

EVALUATION OF THE PORT FACILITIES OF SUNGAI 16 PIER AND ACCESS ROAD TO PASAR LRT TERMINAL 16 ILIR PALEMBANG CITY OF SOUTH SUMATRA PROVINCE

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Abstract

The city of Palembang is divided by the Musi River which is the longest river in Indonesia where this river divides the city of Palembang into two parts, namely across the upstream and across downstream. This river has an overall length of + 700 km and a navigable + 450 km making the Musi River an important role in supporting the economy of the people of Palembang City through river transportation. Ships of large and small sizes can sail on this river because of its average depth of + 8 meters and a maximum width of + 250 meters. In the city of Palembang, there are also several river ports including the Pier 16 Ilir River Port of Palembang which serves several means of transportation for inland water transportation such as jukung boats, speed boats, long boats, and armrests. Where inland water transportation in the city of Palembang has a very important role in supporting the wheels of regional development, the 16 Ilir pier is also one of the piers that have an important role in supporting the economy of the people of Palembang. This is due to the pier's strategic location, which is adjacent to the 16 Ilir market. The management of the wharf has not been maximized because the elements of activities at the pier are still not following Government Regulation No. 61 of 2009 and there is no complete facility at the Pier 16 Ilir River Port.

Keywords: work method; vehicle loading on board.

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INTRODUCTION

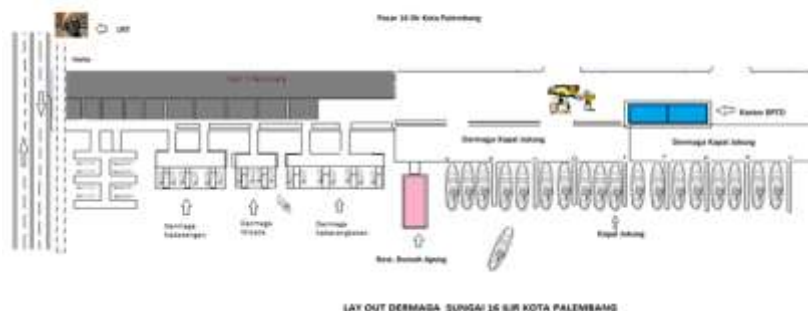
Palembang is the capital of South Sumatra province. Palembang is the second-largest city in Sumatra after Medan geographically located between 2o 52' to 3o 5' South Latitude and 104o 37' to 104o 52' East Longitude with an average height of 8 m from sea level. The area of Palembang City is 400.61 km² which is administratively divided into 16 sub-districts and 107 villages. (Noerdin, 2014)

The city of Palembang is divided by the Musi River which is the longest river in Indonesia where this river divides the city of Palembang into two parts, namely across the headwaters and across downstream. This river has an overall length of + 700 km and can be navigable + 450 km making the Musi River has an important role in supporting the economy of the people of Palembang City through river transportation (Mahsuni, 2021); (Saleh, 2022); . Ships with large and small sizes can sail on this river because of its flat depth of + 8 meters and maximum widening + 250 meters.

In the city of Palembang, there are also several river ports including The Port of River Pier 16 Ilir Palembang which serves several means of transportation of land waters such as jukung boats, speed boats, long boats, and ketek. Where the transportation of land waters in the city of Palembang has a very important role in supporting the wheels of regional development, Pier 16 Ilir is also one of the piers that have an important role in supporting the economy of the people of Palembang. This is due to the strategic location of the pier adjacent to the 16 Ilir market. (Carolina, 2006).

The management of the pier has not been so maximal because the elements of activities at the pier are still not following Government Regulation No. 61 of 2009 and there is no completeness of facilities at the Port of Sungai Pier 16 Ilir. (Nomor, 61AD).

Gambar 4.23
Layout Eksisting Dermaga 16 Ilir



From the picture above can be seen the pattern of layout arrangements that are still as high as in the pier is still not arranged

what other facilities to go to the road access to the LRT terminal is very far. Position, of course, people will ask if there is an access road to get there. It already exists but too far for service users who will need it, there should be closer access road facilities that make it easier for service users and need to be added with information in the form of access road instructions.

Based on the description and picture above, the Researcher raised the title, namely "Evaluation of Pier 16 Facilities and Proposed Access Road to Market LRT Terminal 16 Ilir Palembang City"

Formulation of research problems

So that the subject matter to be discussed in this Mandatory Working Paper does not deviate from the focus of the research, the author formulates the following problems:

1. Is the port facility of Pier 16 Ilir following Government Regulation No. 61 of 2009?
2. What efforts will be made so that the port facilities of pier 16 Ilir and access roads can be carried out properly?

The purpose and benefits of research

1. The purpose and purpose of this study are as follows:

The purpose of the research is that this research is carried out with the aim, while the purpose of this research is as follows:

- a. Identify the River Port facility at Pier 16 Ilir.
- b. Take steps to increase facilities and add access roads connected from the Pier to the LRT terminal by using connecting stairs.

2. Benefits of this study, among others as follows:

- a. For Government Agencies, it can be used as a consideration for the Land Transportation Management Center (BPTD) in the management and maintenance of River Port facilities at Pier 16 Ilir, so that the implementation of safe, orderly, orderly, and comfortable passenger services is carried out.

- b. For the Community, to facilitate service to the community for the creation of comfort and increase the rate of economic growth of the community.

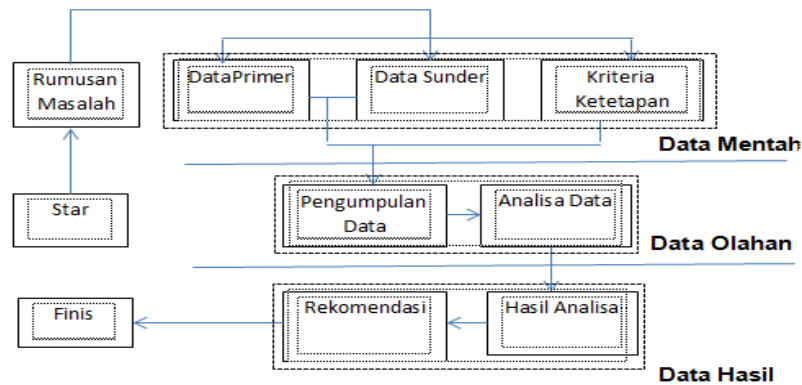
Scope of research

So that the subject matter to be discussed in this research does not deviate from the subject matter, there is a need for scope restrictions. As for the scope of research efforts to add port facilities pier 16 ilir and the addition of connecting road access facilities to the LRT terminal Pasar 16 Ilir.

METHODOLOGY

Research Flow

For this writing to be directed and can achieve the desired target, then the author arranged a writing flow chart. The writing flow chart can be seen in the following image:



GAMBAR 3.1 BAGAN ALIR PENELITIAN

Data Collection Methods

Primary Data

Primary data was data obtained directly from the source or based on direct observations in the field, in obtaining the author's primary data using the following methods:

a. Method of Calculation

Here the surveyor calculated or calculated the number of objects in a certain period by using tools (such as counters, and others). The data obtained was in the form of accurate quantitative data.

1. Calculation of Productivity Survey

2. Measurement of facilities needed

b. Observation Method

In this method, the surveyor observed the condition of the object using his five senses because in this method the surveyor reviewed, monitored and observed directly the conditions in the field. This method was very simple but required thoroughness to observe the object within a certain period and took documentation directly about the condition of the port.

Secondary Data

Secondary data is data that is not attempted by the researcher. This secondary data was obtained from various agencies related to the research object which was then processed and recapitulated so that it

became one standard data. Ways used to collect secondary data include:

a. Literary Methods (Literature)

Namely by studying theory and literature and lecture modules in the library of the Lake River Transportation Polytechnic and Palembang Crossing, as well as legal bases related to the problem that was examined as a theoretical basis in analysing and solving problems.

b. Institutional Methods

This was done by collecting data from agencies related to this research. This secondary data was obtained from several related agencies, such as:

1. Central Bureau of Statistics of South Sumatra Province.
2. BPTD Office Region VII of South Sumatra Province – Bangka Belitung.
3. Palembang City Transportation Office.

Method of Analysis

Facility Analysis

To analyse port facilities (analysis of passenger counter area, ticket checking place, passenger restriction area, employee vehicle parking) using Ministerial Decree No. 52 of 2004 on attachments. Here are the steps in analysing port facilities, namely:

1. Made observations on the facilities at the Port of Sungai 16 Ilir
2. Entered the results referring to KM 52 of 2004 concerning the Implementation of Crossing Ports
3. Calculated the amount in the form of passenger counter area, passenger delivery limit, employee vehicle parking area. By using KM Number 52 of 2004 with the following formula:

a) Passenger counter needs:

$$\text{Passenger counter} = n.a$$

Information:

n = Number of people in the room

a = The required area of each person [M²/person] = 1.2 [M²/person]

b) Passenger introductory limit

$$\text{Passenger delivery limit} = n.a_{.5}$$

Information:

n = Number of people who delivered

a = The required area of each person [M²/person] = 1.2 [M²/person]

$[a]_{.5}$ = Public space area (common) 10%

c) Employee vehicle parking

Employee vehicle parking = $n \cdot a' \cdot a_5$

Information:

n = Number of employee vehicles

a' = The required area of each vehicle [$M^2/\text{vehicle}$] = 2.8 [$M^2/\text{vehicle}$]

a_5 = Public space area (common) 10%

RESULTS AND DISCUSSION

Overview of Research Areas

a. Geographical location

South Sumatra is a lowland with an average height of ± 79 meters above sea level, located at the position of 1'- 4' South Latitude and between 102'-106' East Longitude. The area of South Sumatra is a land area of 91,592.43 km². Astronomically, South Sumatra Province is located between 1'-4' South Latitude and between 102'-106' East Longitude. Based on its geographical position, South Sumatra Province has a boundary - boundary: North - Jambi Province; South - Lampung Province; West - Bengkulu Province; East - Bangka Belitung Province.

The city of Palembang is located between 2o52' to 3o5' South Latitude and 104o37' to 104o52' East Longitude. In 2007 Palembang City was divided into 16 sub-districts and 107 villages. In 2018, based on Decree No. 136/4123/BAK, Jakabaring district is formed which is the expansion of Ulu I and Eas Ilir III District which is the expansion of east Ilir District II, so that currently the administrative area of Palembang City is divided into 18 sub-districts and 107 villages.

Based on PP Number 23 of 1988, the area of Palembang City is 400.61 km² / 40,061 ha, where Gandus District has the largest area compared to other sub-districts (68.78 km² / 17.17%) and West Ilir II District is the district with the smallest area (6.22 km² / 1.55%)

b. Administrative Limits

The administrative area of South Sumatra Province consists of 13 districts and four cities, the area of each regency / city, Namely: Ogan Komering Ulu (4,797.06 km²), Ogan Komering Ilir (18,359.04 km²), Muara Enim (7,383.90 km²), Lahat (5,311.74 km²), Musi Rawas (6,350.10 km²), Musi Banyuasin (14,266.26 km²), Banyuasin (11,832.99 km²), South OKU (5,493.94 km²), OKU Timur (3,370.00 km²), Ogan Ilir (2,666.09 km²), Empat Lawang (2,256.44 km²), PALI (1,840.00 km²), Musi Rawas Utara (6 .008.55 km²), Palembang City (369.22 km²), Prabumulih City (251.94 km²), Pagar Alam City (633.66 km²) and Lubuk linggau City (401.50 km²). (Suratmi, Santri, & Laihat, 2017), (HUTAGAOL, Mardianto, & Marpaung, 2022)

c. Population

According to the Central Bureau of Statistics of Palembang City, the population of Palembang city was based on the projected population in 2020 as many as 1,662,893 people consisting of 834,175 male residents and 828,718 women. Compared to the projected population in 2019, Palembang's population experienced a growth of 1.18 percent. Meanwhile, a large number of sex ratios in 2019 male to female population was 100.66 percent which meant that the number of the male population was greater than the number of women. (PUTRI & Sitorus, 2021)

Lake River Transportation Facilities and Crossings

The condition of the facilities is very important, especially ships operating on river transportation located at Pier 16 Ilir. Land Transportation Management Hall region VII of South Sumatra-Babel Province as a regulator that conducts supervision, regulation, and control of land transportation.

Lake River Transportation Infrastructure and Crossings

Infrastructure is a supporting factor in the activities of services in the implementation of river transportation activities, especially in the working area of Pier 16 Ilir Palembang. To support river transportation activities (Gusmal & Irianto, 2022), of course, good infrastructure facilities are needed. Pier 16 Ilir consists of passenger and vehicle service facilities. The facility consists of basic facilities and supporting facilities where the division of land facilities and territorial facilities has been listed in Ministerial Decree No.52 of 2004 on the Implementation of Crossing Ports. The condition of Pier 16 Ilir is as follows:

a. Basic Facilities of Mainland Area

1. Pier

The pier at 16 Ilir River Port consists of two different types of piers, namely:

1) Permanent Pier

2) Pontoon Pier

a. Departure Dock

b. Tourist Pier

c. Arrival Dock

d. Sandar Pier

The complimentary facilities of the pier at Pier 16 Ilir, consisting of:

1. Catwalk

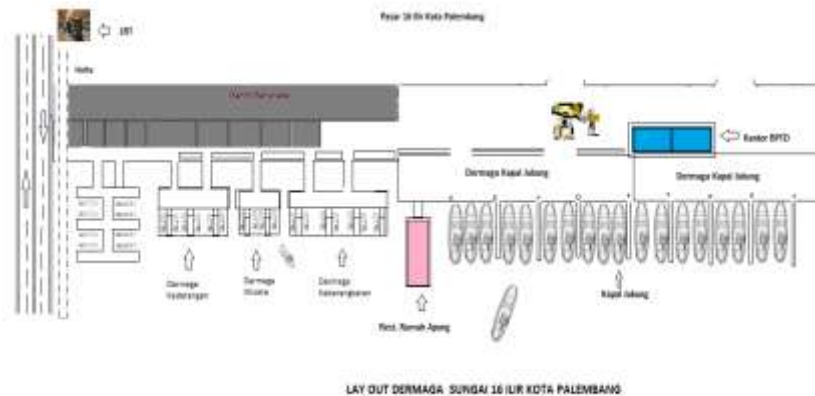
2. Bolder

b. Land Area Support Facilities

1. Passenger Lounge

2. Office
3. Canteen
4. Musholla
5. Toilet
6. Clean Water Installation
7. Parking Lot

Figure 1. Existing Layout of Pier 16 Ilir



Source: Analysis of PKL TEAM BPTD WIL. VII Sumsel-Babel, 2021
Productivity

1. Productivity Data

Table. 3 Data on Productivity of Dock Arrivals 16 Ilir 5 (five) Last Year

Year	Arrival		
	Passenger	Ship	Goods (Ton)
2016	168.601	28.117	2.105
2017	173.789	30.571	2.513
2018	189.899	33.398	2.819
2019	196.021	36.700	1.164
2020	97.198	17.005	2.116

Source: Palembang City Transportation Office, 2021

Based on the table above, the highest passenger arrival density was in 2019 with a total of 196,021 passengers. The highest ship arrival density was in 2019 with a total of 36,700 ships. The highest arrival density of goods was in 2018 with a total of 2,819 tons.

Table. 4 Data on The Productivity of Departure of Pier 16 Ilir 5 (five) Last Year

Year	Departure		
	Passenger	Ship	Goods (Ton)
2016	172.832	28.263	78.945
2017	179.456	30.724	82.089
2018	195.708	33.398	88.089
2019	200.770	36.996	87.539
2020	97.795	17.153	80.253

Source: Palembang City Transportation Office, 2021

Based on the table above, the highest passenger departure density was in 2019 with a total of 200,770 passengers. The highest ship departure density was in 2019 with a total of 36,996 ships. The highest freight departure density was in 2018 with a total of 88,089 tons.

DATA ANALYSIS

Evaluation of River Ports

To analyse this problem following the research object described in the previous chapter. Authors conducted a port checklist first, among others as follows:

Table. 5 Checklist Port River 16 Ilir Palembang Following Government Regulation No. 61 of 2009 on Port.

NO	FACILITIES	DESCRIPTION	
		YES	NO
Fasilitas Pokok			
1	Dock	√	-
2	Stacking Field	√	-
3	Waiting Room	√	-
4	Sewage Shelter and Treatment Facilities	-	√
5	Amenities of Bunker	√	-
6	Fire Facilities	-	√
7	Hazardous and Toxic Materials/Goods Handling Facilities (B3)	-	√
Supporting Facilities			

1	Office	√	-
2	Postal and Telecommunication Facilities	-	√
3	Tourism Facilities	√	-
4	Clean Water, Electricity, and Telecommunications Installations	-	√
5	Road and Rail Network	-	√
6	Wastewater, Drainage, and Garbage Networks	-	√
7	Port Development Area	-	√
8	Motor Vehicle Waiting Places	-	√
9	Trading Area	√	-
10	Industrial Estate	-	√
		7	10
		45 %	55%

Source; Survey results of BPTD WIL PKL TEAM. VII Sumsel-Babel, 2021

To analyse this, the author conducted a port checklist according to PP No.61 of 2009 on the port of paragraph (1) of the Principal and Paragraph (3) supporting facilities. The results of the checklist show that $7/17 \times 100\% = 41\%$ is an existing facility and $10/17 \times 100\% = 58\%$ is an existing facility. But to discuss this problem the author limits what is listed in the scope.

Passenger Counter Layout Analysis

At this time, there is no counter at The Port of Sungai 16 Ilir. From the above problem, it must be held a counter at the Port of Sungai 16 Ilir. Following the provisions of technical guidelines of the Minister of Transportation Decree No.52 of 2004 states the provisions for the planning of land facilities of the crossing port.

Ticket counter space.

Passenger ticket counter (L) $L = n \cdot a$

n = Number of people

a = Unit of Persons / M²

$L = n \cdot a$

= 2. 1.2 M²

= 2.4 M²

Passenger Ticket Checking Analysis

Service at Sungai 16 Ilir Port is still experiencing shortages, this is because there is no ticket checking post for prospective passengers, so passengers feel less comfortable with service at Sungai 16 Ilir Port. For checking passenger tickets only one person joins the passenger counter placement area.

Passenger Introductory Limit Analysis

Currently at Sungai 16 Ilir Port there are no restrictions for passenger delivery, this situation causes people to be able to enter the waiting room area and other facilities.

Passenger delivery limit (P)

$$P = n \cdot a \cdot a_5$$

n = Number of delivery

a = Unit of Persons / M²

a₅ = Area of public space (public) 10%

$$P = n \cdot a \cdot a_5$$

$$= 15 \cdot 1.2 \text{ M}^2 + 10\%$$

$$= 18.1 \text{ M}^2$$

Analyse the parking space of employee motor vehicles

To meet the level of comfort of employees seen in the current conditions of the existence of parking spaces, then the author recommends that the parking area be held.

$$\text{Employee vehicle parking} = n \cdot a' \cdot a_5$$

$$= 30 \cdot 2.8 \text{ M}^2 + 10\%$$

$$= 84 \text{ M}^2$$

Road network to LRT

With the LRT Facility, the author connects the river transportation network to the road transport network so that there is continuity of transportation continuation to facilitate road access to the LRT.

ATM Facilities

To support the comfort of passengers in the port area there should be a place to take uag in the form of ATM.

ATM (A)

$$A = n \cdot a \cdot a_5$$

n = Number of people

a = Unit of Persons / M²

a₅ = Area of public space (public) 10%

$$P = n \cdot A + a_5$$

$$= 1 \cdot 1.2 \text{ M}^2 + 10\%$$

$$= 1.3 \text{ M}^2$$

Fire Department

For firefighting facilities in The Port of Sungai 16 Ilir Palembang has not existed to provide security facilities and infrastructure in the Port, then the author proposed that there should be a firefighting facility.

Fire Department (K)

$$K = n \cdot a$$

n = Number of items

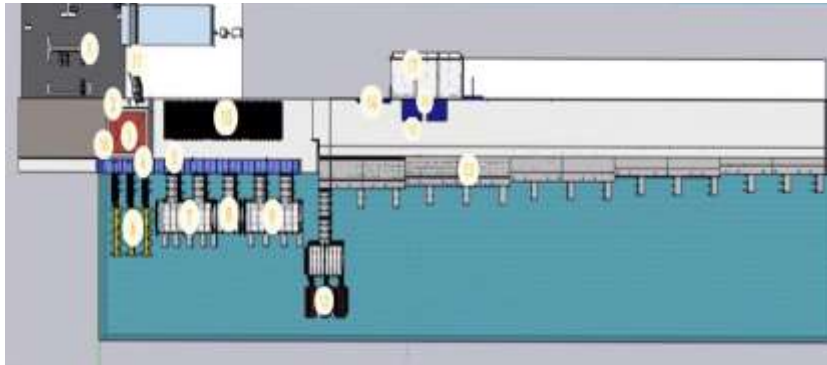
a = Unit of goods / M2 = 2.8

$$K = n \cdot a$$

$$= 2 \cdot 1.6 \text{ M2}$$

$$= 3.2 \text{ M2}$$

Figure 3 Proposed Layout



Source; Survey results of BPTD WIL PKL TEAM. VII Sumsel-Babel, 2021

Description:

1. Parking Lot
2. Ticket Counter
3. Waiting Room
4. Ticket Check
5. Office of Supervision
6. Mooring
7. Arrival Dock
8. Tourist Pier
9. Departure Pier
10. Canteen
11. LRT road network
12. Floating Culinary Tours
13. Fixed Pier
14. Tollgate (Entrance to Transport Service)
15. Office
16. Toilet
17. Employee parking
18. Toilet

PROBLEM-SOLVING

Analysis of Facility Proposals

Analysis of proposed facilities that have not been following Government Regulation No. 61 of 2009 at Sungai 16 Ilir Palembang Port.

1. Proposed Passenger Counter Layout

At this time, there is no counter at the Port of Sungai 16 Ilir. The results of the above analysis require an area of 2.4 M2.

2. Proposed Passenger Ticket Checking Layout

From the results of the above analysis with the absence of ticket checking locations, we propose a room joining the passenger counter placement area. Required by 2.4 M2.

3. Proposed Passenger Introduction Limit

From the results of the analysis above, the limit of passenger delivery area is needed at 18.1 M2.

4. Proposed parking space of employee motor vehicles

Judging from the results of the analysis above and meeting the level of comfort of employees seen in the current condition, there is no parking space and it requires space of 84.

5. Proposed ATM Facilities

To support the comfort of passengers in the port area, there should be a place to take money in the form of an ATM with an area of 1.3 M2.

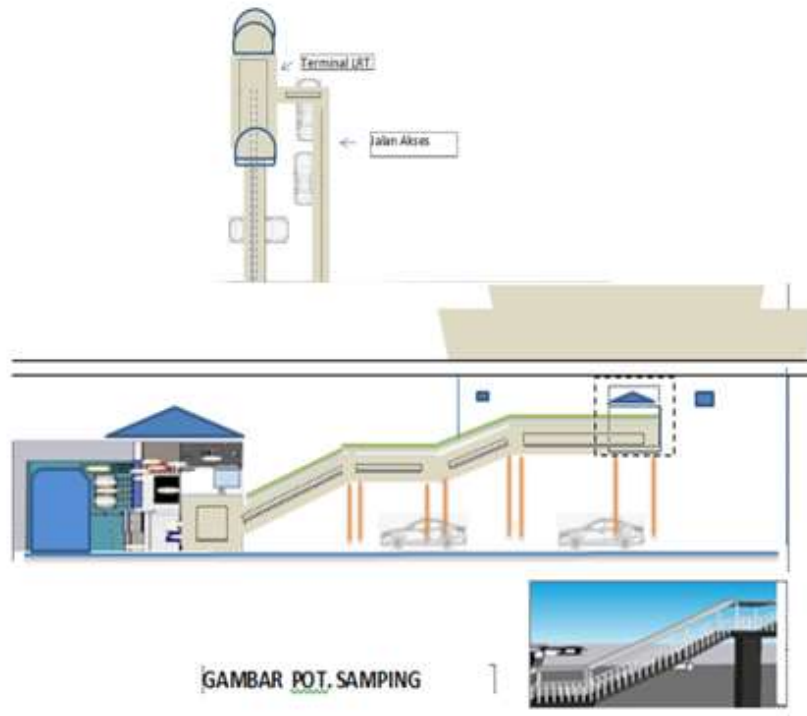
6. Proposed Fire Facility

Firefighting facilities in Sungai 16 Ilir Palembang Port requires an area of 3.2 M2.

7. Proposed Road Facilities to LRT

To facilitate road access to the Pier, it is necessary to hold a proposed procurement of the road network. Here is an analysis of the road network facilities to the Port of the River 16 Ilir.

Figure 9 Facilities of the Road Network



CONCLUSIONS AND SUGGESTIONS

Conclusion

After research and looking at the data from the survey results and the results of the analysis conducted by the author, then the existing problems can be concluded in this Mandatory Working Paper (KKW) as follows:

- a. There are no fixed regulations that discuss the zoning and sterilization system at river ports.
- b. Analysis of the layout of land facilities of the regional zoning system. At this time, it looks still incomplete on existing facilities, it needs to be proposed facilities following Government Regulation No. 61 of 2009.

Suggestions

From the results of the discussion above the River Pier Port Facility at 16 Ilir Palembang There are still many shortcomings about its facilities, this is seen in the list of port checklist Table Checklist Port Government Regulation No. 61 of 2009 on Port. The main facilities as referred to in Paragraph (1) and Paragraph (3).

Therefore, there must be proposals - proposals of facilities following those mentioned above. This linkage can be given the following advice:

- a. There needs to be a proposal to the Central Government about the proposed Regulation on Sterilization of the River Port;
- b. For the improvement of the river port there must be an evaluation so that the port can be controlled the pattern of operation of each activity;
- c. To improve the pattern of operations there must be supervision from government officials so that the level of sterility is more guaranteed.

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