

Table 2. National GDP Based on Business Field According to Constant Prices 2015-2018 (in billions of rupiah)

No.	Business field	Year			
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Calculation of Location Quotient (LQ):

a. Agriculture, Forestry and Fisheries Sector:

$$LQ = \frac{30,251,084,56 / 130,584,092,05}{1,307,025.70 / 10,425,316.30} = \frac{0,23166}{0,12537} = 1.85$$

b. Mining and Quarrying Sector:

$$LQ = \frac{6,109,778.71 / 130,584,092.05}{796,505.00 / 10,425,316.30} = \frac{0,04679}{0,07640} = 0.61$$

c. Manufacturing Industry Sector:

$$LQ = \frac{19,365,575.25 / 130,584,092,05}{2,193,266.40 / 10,425,316.30} = \frac{0,14830}{0,21038} = 0.71$$

d. Wholesale and retail sector:

$$LQ = \frac{20,613,374.77 / 130,584,092.05}{1,376,937.40 / 10,425,316.30} = \frac{0,15786}{0,13208} = 1.20$$

e. Other Service Sectors:

$$LQ = \frac{1,397,142,70 / 130,584,092,05}{185,468.90 / 10,425,316.30} = \frac{0,01070}{0,01779} = 0.60$$

Discussion

Decree of the Minister of Transportation Number KP 901 of 2016 concerning the National Port Master Plan which was established on 30 December 2016 states that Pontianak Port is included in the main port

hierarchy. The main port serves the activities and transfer of national and international sea freight in large quantities and a very broad shipping range and is a node in the international sea transportation network. Pontianak Port activities in carrying out its role as the main port cannot be separated from these requirements.

Pontianak Port in its operations must be able to meet the following requirements:

Main Port Location is guided by the following technical criteria:

1. Be close to international shipping lines less than 500 miles and national shipping lines less than 50 miles.
 - Pontianak port shipping lane is a sea lane that connects the Indonesian Archipelago I Sea Lane (ALKI I) and the Indonesian Archipelago II Sea Lane (ALKI II). ALKI is a port that not only serves domestic shipping, but also overseas shipping. ALKI I and ALKI II are less than + 500 miles. ALKI Line 1 is located in the South China Sea, which is directly adjacent to the western part of West Kalimantan Province, the distance between the Port of Pontianak and the South China Sea is \pm 400 miles.
 - The length of the shipping lane from the Port of Pontianak to the National shipping lane is 90 km or about 50 miles. This is the maximum distance required.
 - Pontianak Port in its activities has served national and international scale containerized and freight transportation. The activity of loading and unloading of international goods that occur in the Port of Pontianak is the activity of loading and unloading of goods with the aim of exports and imports
2. Have a minimum distance of 200 miles from other major ports.
 - The Main Port closest to Pontianak Port is Banjarmasin Port in South Kalimantan Province which is + 900 miles away, so this port meets the requirements as the Main Port associated with this.
3. Minimum port pond depth - 9 m LWS.
 - The depth of the Pontianak harbor is the range of - 3.7 to - 5.3 m LWS, so it can be said that the depth of the Pontianak Port has not met the minimum standard depth of the Main Port.
4. Has a dock with a minimum capacity of 10,000 DWT.
 - The existing quay has a length sufficient to serve ships weighing 10,000 DWT, but the depth of the port berth pool is -3.7 m LWS - 5.3 m LWS, making ships of this size limited to enter during high tide. This reduces the fulfillment of the requirements of the Pontianak Port as the Main Port.
5. Minimum dock length of 350 m'.
 - The length of the Pontianak Harbor pier, a total of 1,531 meters, has fulfilled the requirements as a Main Port.
6. Port area of at least 50 Ha.
 - The total land area of Pontianak Port is 202,422 m² or around 20 Ha. This land area is still smaller than the requirement of 50 Ha, therefore the land area of Pontianak Port does not meet the requirements as a Main Port.
7. Has loading and unloading equipment according to the type of goods transportation.
 - By looking at the results of the equipment performance calculation, the Quayside Container Crane (QCC), Gantry Crane and Reach Stacker equipment have performance above 80%, so that efforts need to be made to improve the performance of these three types of equipment, so that they can serve container movements at this Port. Therefore the availability of equipment reduces the completeness of Pontianak Port as the Main Port.
 - In addition, the existing stacking area of 47,794 m² has not fulfilled the requirements because it has reached YOR of 86.86%. This is due to the need for a container stacking field in 2019 estimated to reach 41,514.66 m²

Based on the results of the analysis of the performance of facilities in the Pontianak Port Container Terminal, the results of the performance of each of the facilities are as follows:

1. The depth of the port pond which currently has the ability to accommodate container ships at perfect low tide (LWS), which is only draft - 4.6 meters, is unable to accommodate Big Feeder and Small Feeder ships, so dredging is needed to deepen the port berthing pool in order to reach a minimum - 12 m LWS. The depth of the port berth pool can only be entered by ships when it is installed, so that the operating time of port berths is limited.
- 2.a. Pier Performance Using Standard Container Ship of 20,000 DWT
 - The availability of container dock length which currently reaches 427 meters, is currently analyzed in 2019 BOR has reached 109.37%, while in the next 10 years namely in 2028 it has reached 159.95%.

This causes that the length of the container dock has to be extended whether by utilizing another berth that is underutilized or newly built.

b. Dockside Performance Using 5.565 DWT Small Feeder Vessels

If using a small feeder ship using a 5.565 DWT ship, the port dock performance in 2019 BOR = 60.09% and in the next 10 years BOR = 82.53%.

This condition causes the need to immediately make plans for the development of a container dock in Pontianak Harbor.

3. The container stacking field performance, based on the results of the analysis of container stacking field in 2019, is calculated to reach the utility level of YOR2019 = 86.86% while in 2028 it is estimated that the utility level will reach YOR2028 = 117.92%. Achievement of the utility level in 2019 in accordance with the Standard Level of Service, has to start the development of a container stacking field. However, for the development of container fields, it cannot be done because of the unavailability of land for that.

4. The performance of container unloading equipment in 2019, calculated loading and unloading equipment Quayside Container Crane (QCC) has a utility rate of 83.56%, Rubber Tired Gantry Crane (RTGC) has a utility rate of 149.09% and Reach Stacker (QCC) RS has a utility rate of 142.21%. While other equipment the utility level is still below 60%. This causes the need for increased production of QCC, RTG and RS equipment through the acceleration of handling container loading and investing in the addition of new equipment.

5. Conclusion

Noting the purpose of this research is to look for service deficiencies and formulate an effort to realize the Pontianak Port as a center of consolidation and distribution of goods in relation to the Main Port, in order to achieve the effectiveness and efficiency of ship and goods services in West Kalimantan Province, according to the results of the analysis and discussion Previously, the conclusions of the research results can be drawn as follows:

1. As a Main Port, Pontianak Port has shortcomings in terms of:

a. The depth of the Pontianak harbor is in the range of - 3.7 to - 5.3 m LWS, while the requirement is a minimum port pool depth of - 9 m LWS.

b. Have a dock with a minimum capacity of 10,000 DWT.

The existing quay has a length sufficient to serve ships weighing 10,000 DWT, but the depth of the port berth pool is -3.7 m LWS - 5.3 m LWS, making ships of this size limited to be able to enter during high tide.

c. The port land area is at least 50 hectares, while the area of the Port of Pontianak is 202,422 m² or around 20 hectares, and it is difficult to develop further.

d. By looking at the results of the equipment performance calculation, the Quayside Container Crane (QCC), Gantry Crane and Reach Stacker equipment have performance above 80%, so that they have experienced saturation, meanwhile the existing stacking area of 47,794 m² has not fulfilled the requirements because it has reached YOR of 86.86%.

Therefore, the Port of Pontianak cannot meet the level of service fully as a Main Port, among others in terms of the availability of port facilities and infrastructure and port land development.

2. Efforts that can be made to improve services at the Port of Pontianak can be done, among others by:

a. Dredging the dock at the harbor, but given the high sedimentation that occurs in this river, this is very difficult to do.

b. Port land development by land acquisition around the port. This is also difficult to do because the port is in the middle of a dense settlement in the middle of the city of Pontianak.

c. Conduct training to increase the speed of equipment operators or invest in procurement of Quayside Container Crane (QCC), Gantry Crane and Reach Stacker equipment and develop container stacking yards whenever possible to transfer other land functions used for other purposes or for other types of goods stacking fields.

d. Undertake development / construction of ports at other locations that enable building larger ports.

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