3.2 Existing Port Facilities

3.2.1 Pekanbaru

(1) General

The port area of Pekanbaru extends from the existing port to the river mouth including public wharves and private wharves. Many factories of the pulp and plywood industry are operating alongside the Siak River and they have their own wharves. For that reason, private wharves are handling more cargo than public wharves. These private wharves need to be taken into account when evaluating the port capacity.

(2) Public Wharves

Public wharves are located in two areas, Pekanbaru (Figure 3.2.1) and Perawang (Figure 3.2.2). Wharves in front of the city center handle general cargo, while Perawang terminal handles containers. Draft limitation, sharp bends in the access channel, and poor access roads are the major problems of Pekanbaru port. Perawang port has certain advantages over Pekanbaru port as it can accommodate larger vessels and its terminal can be extended and/or expanded. On the other hand, access roads of Perawang are also in a poor condition.

Table 3.2.1 Public Wharves in Pekanbaru Port

Quay	Length(m)	Depth (m)	Yard area (m^2)	Year of completion
Pekanbaru				
Concrete pier 1-3	136	6	1,280	1978-1994
Sheet pile quay	210	3.5	2,120	1994
Perawang				
Concrete pier	88	5-7	1,760	1997-1998

Source: IPC 1 branch office

Table 3.2.2 Public Storage Facilities in Pekanbaru Port

Facility	Unit	Area (m^2)	Year of completion
Pekanbaru			
Sheds	3	1,920	1953-1982
Open storage		3,447	
Perawang			
Open storage		5,000	

Source: IPC 1 branch office

Table 3.2.3 Equipment in Pekanbaru Port

Equipment	Unit	Capacity
Floating equipment		
Pilot Boat	3	82 HP
Shore equipment		
Mobile Crane	1	5 ton
Fork Lift	1	2.5ton
	1	3 ton
	1	5 ton

Source: IPC 1 branch office

(3) Private Wharves

Numerous wharves are operated along the Siak River to support the local industries (Table 3.2.4, Figure 3.2.3). Private wharves handle plywood and pulp in a large amount and larger than public wharves in size. Most of them are dedicated to the use of their owners, but Siak Haska Container Terminal is an exception, handling container cargo of common users (Table 3.2.5). Its holding company, PACC Container Line, provides Jakarta service three times a month and Singapore service six times a month. The proportion of empty container to the total throughput is 98% (import), 1% (export), 3% (discharging), and 35% (loading). Most of the import containers are empty since transportation cost is higher than that through Medan, which has frequent services for Singapore.

Table 3.2.5 Siak Haska Container Terminal

Facility		
	Berth length	50m
	Alongside depth	6-7m
	Maximum vessel size	LOA 60m, 126TEU
	Container yard	Upper CY 2,281 m^2 (266 TEU)
		Lower CY 1,680 m^2 (246 TEU)
	CFS	CFS A 648 m^2
		CFS B 1,680 m^2
	Equipment	2 mobile cranes
		1 top loader
		3 forklifts
		1 yard truck
Throughput (TEU in Year 2000)		
	Import	6,883
	Export	7,138
	Sub-total	14,021
	Discharging (domestic)	2,822
	Loading (domestic)	2,684
	Sub-total	5,506
	Total	19,527

Table 3.2.4 Private Wharves (DUKS) in Port Pekanbaru

NO.	LOCATION NAME/WARF	BUSINESS AREA	WARF SIZE			CHANNEL DEPTH	CONSTRUCTION	MADE YEAR	USING CAPACITY
			LENGTH	WIDE	TRESTLE				
1	2	3	4	5	6	7	8	9	10
1	D.PT.SIAK RAYA TIMBER	Plywood&Block Board Industry	60 M	10.0 M	25.0 x 5.0 M	6.50 M LWS	Concrete, Wooden floor	1992	5000 DWT
2	D.PT.PERAWANG PERKASA	Formaldehyde Resin Industry	20 M	6.0 M	31.0 x 7.0 M	9.00 M LWS	Concrete	1991	1500 DWT
3	D.PT.CALTEX PACIF INDONESIA	Raw Material/Production&Production support unload/load	62.3 M	17.5 M	M	3.00 M LWS	Concrete		1500 DWT
4	D.PT.MUSIM MAS	Raw Material/Production&Palm Oil unload/load	36 M	5.0 M	32.5 x 1.5 M	6.00 M LWS	Concrete	1998	8000 DWT
5	D.PT.INDAH KIAT PULP&PAPER	Raw Material/Production&Production support Pulp&Paper	55 M	22.0 M	22.0 x 9.5 M	7.00 M LWS	Wooden/Concrete		8000 DWT
			281.5 M	22.0 M	22.0 x 9.5 M	7.00 M LWS	Concrete		6000 DWT
			350 M	10.0 M		7.00 M LWS	Coulomb Steel, Concrete Floor		6000 DWT
			170 M	15.0 M	21.5 x 15.0 M	5.00 M LWS	Concrete		
6	D.PT.PERTAMINA/BUATAN	Refined Oil Production Support							
7	D.PT.PERTAMINA/TG.RHU	Refined Oil unload Facility							
8	D.PT.PANCA EKA BINA PLYWOOD INDUSTRI	Wood Processing Industry	80 M		20.0 x 10.0 M	7.00 M LWS	Wooden	1984	
9	D.PT.RIAU ANDALAN PULP&PAPER	Pulp&Paper	150 M	20.5 M	28.4 x 20.0 M	5.00 M LWS	Steel Coulomb , Concrete Floor	1995	8000 DWT
			136.5 M	20.5 M	32.8 x 15.0 M	6.00 M LWS	Coulomb Steel, Concrete Floor	1998	8000 DWT
10	D.PT.RIAU ANDALAN PULP&PAPER MEREDAN/FASILITAS TAMBAT		2(15x15) M		100.0 M sheet pile	3.50 M LWS	Concrete/Soil filling	1996	
11	D.PT.ASIA FORESTAMA RAYA	Raw Material/Plywood Production	30 M	8.0 M	5.0 x 6 M	4.00 M LWS	Wooden Coulomb, Wooden Floor	1987	1000 DWT
12	D.PT.KAMPARIWOOD INDUSTRI	Raw Material/Result Industry unload/load	24 M	10.0 M	2(18x2) M	3.60 M LWS	Wooden	1991	
13	D.PT.KEAWOOD INDUSTRI	Raw Material/sawmill unload/load	60 M	10.0 M	12.0 x 10.0 M	7.00 M LWS	Wooden	1991	6000 DWT
14	D.PT.PERTIWI PRIMA PLYWOOD	Raw Material/Plywood&sawmill Production unload/load	12 M	6.0 M	7.5 x 6.0 M	4.00 M LWS	Wooden	1989	
15	D.PT.NUSANTARA PACIFIC VENEER	Raw Material/Plywood&Blockboard Production unload/load	28 M	6.0 M	14.0 x 5.0 M	3.00 M LWS	Wooden	1982	
			14 M	5.0 M			Jetty		
16	D.H.BISMAR	Refined Oil Loading	12 M	8.8 M	7.0 x 3.0 M	3.00 M LWS	Concrete Floor	1985	
17	D.PT.SOLA GRATIA PLYWOOD	Raw Material/Plywood&Sawmill Production unload/load	90 M	12.0 M		3.25 M LWS	Wooden/Concrete	1985	2000 DWT
18	D.PT.PERAWANG LUMBER INDUSTRI	Raw Material/Plywood&Sawmill Production unload/load	70 M	20.0 M	12.0 x 8.0 M	7.00 M LWS	Wooden Coulomb, Wooden Floor	1988	
19	D.PT.SURYA DUMAI INDUSTRI	Raw Material/Plywood Production unload/load	58 M	8.0 M	34.0 x 6.0 M	5.50 M LWS	Wooden Coulomb, Wooden Floor	1982	
		Raw MaterialSawmill and Procesed Wood unload/load	40 M	8.0 M	2(15x10) M	5.50 M LWS	Wooden Coulomb, Wooden Floor		
20	D.PT.PERKEBUNAN II	Raw Material/Palm Oil Production unload/load	50 M	8.0 M	25.0 x 4.0 M	6.00 M LWS	Steel Coulomb , Concrete Floor	1992	5000 DWT
21	D.PT.EKADURA INDONESIA	Raw Material result CPO Production unload/load	40 M	4.0 M	36.0 x 4.0 M	7.50 M LWS	Steel Coulomb , Concrete Floor	1996	2000 DWT
22	D.UMUM PETI KEMAS	Container unload/load	50 M	15.0 M	50.0 x 27.0 M stacking yard		Concrete	1997	

PT (*PERSERO*) PELABUHAN INDONESIA I
CABANG PEKANBARU

Peta Pelabuhan Pekanbaru

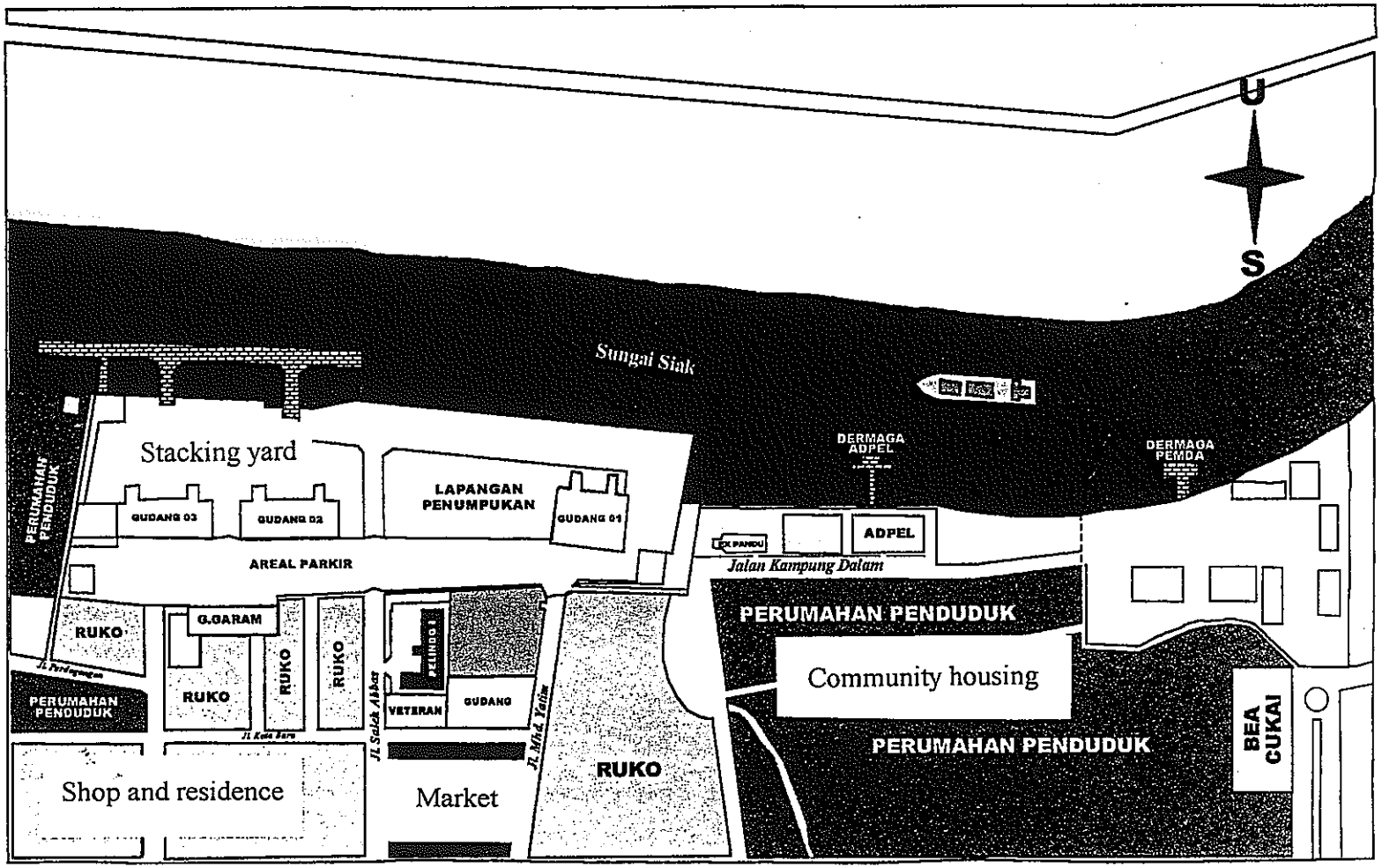


Figure 3.2.1 Existing Port of Pekanbaru

PT (*PERSERO*) PELABUHAN INDONESIA I
CABANG PEKANBARU

Peta Lokasi Pelabuhan Perawang

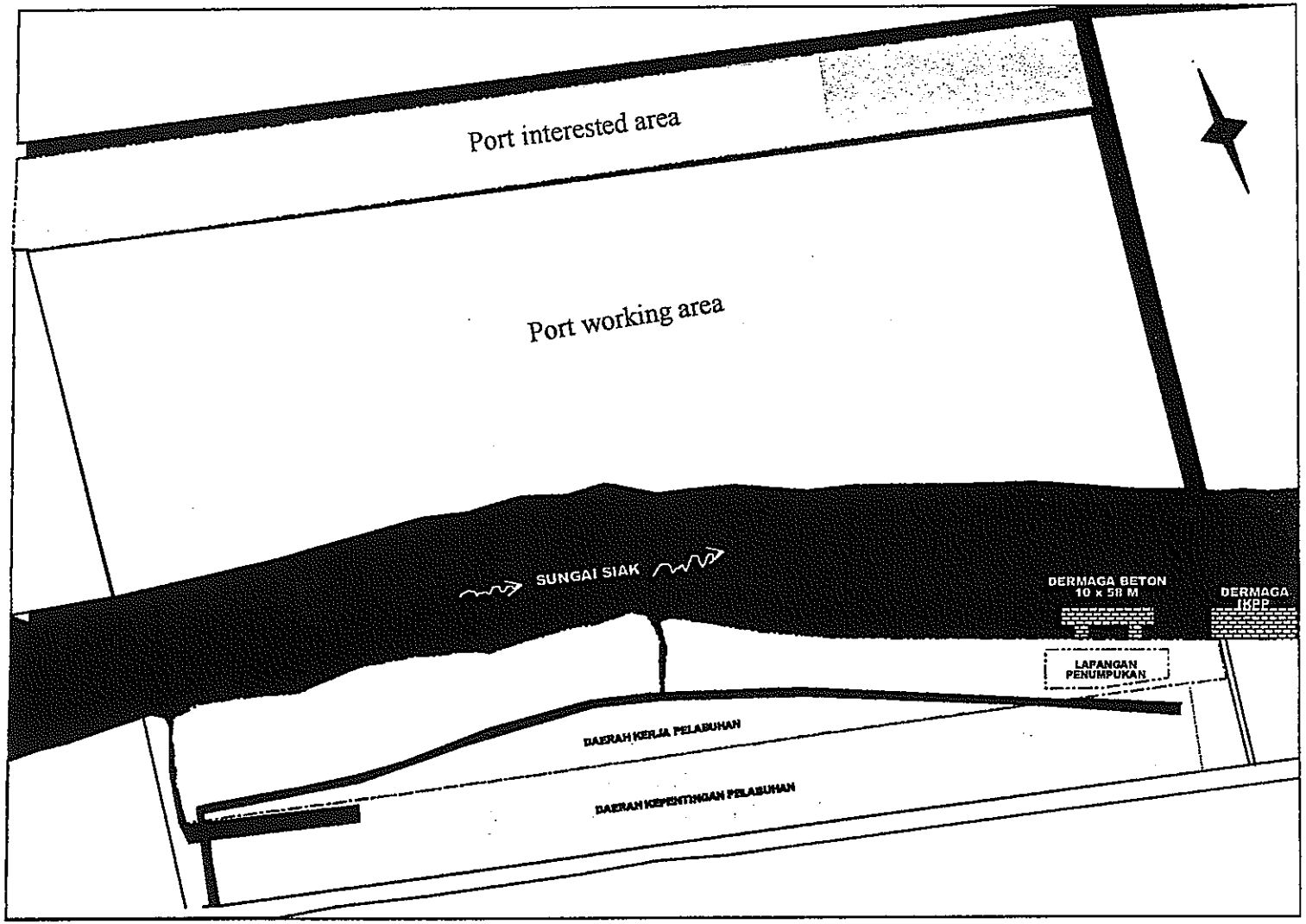


Figure 3.2.2 Perawang Port

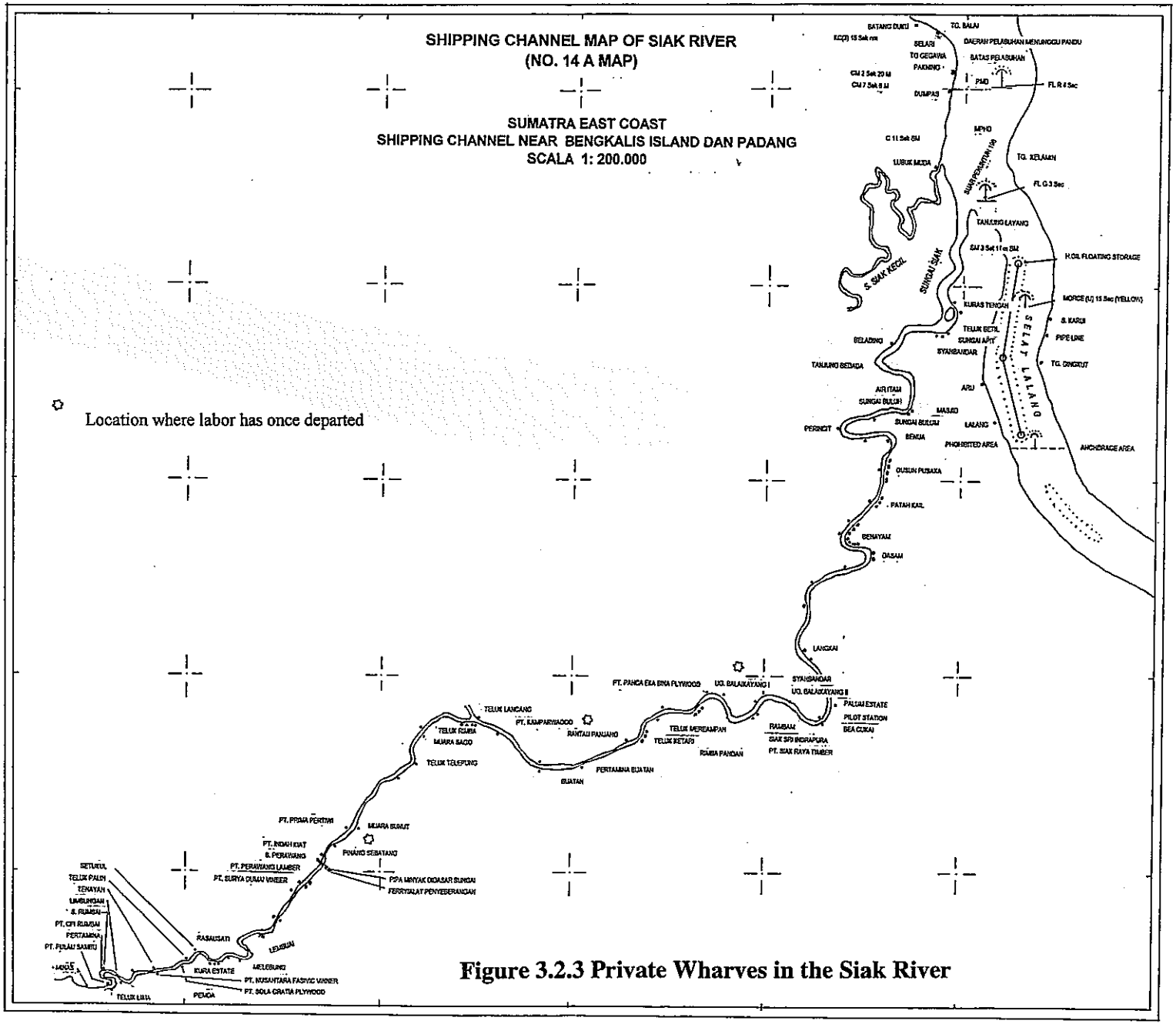


Figure 3.2.3 Private Wharves in the Siak River

3.2.2 Jambi

(1) General

The port area of Jambi is quite extensive, including the Batanghari River and Tungkal River (Figure 3.2.4). Many factories of the sawmill and plywood industry are operating alongside the Batanghari River and they have their own wharves. For that reason, private wharves are handling more cargo than public wharves. These private wharves need to be taken into account when evaluating the port capacity.

(2) Public Wharves

Public wharves are located in three areas, Talang Duku (Figure 3.2.5), Muara Sabak (Figure 3.2.6), and Kuala Tungkal. Talang Duku terminal can accommodate vessels up to 1,000-1,500 DWT and currently caters for general cargo, bag cargo, and container cargo for the areas behind the port (Table 3.2.6). Old Jambi Port located in front of the city was closed in 1997 after Talang Duku became operational. Draft limitation and sharp bends in the access channel are the major problems of Talang Duku terminal. Talang Duku provide Singapore service four times a week.

Muara Sabak port has certain advantages over Talang Duku as it can accommodate larger vessels (up to 5,000-6,000 DWT) and it can dramatically reduce the navigation time from the river mouth. On the other hand, access roads of Muara Sabak are in a poor condition. Out of 115km between Jambi City and Muara Sabak, 50 km is not paved and becomes muddy in rainy season. It is about three hours' drive. In order to take advantage of the strategic location, a new wharf was constructed in 1999-2000 with the financial assistance from Japan. It is a concrete pier of 80m in length with two mooring dolphins. It is not yet utilized partly because of the poor condition of the access road. The provincial government started to improve the road this year with a support from the central government. The improvement is expected to complete in 2004. The Study Team learned that the provincial government was planning to create an alternative access road to Muara Sabak which will reduce the distance to 70 km. This plan is also targeted at 2004. In order to realize this plan, a new bridge across the Batanghari River should be constructed by the central government.

Kuala Tungkal can accommodate vessels up to 1,000-1,500 DWT and mainly serves as a passenger terminal because of its proximity to Batam.

Table 3.2.6 Public Wharves in Jambi

Quay	Length(m)	Depth (m)	Storage area (m^2)
Talang Duku			
Steel-concrete Wharf 1	17 × 67	5-6	
Steel-concrete Wharf 3	17 × 67	5-6	
Steel floating Wharf	17 × 67	5-6	
Paved Yard			12,300
Unpaved Yard			21,500
Warehouse			60 × 34
Muara Sabak		5-6	
Wooden Wharf	21 × 8		
New Wharf	80		
Kuala Tungkal		2-3	
New Wharf	75 × 15		
Old Wharf	21 × 8		
Passenger Wharf	6 × 4		
Warehouse			40 × 15

Source: IPC 2 branch office

Table 3.2.7 Handling Equipment of Talang Duku

Facility	Unit	Year of Procurement
Forklift	5	1994-1999
Mobile Crane	2	1995-1996
Head Truck	2	1994-1997
Chassis	5	1994-1997

Source: IPC 2 branch office

(3) Private Wharves

Numerous private wharves are operated along the Batang Hari River to support the local industries (Table 3.2.8, Figure 3.2.4). Their main cargo items are forest products. Private wharves handled 3 million tons of cargo in 2000, equivalent to 19 times the throughput in public wharves (161 thousand tons). It is noteworthy that five shipyards are located along the river.

Table 3.2.8 Private Wharves in Jambi

Cargo	Wharves
Sawmill	12
Rubber	3
Plywood	7
Coconuts Oil	2
Cooking Oil	6
Petroleum	1
Ship Yard	5
Log	2
Paper	1
Glue	1
Natural Gas	1
Total	41

Source: IPC 2 branch office

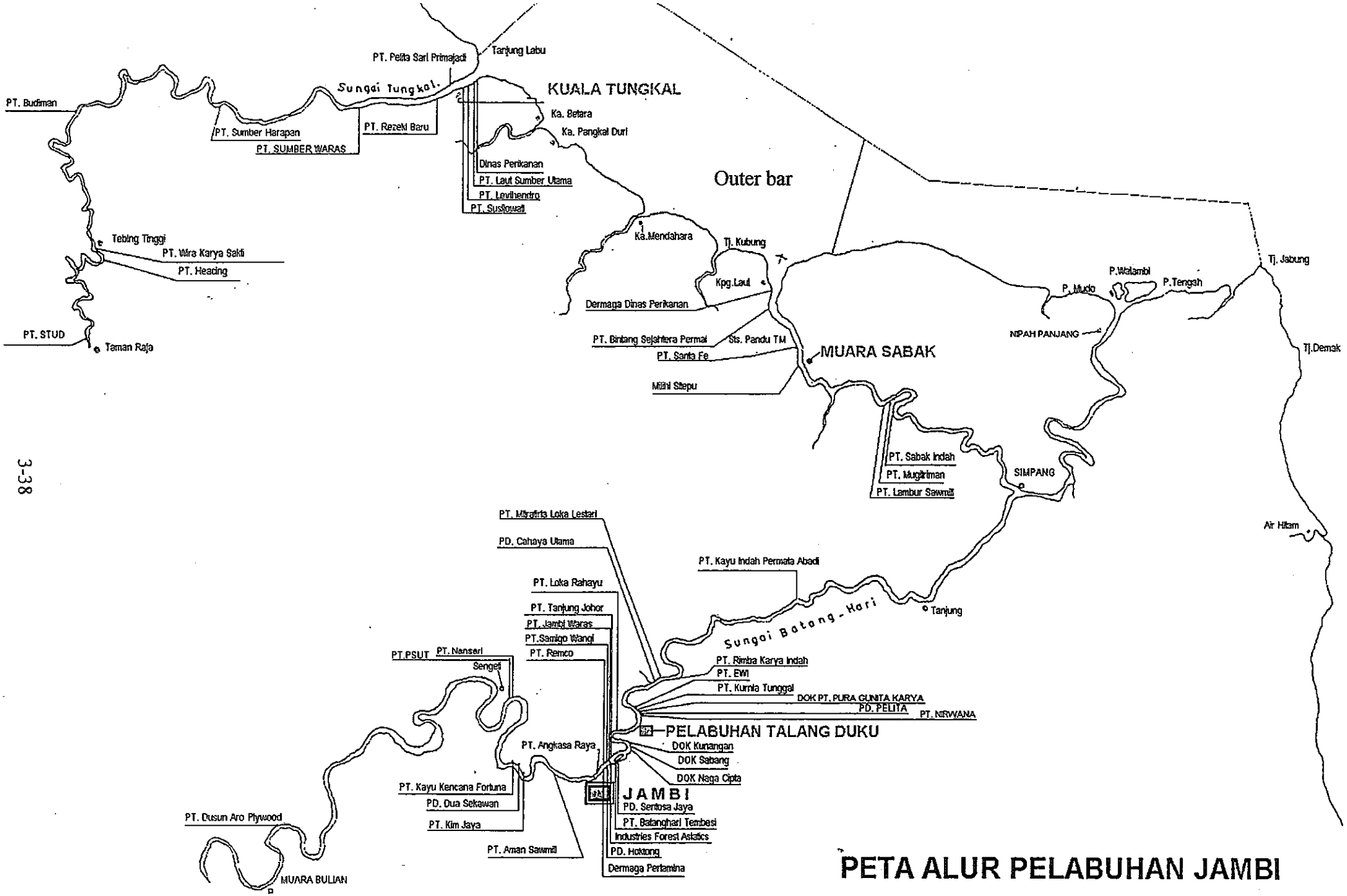


Figure 3.2.4 Port Area of Jambi

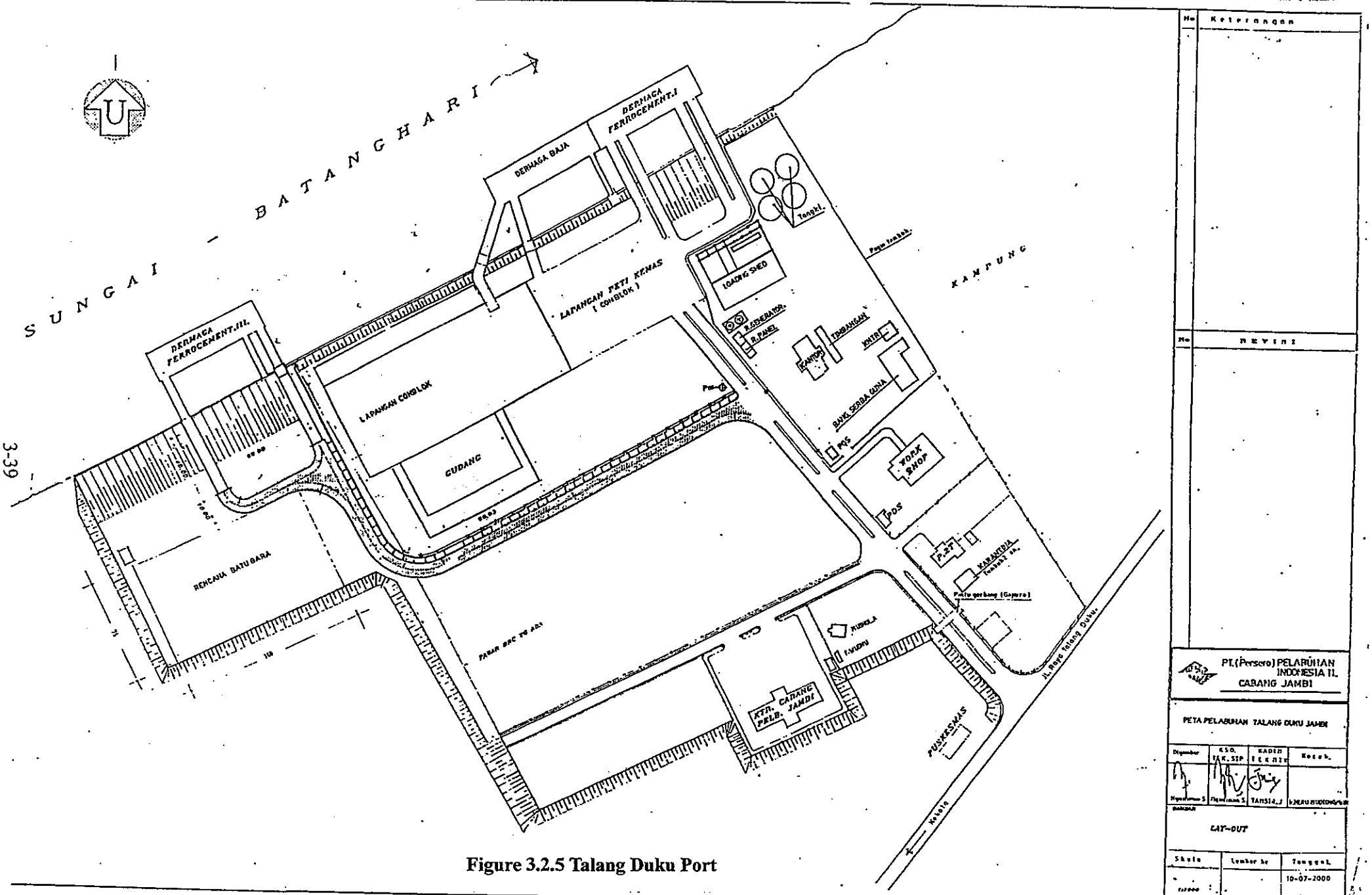


Figure 3.2.5 Talang Duku Port

Location sketch of new wharf of Muara Sabak in fiscal year 1999/2000

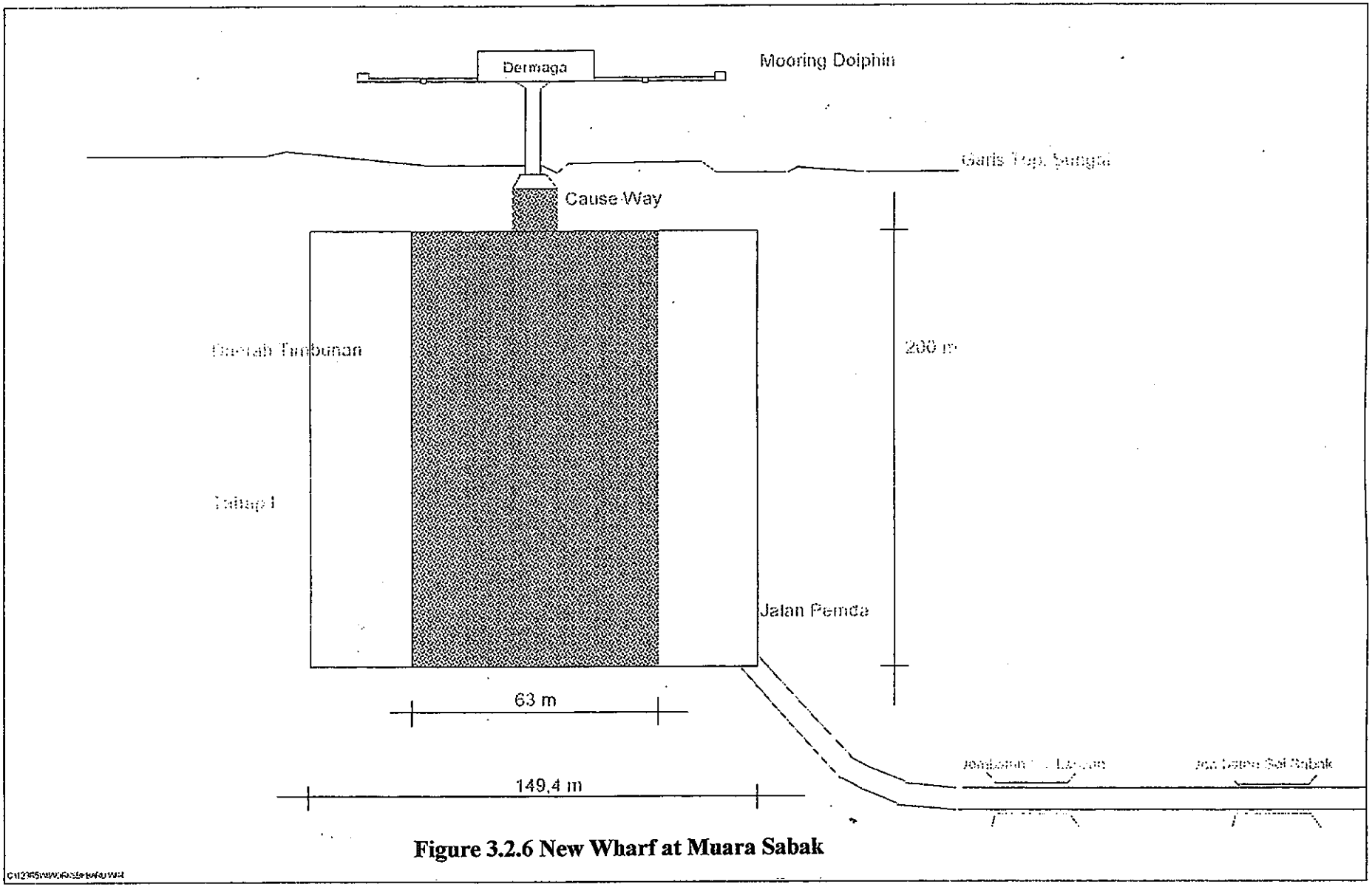


Figure 3.2.6 New Wharf at Muara Sabak

3.2.3 Palembang

(1) General

Port of Palembang has served the regional economy since 1924 at the present location. The port area of Palembang extends from the existing port, Boom Baru, to the new site, Sungai Lais (Figure 3.2.7). This is a marked difference from Pekanbaru and Jambi, whose port area extends to the sea. Many factories of the petroleum, fertilizer, and plywood industry are operating alongside the Musi River and they have their own wharves. For that reason, private wharves are handling more cargo than public wharves. These private wharves need to be taken into account when evaluating the port capacity.

(2) Public Wharves

Public wharves are located in two areas, Boom Baru (Figure 3.2.8) and Sungai Lais. Among them, Boom Baru is the main facility handling both container and bulk cargo. About a half of the quay length in front of the container yard is equipped with rails for a gantry. Consequently, a half of the wharf is dedicated to container vessels, while the remaining half is used as a multi-purpose terminal. This half is waiting for structural reinforcement to be equipped with crane rails. The reinforcement works have been delayed due to the economic crisis. Boom Baru has another quay for conventional cargo.

IPC 2 has 200 ha of land behind Sungai Lais, some 8km downstream from Boom Baru. Currently, there are only dilapidated seawalls in Sungai Lais. Log handling at this seawall has been stopped since its inland transportation changed from water transport to trucking. IPC 2 is planning to develop this area as CPO farms counting on the private sector participation (Figure 3.2.9).

Table 3.2.9 Public Wharves in Palembang Port

Quay	Length(m)	Depth (m)	Width of Apron (m)	Load capacity(t/m^2)
Boom Baru				
Conventional Wharf	375	6 - 7	10.5	3
Container Wharf	160	9 – 9.2	28	3.2
Multi-purpose Wharf	106	9 – 9.2	19.5	6.5
Sungai Lais				
	280	1 - 3	15	1

Source: IPC 2 branch office

Table 3.2.10 Public Storage Facilities in Palembang Port

Facility	Area (m^2)
Boom Baru	
Closed Sheds	8,812
Open Storage	8,173
Container Yard	47,100
Sungai Lais	
Closed Sheds	-
Open Storage	4,373

Source: IPC 2 branch office

IPC2 owns handling equipment for conventional cargo and container cargo (Table 3.2.11). It also owns seven pilot boats.

Table 3.2.11 Handling Equipment in Palembang Port

Equipment	Unit	Capacity (t)	Production	Condition (%)
Mobile Crane	2	25-35	1975-1984	65-70
Gantry Crane	1	30.5	1973	70
Forklift	11	2-15	1973-1999	60-90
Top Loader	1	30.5	1990	65
Side Loader	2	15	1979-1990	60-65
Head Truck	5	40	1983-1999	60-95
Chassis	6	40	1983-1990	60

Source: IPC 2 branch office

(3) Private Wharves

Private wharves are developed in Palembang Port to support the local industries (Table 3.2.12). Private wharves handle petroleum, fertilizer, and coal in a large amount and they are dedicated to the use of their owners. In addition to these wharves, a lot of wharves are operating along the Musi River handling wood products.

Table 3.2.12 Private Wharves in Palembang Port

User	Length(m)	Depth (m)	Cargo	Supporting facilities
PT. Pusri	680	5-8.5	Fertilizer	Warehouse, silo
Pertamina				
Plaju	291	4.5-6.5	Petroleum	Warehouse, storage tank, gantry crane
Sungai Gerong	301	6.5-7		
PT.Taba Kertapati	250	5-6		
PT. Semen Baturaja	17	6-7	Coal	
PN. Garam	80	5	Salt	

Source: IPC 2 branch office

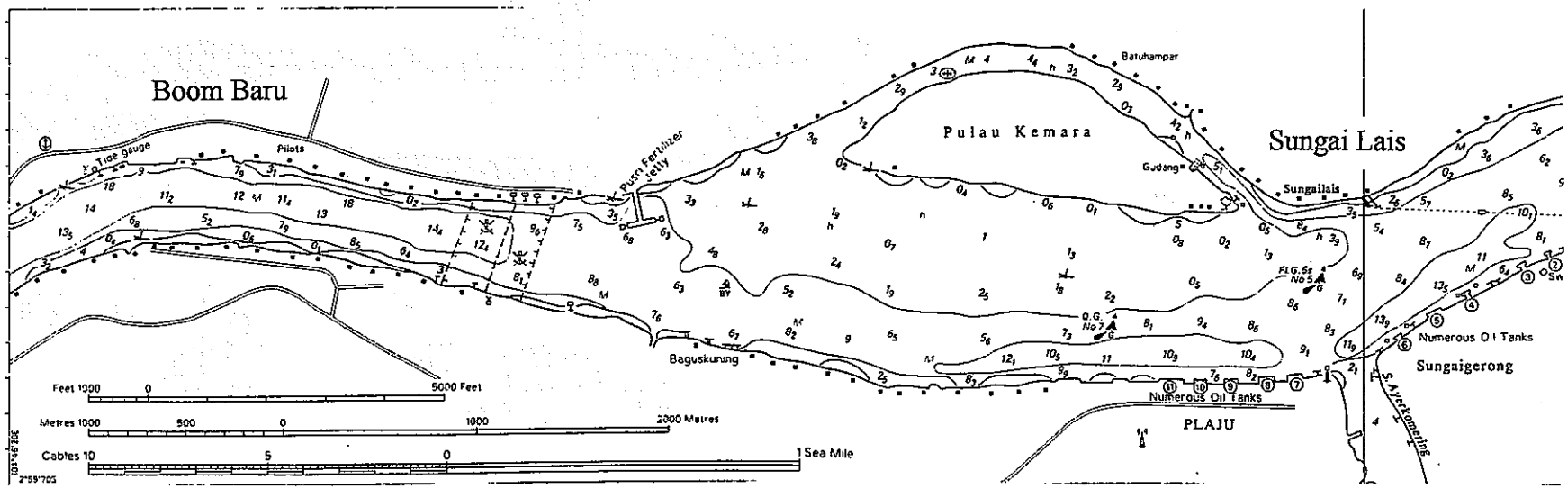


Figure 3.2.7 Boom Baru and Sungai Lais

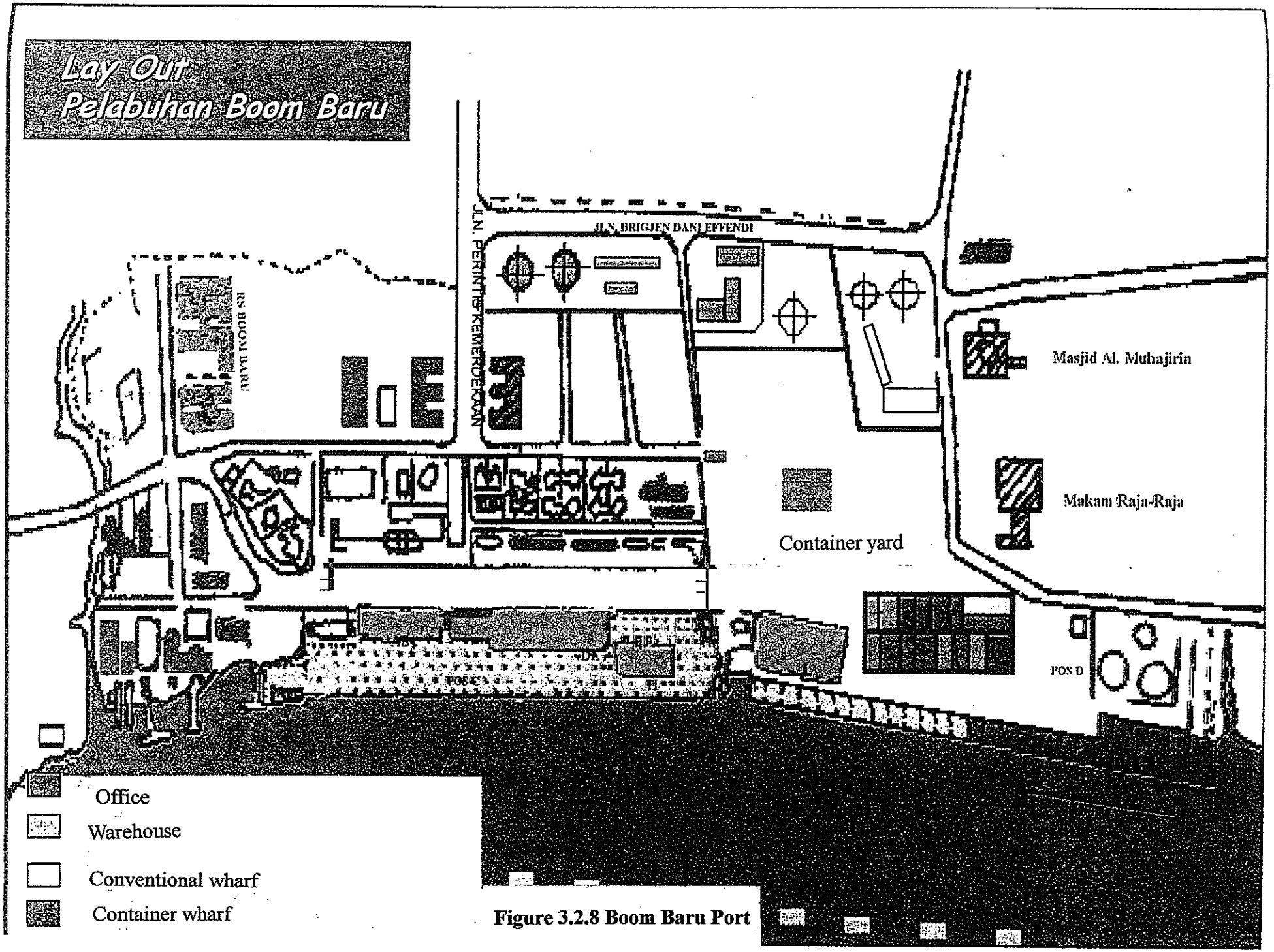


Figure 3.2.8 Boom Baru Port

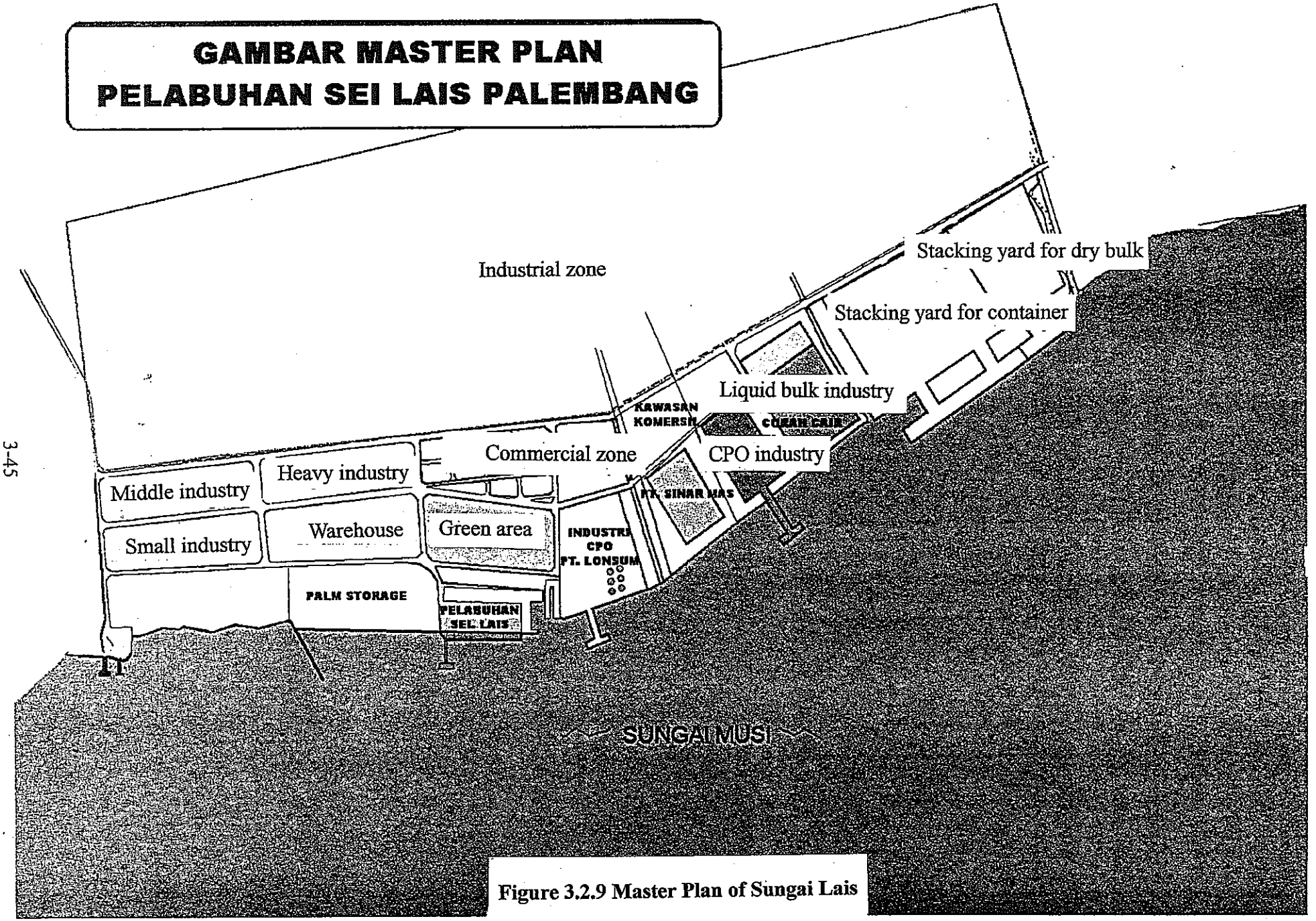


Figure 3.2.9 Master Plan of Sungai Lais

3.3 Access Channels

3.3.1 Pekanbaru

(1) General

Pekanbaru is located 96 miles from the river mouth (Figure 3.3.1). Tidal range is 3m at Pekanbaru as well as at the river mouth. Tidal movement in the river is delayed from that at the mouth, 6 hours' delay at Pekanbaru and 5 hours' delay at Perawang. The access channel is relatively deep except at the mouth. Five buoys are deployed around the island at the mouth, but only one of them is working.

Table 3.3.1 Access Channel of Pekanbaru

Port area (ha)	9,975
Channel length (mile)	96
Channel width (m)	60-100
Channel depth (m, LWS)	10-15

Source: MOC local office

(2) Navigation Rules

DGSC regulates navigation in the Siak River by Decree of Regional Head Officer 2 (Nov. 1984) (Table 3.3.2). Pilot is required for vessels over 150 GRT. Night navigation (6 PM - sunrise) is not allowed from Pertiwi upward. Latest arrival time at Pekanbaru is 6 PM, while latest departure time is 4 PM. Accordingly, incoming vessels should adjust their arrival time at Siak Sri Indrapura Port. Vessel traffic is two ways throughout the channel.

Table 3.3.2 Navigation Rules in the Siak River

Area	Maximum LOA (m)	Maximum draft (m)
At the port entrance	130	6.5
Up to Kuala Mandau	110	6.5
Up to Perawang	90	6
Up to Pekanbaru	50	5

Source: MOC local office

(3) Traffic Constraints

Sharp bends from Perawang upward seem to pose serious navigational difficulty. The Study Team also learned that the bend at Muara Sago – Teluk Rimba is difficult to negotiate.

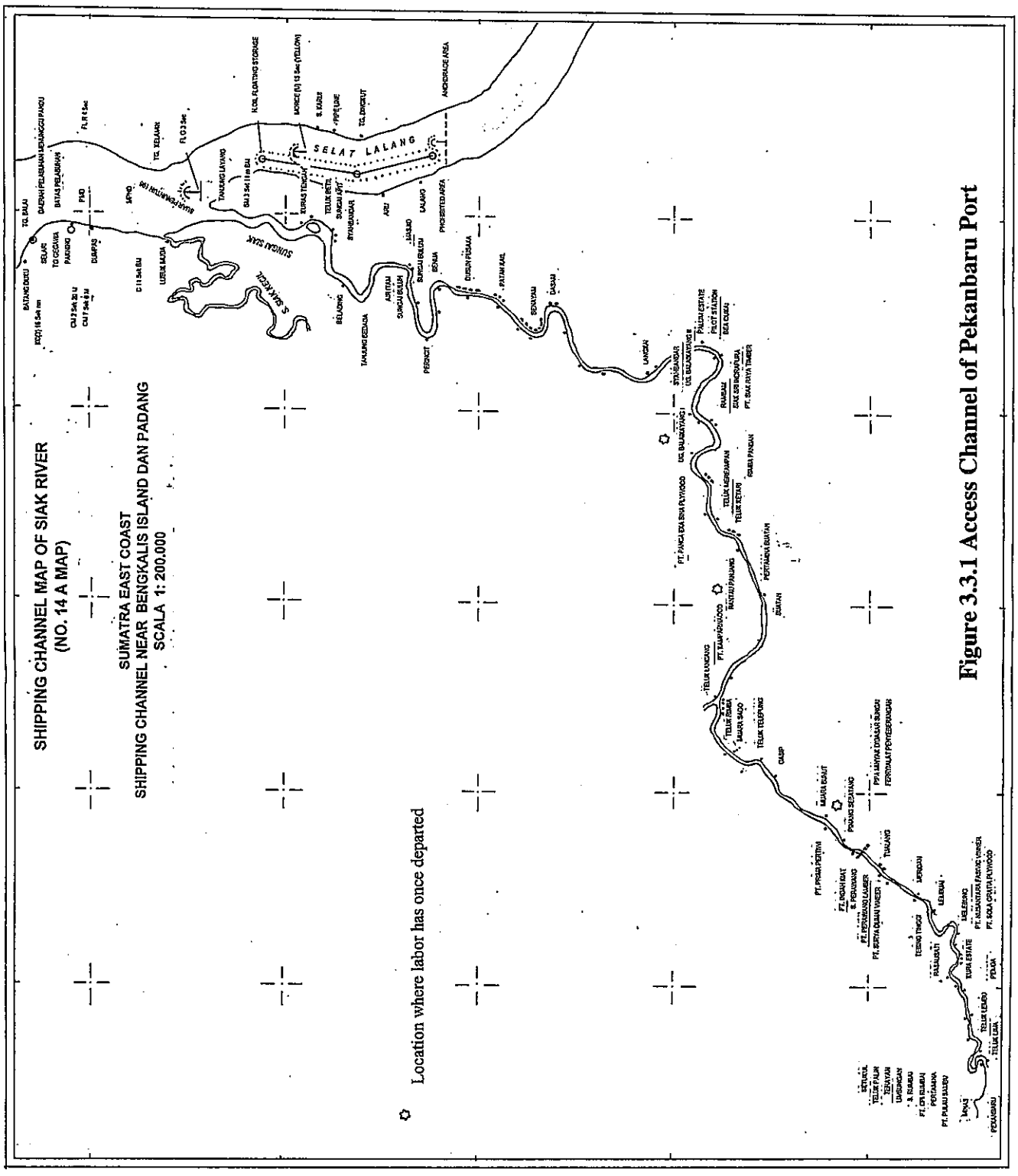


Figure 3.3.1 Access Channel of Pekanbaru Port

3.3.2 Jambi

(1) General

Jambi is located around 90 miles from the river mouth (Figure 3.3.2). The distance between the anchorage area and the pilot station (Teluk Majelis) is around 10 miles. In order to maintain the water depth of 5 m around the river mouth, maintenance dredging is required in 5 –6 miles of the channel from the estuary. Maintenance dredging is carried out every two years and costs Rp. 2.6 billion.

Table 3.3.3 Access Channel of Jambi (Batang Hari River)

Anchorage area – Pilot station (Teluk Majekis)	
Distance	10 miles
Width	80 m
Depth	4.5 m (LWS), 7.5 m (High tide)
Buoy	6
Pilot station – Jambi	
Distance	83 miles
Width	50 m (at narrow points)
Depth	LWS 2.5 – 3.3 m (at shallow areas)

Source: MOC local office

(2) Navigation Rules

The Jambi Port Administrator issued a decree on navigation in February 2001 determining the maximum vessel size navigable in the Batang Hari River in (Table 3.3.4). Vessels are requested to ask the pilot station at Teluk Majelis about the channel situation. Pilot is required for vessels over 105 GRT. 10 pilots are currently available and three more pilots are employed in April 2001. Night navigation and two-way traffic is allowed throughout the channel.

Table 3.3.4 Maximum Vessel Allowed in the Batang Hari River

Area	Maximum LOA (m)	Maximum Draft (m)	Clearance Draft (m)
Anchorage area – Muara Sabak	115	6.5	0.7
Muara Sabak – Jambi			
Rainy season/highest water	75	5.0	0.5
Dry season/lowest water	75	3.5 – 4.5 (Kumingking) 2.8 –3.5 (Talang Duku)	

Source: MOC local office

According to the above decree, vessels of over three meter in draft, when passing the Kelemak Channel, are requested to wait until about three hours after the high tide at the following places:

1) Vessels going to Talang Duku should berth at Muara Sabak/Sabak Indah
2) Vessels going out of Talang Duku should berth at Simpang Tua/Keramat Orang Kayo

Itam.

(3) Traffic Constraints

ADPEL in Jambi identified several problem areas along the Batang Hari River (Table 3.3.5). Sharp bends, shallow depth, and narrow points are found in many areas along the river. Among them, Kelemak Channel poses the biggest constraint for vessel navigation.

Table 3.3.5 Problem Points along the Batang Hari River

Problem Points	Navigation Constraints
Tanjung Pasir	Shallow
Sungai Dendang	Shallow
Tanjung Balam Loran	Sharp Bend
Teluk Keladi	Sharp Bend, Shallow, Narrow
Sungai Kelemak	Sharp Bend, Shallow (2.5 m LWS), Narrow
Tanjung Puding	Sharp Bend
Air Hitam	Shallow
Simpang Tua	Bend, Shallow, Narrow
Tanjung Olak Badar	Sharp Bend, Rotating Currents
Muara Jambi	Shallow (2.8 m LWS)
Tanjung Johor	Bend, Shallow (2.8 m LWS)

Source: MOC local office

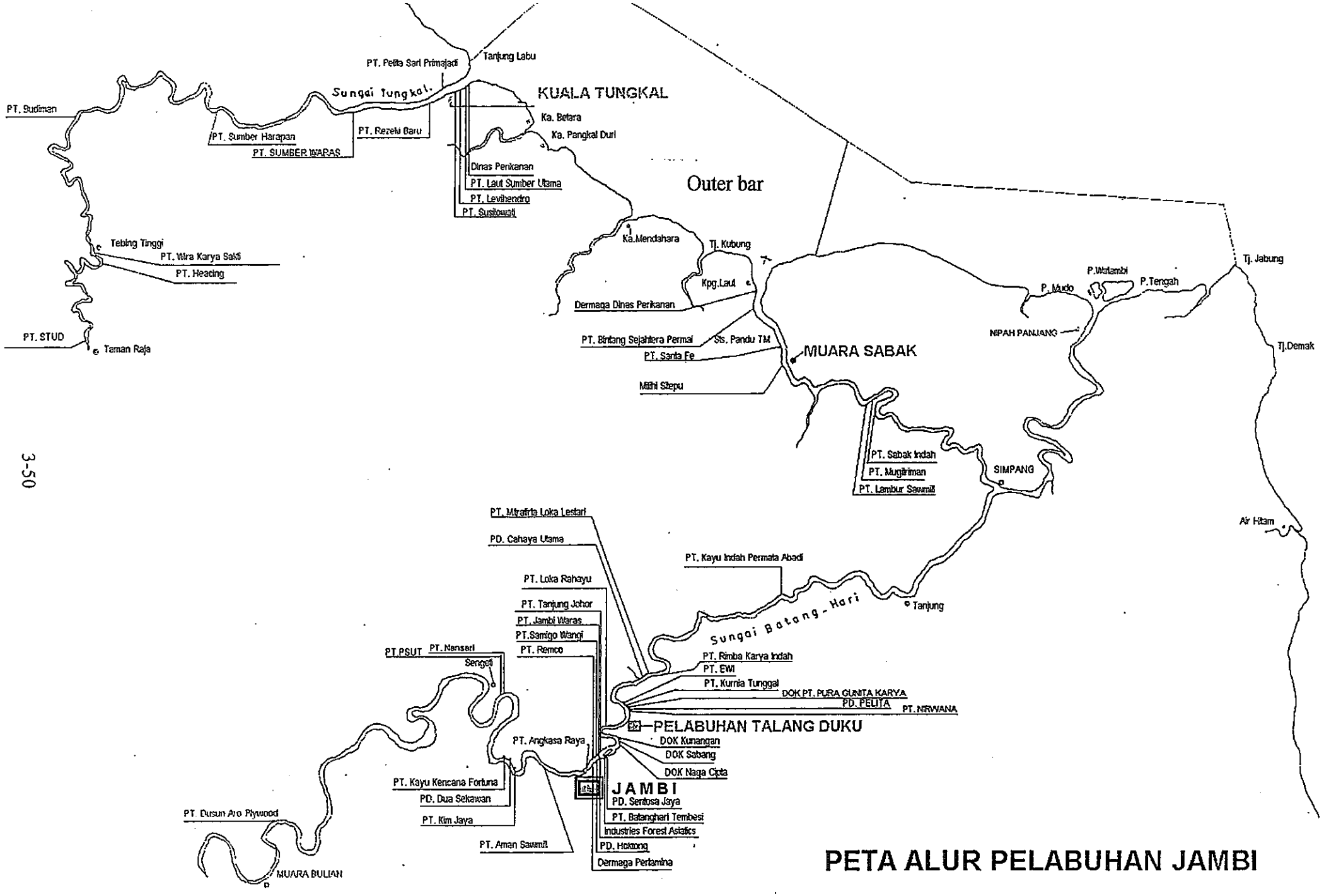


Figure 3.3.2 Access Channel of Jambi Port

3.3.3 Palembang

(1) General

Palembang is located some 80 km from the river mouth (Figure 3.3.3). Maximum tidal range at the river mouth is 3.75m. Tidal movement at Palembang is delayed from that at the mouth by 4 hours. The access channel is relatively deep except at the mouth. Thirty-five navigational aids are deployed between Boom Baru and the outer bar (Figure 3.3.4, Table 3.3.6). One of the aids placed at the outer bar is out of order due to a collision by a vessel. Maximum stream is 0.6 knot (northward) and 2.3 knot (southward). Highest wave of 1-2 m is experienced at the bar between November and February.

Table 3.3.6 Navigational Aids in the Musi River

Navigational Aids	Units
Lighted Buoy	10
Leading Light	10
Lighted Beacon	15

Table 3.3.7 Access Channel of Palembang

Port Working Area (ha)	1,006
Channel Length (km)	11.1 (within the port area) 100 (from the outer bar to Boom Baru)
Minimum Channel Width (m)	120
Minimum Channel Depth (m, LWS)	4.9
Sea Tide (m, LWS)	
HHWS	4.1
MHWS	3.7
MSL	2.1
MLWS	0.5

Source: MOC local office, DGSC pilot guide

(2) Navigation Rules

According to a sea pilot in Palembang, maximum LOA allowed to call is 185m. A pilot station is established at Tg. Buyut staffed with 20 sea pilots and 10 harbor pilots. Sea pilots are responsible for the navigation between the outer bar and Sungai Lais. Vessel traffic is allowed 24 hours. Two-way traffic is allowed throughout the channel except for foggy days, which occurred once every 4-5 years. In that occasion, the channel traffic is one-way alternating the direction every 24 hours.

(3) Traffic Constraints

Sharp bends at Sedumara, to the south of Pulau Singgis, and Tg. Kramat, to the east of Pulau Kramat pose navigational difficulty. The channel becomes narrower at the two bends as well.

ALUR SUNGAI MUSI

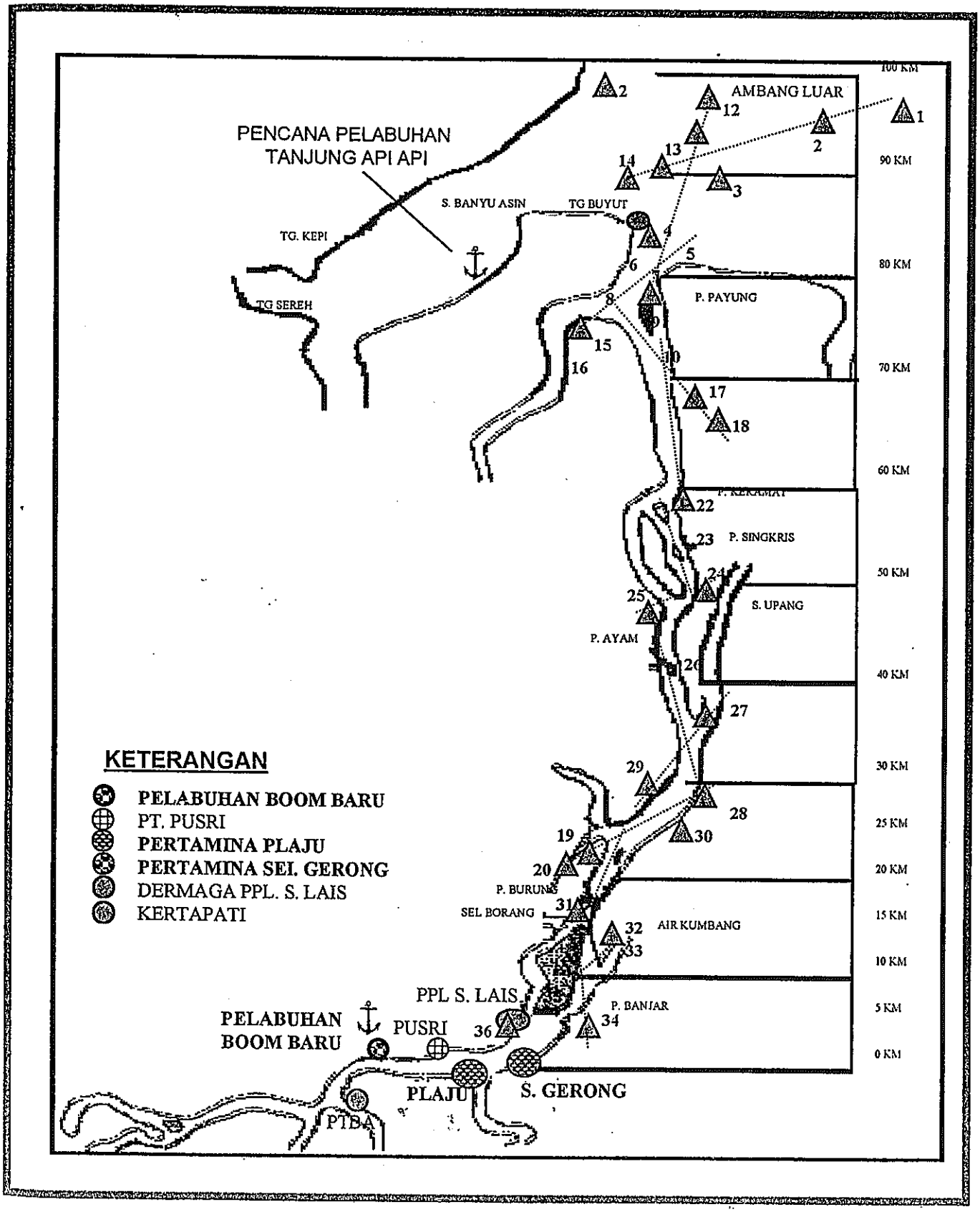


Figure 3.3.3 Access Channel of Palembang Port

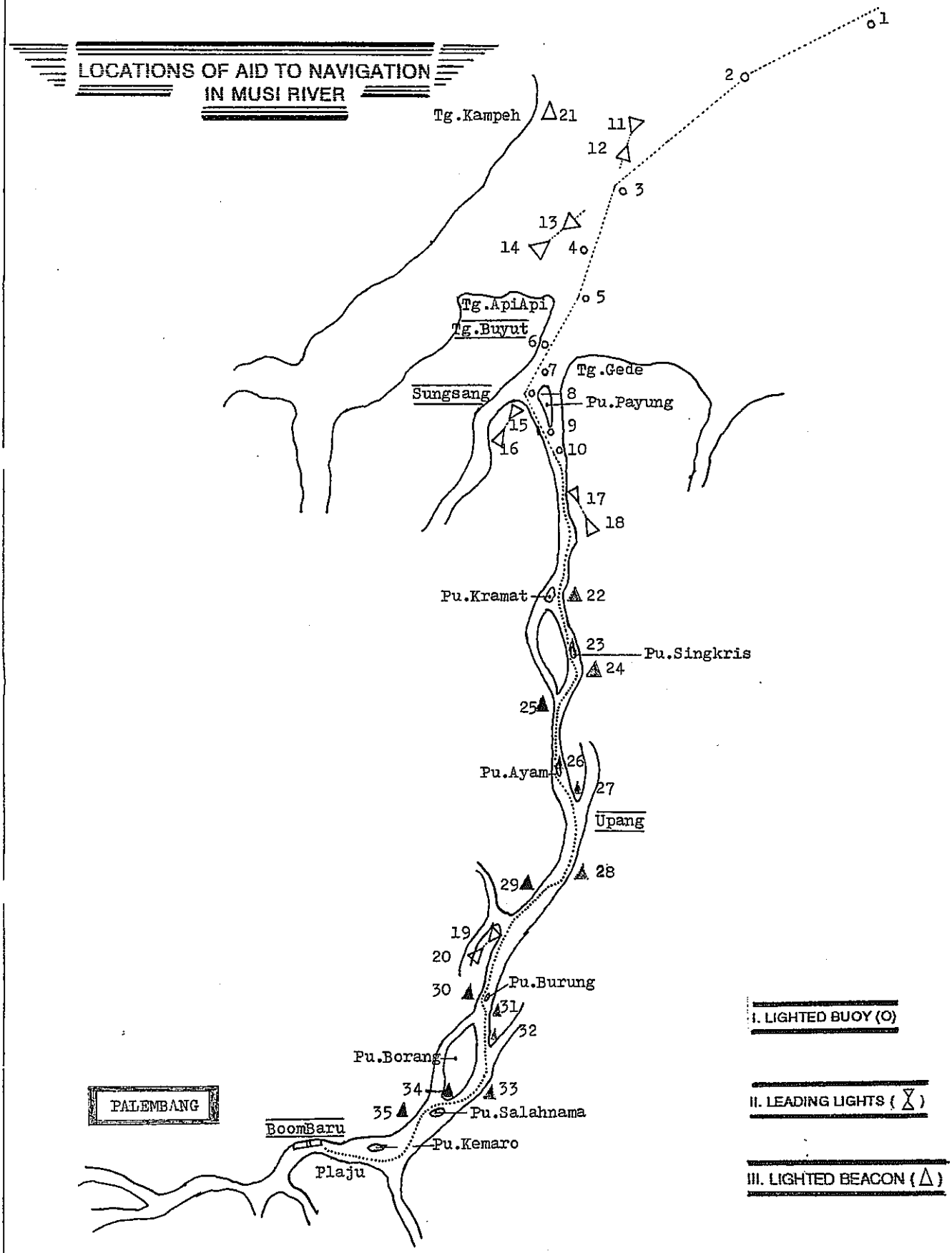


Figure 3.3.4 Navigation Aids in the Musi River

3.4 Existing Port Development Plans

3.4.1 Pekanbaru

DGSC and IPC 1 jointly carried out a master plan study on Pekanbaru in 1996. Traffic projection up to 2015 is given in this study (Table 3.4.1). After comparing three alternative locations, the Study chose Perawang as the site for long-term development (Table 3.4.2). The long term-development plan costs Rp. 14 billion and includes a wharf (200m), a stacking yard (6,200m^2), and a back up area (60ha). A 200m-wharf was proposed on the south shore at Perawang (Figure 3.4.1).

To keep up with the urgent needs, rehabilitation of Pekanbaru Port and creation of Perawang Port are proposed as short-term projects (Figure 3.4.2-3, Table 3.4.3). Considering the study findings, DGSC constructed a 58m-wharf at Perawang in 1997-1998. Actually, DGSC constructed it on the opposite side of the river in order to cater for the needs of the existing industries. DGSC has a plan to construct an additional 100m-wharf next to the existing one (Figure 3.4.4), but this plan is not authorized yet.

Table 3.4.1 Traffic Projection of Pekanbaru

(1,000 ton)

	1995	2000	2005	2010	2015
Export					
Public Wharves	62	72	90	102	114
Private Wharves	1,120	1,301	1,576	1,729	1,884
Total	1,182	1,372	1,665	1,831	1,998
Import					
Public Wharves	31	64	74	89	104
Private Wharves	216	441	681	916	1,151
Total	247	505	755	1,005	1,255
Unloading (Domestic)					
Public Wharves	140	198	239	287	335
Private Wharves	527	744	1,001	1,250	1,499
Total	667	942	1,240	1,537	1,835
Loading (Domestic)					
Public Wharves	15	21	29	37	45
Private Wharves	284	395	494	593	692
Total	299	416	523	630	737
Total					
Public Wharves	248	355	432	515	598
Private Wharves	1,952	2,881	3,752	3,948	5,226
Total	2,200	3,236	4,183	4,463	5,824

Source: Master Plan and Feasibility Study on Pekanbaru, Tanjung Pinang, and Kuala Enok, DGSC/IPC 1, 1996

Table 3.4.2 Comparison of Alternative Sites

Aspects	Coefficient	Melubung		Perawang		Muara Sungai Siak	
		Value	Score	Value	Score	Value	Score
River (Navigation)	40	3	120	5	200	5	200
Land	30	4	120	5	150	3	90
Access	20	5	100	4	80	3	60
Labor	10	5	50	5	50	4	40
Total	100		390		480		390

Source: Master Plan and Feasibility Study on Pekanbaru, Tanjung Pinang, and Kuala Enok, DGSC/IPC 1, 1996

Table 3.4.3 Projects for Short-term

Port	Projects	Costs (Rp. million)
Pekanbaru	Rehabilitation of Wharf Floor	200
	Rehabilitation of Roads	450
	Arrangement of Passenger Terminal	250
	Improvement of Utility	200
	Improvement and Replacement of Handling Equipment	100
	Installment of Navigational infrastructure	250
	Total	1,450
Perawang	Preparation of Infrastructure (Reclamation, Slope, Warehouse, Container Yard, Road, Utility, Office)	3,903
	Construction of Wharf (50m×15m)	3,000
	Total	6,903

Source: Master Plan and Feasibility Study on Pekanbaru, Tanjung Pinang, and Kuala Enok, DGSC/IPC 1, 1996

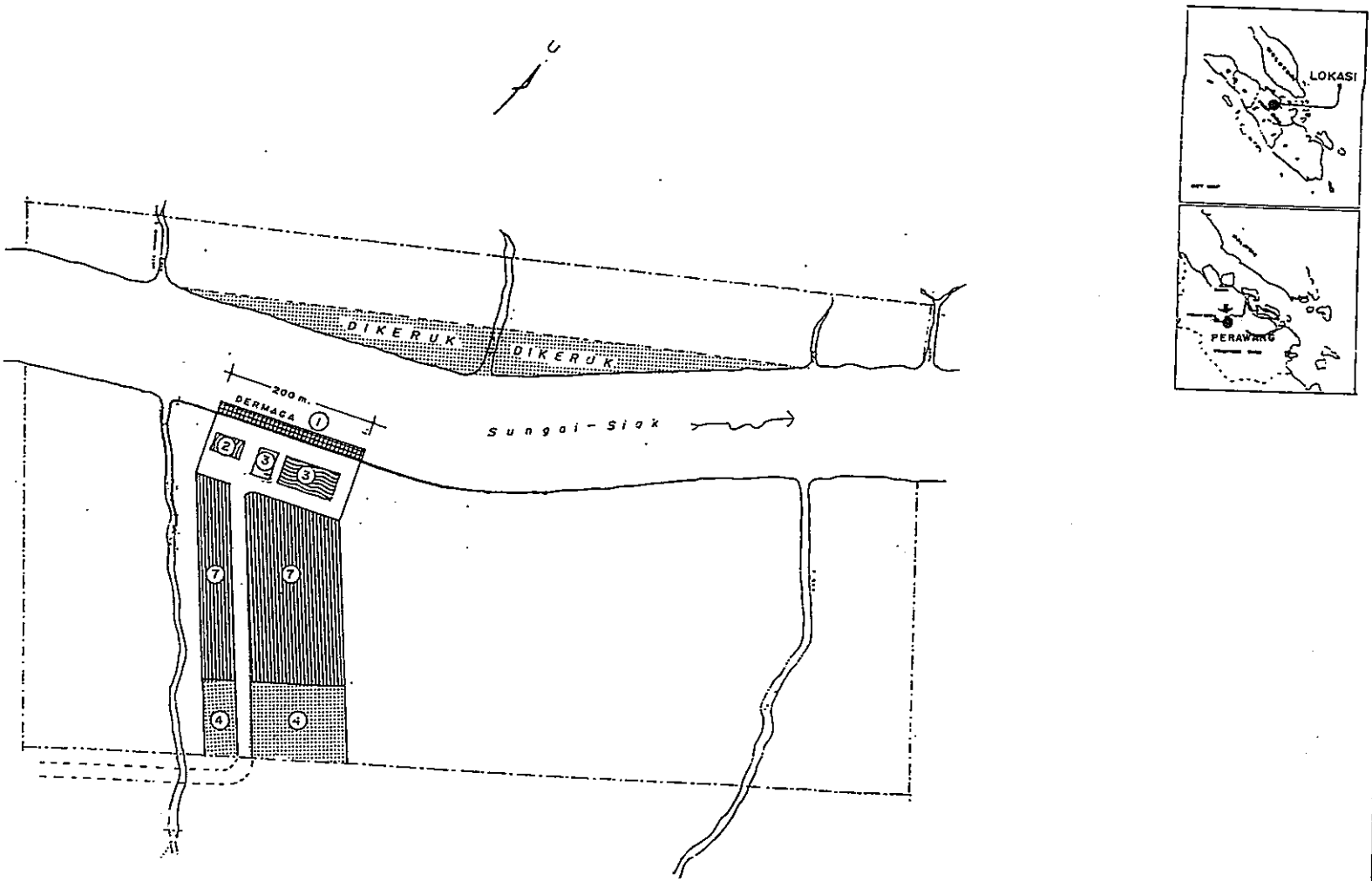


Figure 3.4.1 Master Plan of Perawang Port (2015)

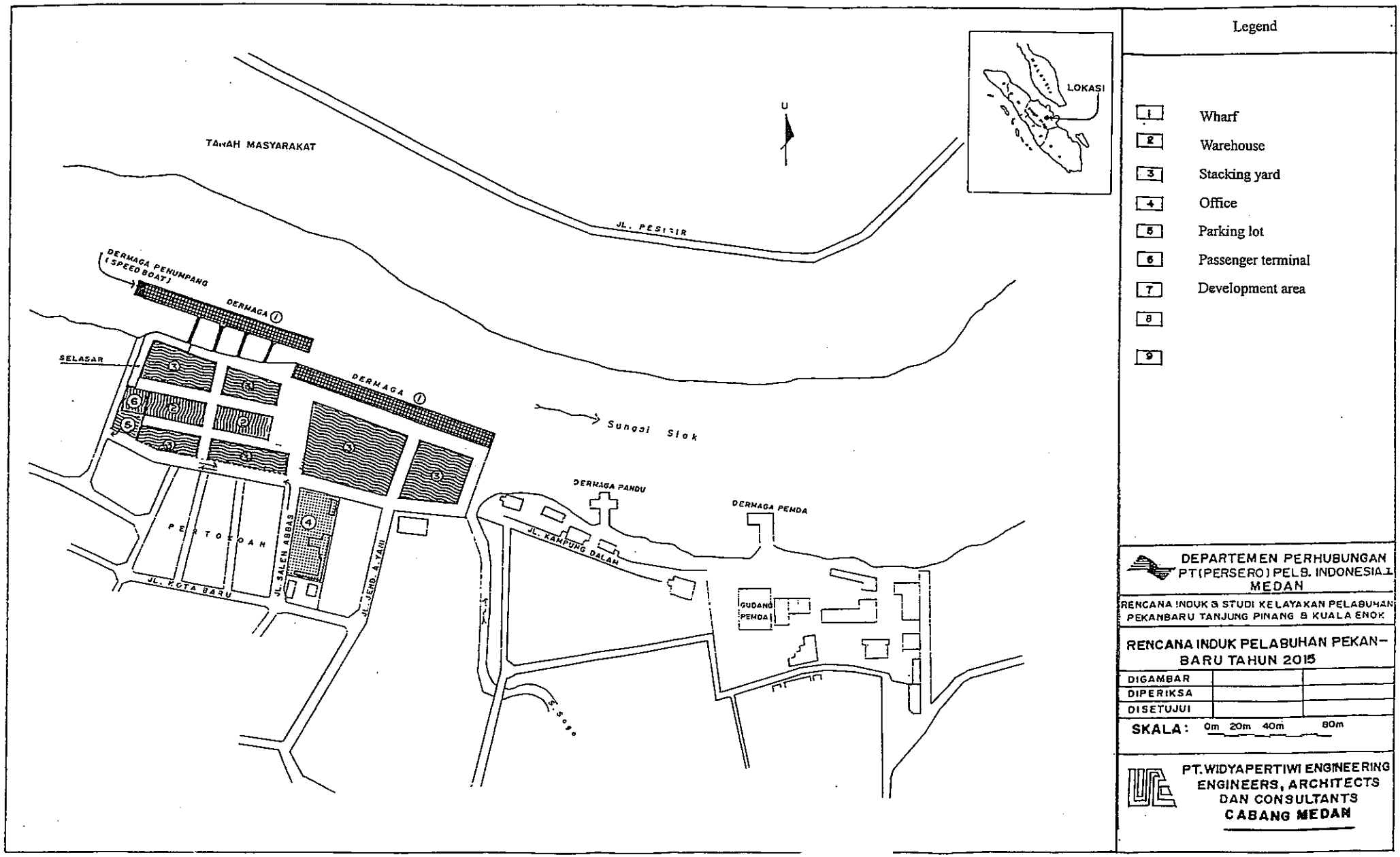
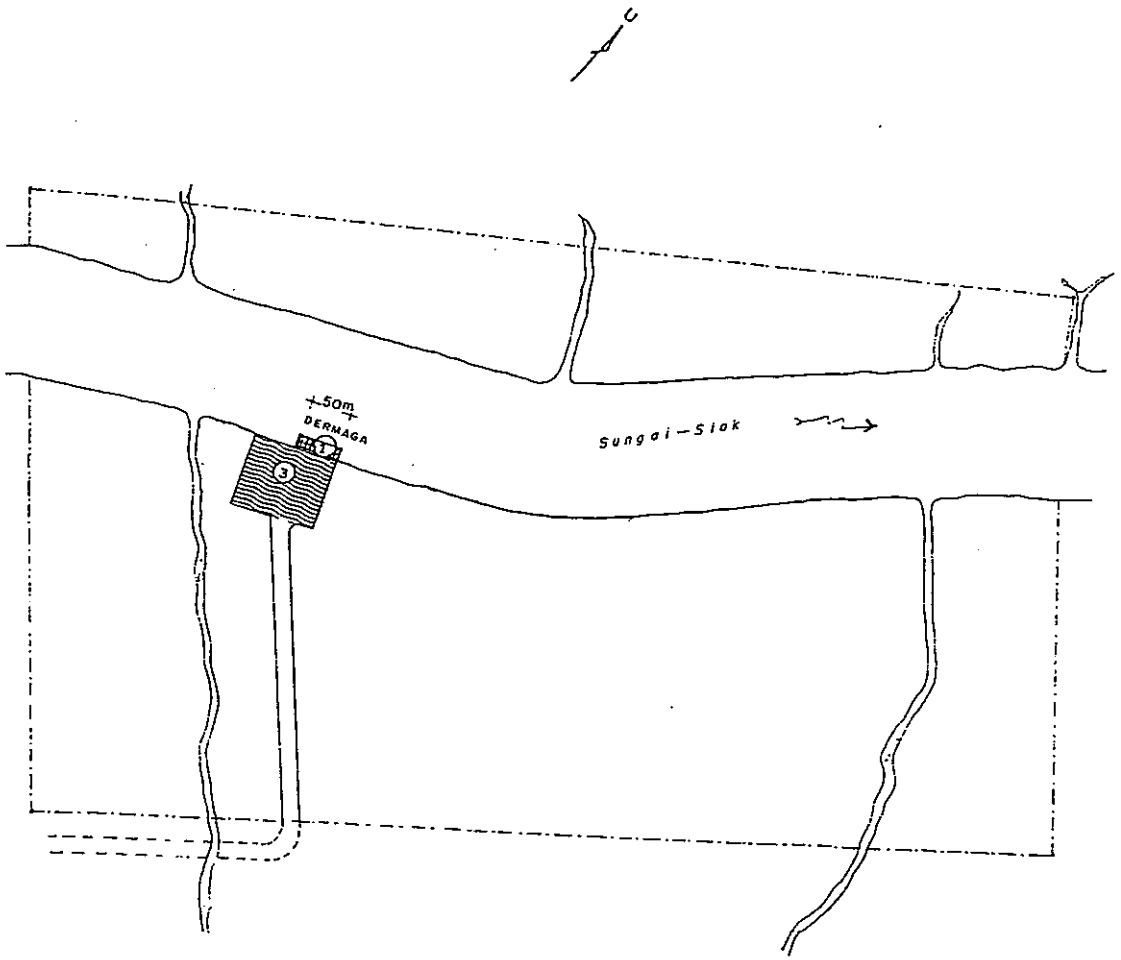
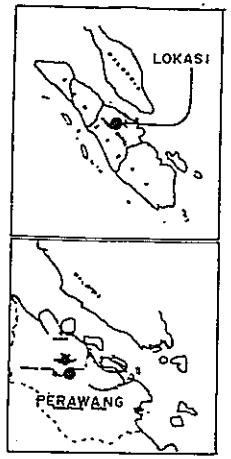


Figure 3.4.2 Master Plan of Pekanbaru Port (2015)





Legend

1 Wharf
2 Warehouse
3 Stacking yard
4 Office
5 Parking lot
6 Passenger terminal
7 Development area
8
9

DEPARTEMEN PERHUBUNGAN
PT (PERSERO) PELB. INDONESIA I
MEDAN

RENCANA INDUK & STUDI KELAYAKAN PELABUHAN PEKANBARU TANJUNG PINANG & KUALA ENOK

RENCANA PENGEMBANGAN PELABUHAN PERAWANG
JANGKA PENDEK (S/D TAHUN 2000)

DIGAMBAR		
DIPERIKSA		
DISETUJUI		

SKALA : 0m 50 100 200m

PT. WIDYAPERTIWI ENGINEERING
ENGINEERS, ARCHITECTS
DAN CONSULTANTS
CABANG MEDAN

Figure 3.4.3 Short-term Plan of Perawang Port (2000)

Peta Rencana Pengembangan Pelabuhan Perawang

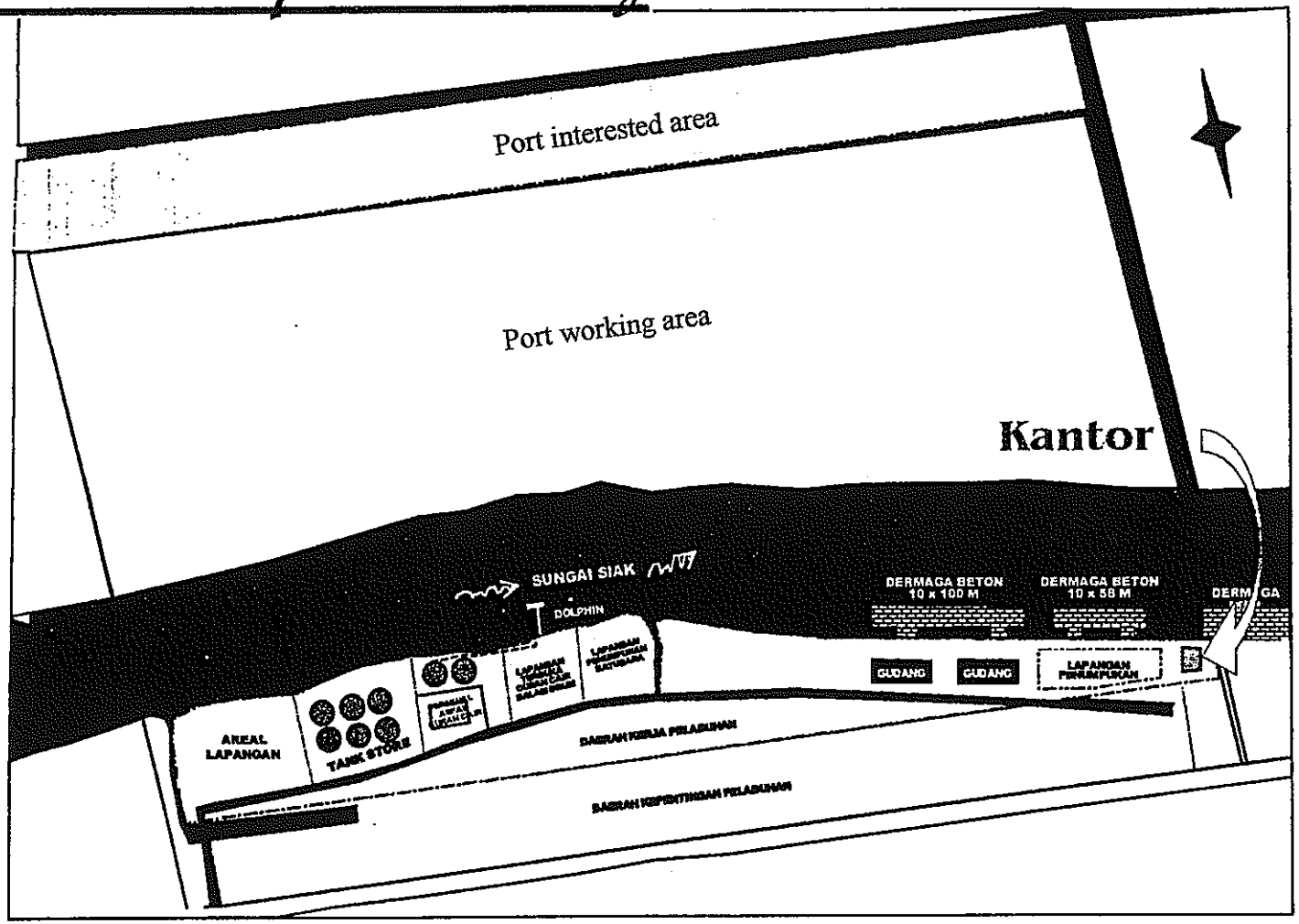


Figure 3.4.4 Expansion Plan of Perawang Port

3.4.2 Jambi (Muara Sabak)

(1) IPC II Study

IPC 2 carried out a master plan study on Muara Sabak in 2000. Traffic projection up to 2025 is given in this study (Table 3.4.4). Distribution of cargo among the ports is projected as well (Table 3.4.5).

Table 3.4.4 Traffic Projection of Muara Sabak

Scenario		2000	2005	2010	2015	2020	2025
Optimistic	General Cargo (,000t)	54	563	1,248	2,026	2,591	3,416
	Container (,000TEU)	-	9	52	128	216	365
Moderate	General Cargo (,000t)	53	514	1,060	1,603	1,910	2,347
	Container (,000TEU)	-	8	44	101	159	251
Pessimistic	General Cargo (,000t)	52	467	899	1,264	1,401	1,604
	Container (,000TEU)	-	7	37	80	117	172
CPO (,000t)		-	469	608	608	508	544
Coal (,000t)		-	-	450	450	450	450

Source: Master Plan Study on Jambi Muara Sabak, IPC2, 2000

Table 3.4.5 Distribution of Cargo among Neighboring Ports

(%)

Year	Muara Sabak	Talang Duku	Kuala Tungkal
1999	5	71	24
2000	5	73	22
2005	49	51	-
2010	69	31	-
2015	73	27	-
2020	75	25	-
2025	77	23	-

Source: Master Plan Study on Jambi Muara Sabak, IPC2, 2000

This report establishes two alternatives according to the distribution of cargo between public wharves and private wharves. For the alternative 2 (increased role of public wharves), this report proposes the creation of 1,100 m-quay, 300m of which is for container (Figure 3.4.5). Total project cost is estimated to be as high as Rp. 900 billion (Table 3.4.6) and FIRR (financial internal rate of return) is found to be low, at 4.5-5.5%.

Table 3.4.6 Project Costs

Item	Costs (Rp. billion)
Main port facilities	492
Equipment	119
Supporting facilities	289
Land	1
Total	901

Source: Master Plan Study on Jambi Muara Sabak, IPC2, 2000

(2) DGSC Study

In 1996, DGSC carried out a comprehensive port development study for the Southern Sumatra and West Java Region. Jambi and Muara Sabak are included in the study. This study identified two alternatives for the port development catering for Jambi Province. One is expansion of Talang Duku, a new terminal close to the existing port. The other is creation of a new deep-water port at Muara Sabak, 162 river nautical miles from Jambi and 20km from the outer bar of the Batanghari River. The plan for Phase 1 development of Muara Sabak includes a 500m multi-purpose quay with 10ha of open storage area as well as a CPO tank farm (Figure 3.4.6).

Muara Sabak and Tanjung Api-Api are similar in development concept, aiming to provide a deeper draft port catering for the cargo from Jambi Province. Since these two locations are just 100 miles away and Tanjung Api-Api can provide a lot deeper draft than Muara Sabak, the study concluded that the Muara Sabak development would have no justification if Tanjung Api-Api is developed.

This study assumed the following:

1) If Api-Api is not developed, rubber and palm oil from Jambi Province will be exported via Belawan, Singapore, or Jakarta.
2) If Api-Api is developed, these cargoes will be exported via Api-Api.
3) Under either scenario, 50% of the Jambi Province exports will be handled via Muara Sabak and/or Api-Api. The rest will be transshipped midstream and handled by other ports.
4) Due to the lack of information on the siltation around the project site, dredging costs for deepening the outer bar from the current depth of 4.5m to the design depth of 6m are excluded from the economic evaluation.

The study concluded that development of Muara Sabak would not be feasible in either scenario (Table 3.4.7).

Table 3.4.7 Cost and Benefits of Muara Sabak Development

	Export/ Import Containers	Rubber	Palm Oil	Total
Without Api-Api				
Present Value ($,000)				
- Hinterland Transport Savings for Jambi Province	4,423	7,499	548	12,470
- Estimated Costs of Phase 1				55,000
- Net Benefits (Losses)				- 42,530
Unit Cost Saving ($/t or $/TEU)				
- Transport Cost and Handling	28.0	3.4	0.3	
With Api-Api				
Present Value ($,000)				
- Hinterland Transport Savings for Jambi Province	4,423	- 482	- 1,579	2,362
- Estimated Costs of Phase 1				55,000
- Net Benefits (Losses)				- 52,638
Unit Cost Saving ($/t or $/TEU)				
- Transport Cost and Handling	28.0	- 0.2	- 0.7	

Source: Technical Assistance Services for a Ports Development Strategy for the Southern Sumatra and West Java Region, July 1996

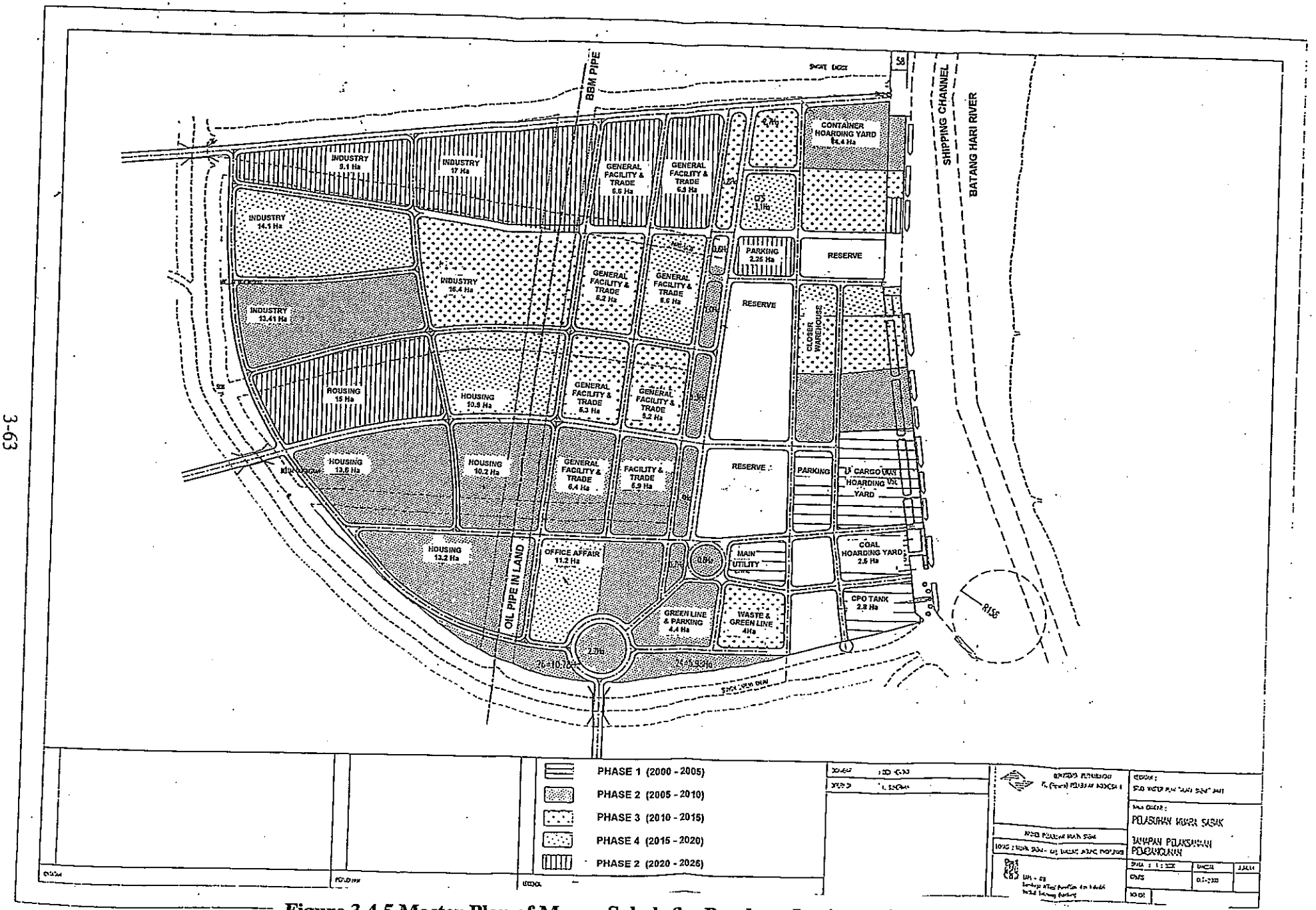


Figure 3.4.5 Master Plan of Muara Sabak (by Bandung Institute of Technology)

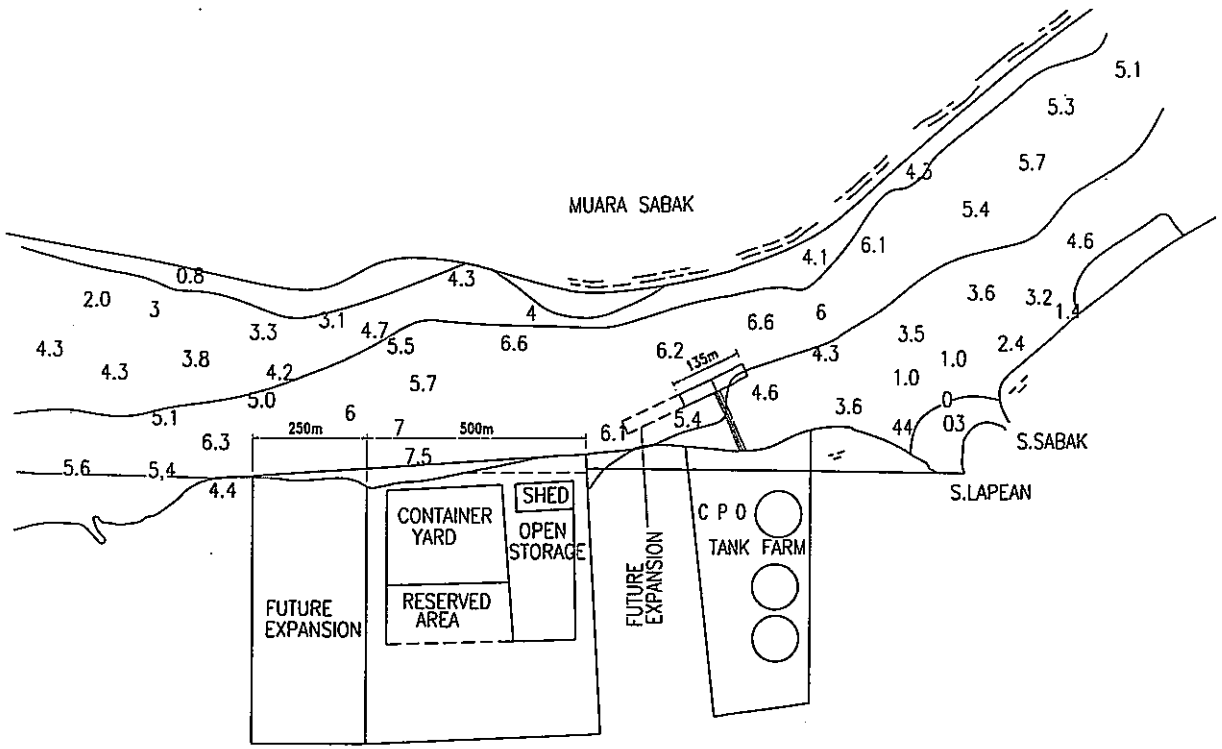


Figure 3.4.6 Master Plan of Muara Sabak (by Louis Berger International)

Consultant	LOUIS BERGER INTERNATIONAL, INC. ENGINEERS. PLANNERS. SCIENTISTS. ECONOMISTS
Client	MINISTRY OF COMMUNICATIONS DIRECTORATE GENERAL OF SEA COMMUNICATIONS
Title	PORT DEVELOPMENT STRATEGY STUDY FOR THE SOUTHERN SUMATRA AND WESTERN JAVA REGION
Sub title	*PORT OF MUARA SABAK JAMBI PROVINCE*
Drawing No. 3.10	Scale NTS

3.4.3 Palembang

Numerous studies have been carried out on the deep-water port development at Tanjung Api-Api. In 1996, DGSC carried out a comprehensive port development study for the Southern Sumatra and West Java Region. Palembang and Tanjung Api-Api are included in the Study. This study identifies two alternatives to deal with the capacity constraints of the existing facilities in Palembang. One is container terminal development in Sungai Lais near Palembang in the short-term and another is creation of a new deep-water seaport at Tanjung Api-Api (Table 3.4.8, Figure 3.4.7). Tanjung Api-Api is located at the mouth of the Banyuasin River, approximately 85km from Palembang and 10km from the mouth of the Musi River.

This study assumed the following in carrying out traffic projection:

1) Project costs ($85 billion) correspond to the medium-term development including a 500m pier with an alongside depth of 12m and connecting bridges as well as CPO tank and its loading facility.
2) Benefits of the project are derived from the medium-term cargo demand.
3) The new Tanjung Enim coal exports will be shipped via Tanjung Api-Api.The private sector will construct the coal port as well as basic infrastructure including railway access, road access, entrance channel, and navigational aids.
4) Accordingly, the construction costs for railway and road access are excluded from the economic evaluation.

Traffic projection in the study further assumed the following:

1) 75 % of the cargo from the South Sumatra province will be handled at Tanjung Api-Api and the rest will be transferred mid-stream and handled at other ports.
2) 50 % of the cargo from the Jambi province will be handled at Tanjung Api-Api and the rest will be transferred mid-stream and handled at other ports.

Table 3.4.8 Traffic Projection of Palembang/Tanjung Api-Api

	Non-containerized Cargo (,000 t)				
	Dry Bulk	Liquid Bulk	General Cargo	Sub Total	Containers (,000 TEU)
1994	2,140	6,488	986	9,614	44
2004	14,163	6,253	1,468	21,884	99
2018	32,013	6,593	2,831	41,437	289

Note: Assuming Tanjung Enim coal exports via Api-Api

Source: Technical Assistance Services for a Ports Development Strategy for the Southern Sumatra and West Java Region, July 1996

The following are the conclusions and recommendations of the study (Table 3.4.9):

1) If the private sector develops a coal port together with land access to Tanjung Api-Api, development of a public port at Tanjung Api-Api seems viable.
2) Otherwise, public port development at Tanjung Api-Api is doubtful.

3) Accordingly, the final decision on public port development at Tanjung Api-Api can be made only after an overall scheme of coal exports and associated infrastructure is determined.

Table 3.4.9 Cost and Benefits of Tanjung Api-Api Development

	Export/ Import containers	Rubber	Palm Oil	Total
Present value ($,000)				66,413
- Hinterland Transport Savings for South Sumatra Province	1,246	61,669	3,498	
- Hinterland Transport Savings for Jambi Province				19,951
- Sub-total Hinterland Transport Savings		16,061	3,890	86,364
- Estimated Costs of Phase 1				85,000
- Net Benefits	1,246	77,730	7,388	1,346
EIRR				10%
Unit Cost Saving ($/t or $/TEU)				
- Palembang Traffic diverted to Api-Api	5.0	18.4	6.4	
- Jambi Province Traffic diverted to Api-Api		7.8	2.4	

Source: Technical Assistance Services for a Ports Development Strategy for the Southern Sumatra and West Java Region, July 1996

For quite a while, the South Sumatra Provincial Government has been keen to realize the Tanjung Api-Api development (Table 3.4.10). The main reason behind that is to create a direct outlet to the sea for the products of the province. The provincial government started to construct an access road to Tanjung Api-Api in 1991. Out of the total length of 69 km, 15 km has been completed. The road includes seven bridges, five of which have been completed (Figure 3.4.8). The Provincial Government plans to complete the entire length in 2003. Since more than half of the road investment was made before 1996, the once completed pavement is already dilapidated and its repair will require a considerable amount of fund.

Table 3.4.10 Chronology of Tanjung API-API Port Development

NO.	PLACE AND DATE	ACTIVITIES	RESULTS
1.	Palembang (1976)	- Study of EG. Frankel Inc. Consultant.	- Recommending Tg. Api-api , That is feasible to be developed.
2.	Palembang (1989)	- Survey of BCOM, DOXIAIDS, and KANSSAX Consultants cooperate with PT. Buana Archon.	- Tanjung Api-api Port is feasible to be developed.
3.	Palembang (1993)	- Survey of JICA Consultant (Japan Intrenatioanal Coorporation Agency).	- Recommending Tanjung Api-api Port Development, that starts to be developed in 2000.
4.	Palembang (January 22, 1994)	- Issuing of Governor's Decree of South Sumatra, No. 046/SK/I/94 concerning the license of location for street development in Tanjung Api-api Ocean Port.	- License of location for street development in Tanjung Api-api Port, the area is 5,552.76 Ha • 5000 Ha for Port • 4.6 Ha (4.5 Km) for Street • 506.76 Ha (50.676 Km) for Street.
5.	Palembang (1996)	-Survey of LOIS BERBER INTER Consultant cooperate with PT. BAJA ATI BRATA.	- Tanjung Api-api Port is feasible and Reasonable to be.developed.
6.	Palembang (October 21, 1994)	- MOU (Memorandum of Understanding) between PT. BUKIT ASAM and PT. PANCA SAHABAT ABADI.	- Proposal to Governor for land liberation as 76 Km of Railway from Kertapati , Tanjung Api-api.
	(July 2, 1996)	- MOU between PELINDO II and PT. PANCA SAHABAT ABADI.	- Arrangement of Feasibility Study, joint agreement of development and operation of public port (Multipurpose + Coal) in Tanjung Api-api.
	(September 26, 1996)	- MOU between PERUMKA (Railway Public Corporation) and PT. PANCA SAHABAT ABADI.	- Proposal to Governor for land liberation as 8000 Ha for Tanjung Api-api Port.
7.	Sekayu (1997)	- Survey of Musi Banyuasin Regency Government.	- Supporting the Study of Detail Space Plan of Tanjung Api-api Area.
8.	Palembang (1997)	- Survey of BECHTEL Consultant, MOU of PELINDO II and PT. PANCA SAHABAT ABADI.	- Recommending Tanjung Api-api Port Development, that is feasible to be developed.
9.	Palembang (December 23, 1997)	- Meeting of Regional Government High Officer and DPR (Indonesia Legislative Assembly).	- Member of DPR really supports Development Plan of Tanjung Api-api Port.

NO.	PLACE AND DATE	ACTIVITIES	RESULTS
10.	Perth, Australia (September 5, 2000)	- Receiving the letter from Nutriworld Australia PTY LTD.	- Information, that is considering the process to chose qualifying contractor. - Data Clarification.
11.	Perth, Australia (September 15, 2000)	- Receiving the letter from Nutriworld Australia PTY LTD.	- Information concerning Survey of road to Tanjung Api-api. - Contribution of Regional Government at Level I of South Sumatra in the street development to Tanjung Api-api.
12.	Perth, Australia (January 29, 2001) (January 30, 2001)	- Meeting between Mr. Governor of South Sumatra Province and Australia PTY LTD.	1. They will make a meeting with Minister of Finance and PT. Bukit Asam and visit to Palembang on February 10 – 11, 2001 . There are 2 (two) alternatives of Tanjung Api-api Development: • Special Port for exporting the coal • Public Port (Highway)
13.	Palembang (February 6, 2001)	- Sending the letter of South Sumatra Province's Governor to Head of DPRD (Legislative Assembly at Regional Level) of South Sumatra Province concerning Tanjung Api-api Port Development.	1. Two alternatives of Tanjung Api-api Port Development. 2. Proposal of support from DPRD of South Sumatra.
14.	Palembang (February 9 - 11, 2001)	- Visit of Australia PTY LTD to Palembang and Location Plan for Tanjung Api-api Port	- They Have met with Mr. Governor of South Sumatra and head of Bappeda (Agency for Regional Development) - Checking the street route and Tanjung Api-api Port Development Plan
15.	Palembang (February 12, 2001)	- Receiving the invitation letter from Head of DPRD of South Sumatra Province concerning Tanjung Api-api Port Development Plan.	- DPRD of South Sumatra Province supports Tanjung Api-api Port Development Plan.
16.	Palembang (February 15, 2001)	- Receiving the Decree of South Sumatra Governor No. 042/SK/Bappeda/2001 on February 15, 2001 concerning the Forming of Coordination Team for Planning and Preparing of Tanjung Api-api Port Development, South Sumatra Province.	- Preparing the Coordination Meeting. - Conveying the Decree of Team. - Increasing the Decree of Team.
17.	Palembang (February 20, 2001)	- Receiving the Letter from Provincial Secretary of South Sumatra No. 005/0684/IV/2001 on February 13, 2001, concerning the following action of coordination team meeting.	- Soon, to make a Meeting for Coordination Team that discusses the following action on the cooperation with Nutriworld Australia PTY LTD.

NO.	PLACE AND DATE	ACTIVITIES	RESULTS
18.	Palembang (February 21, 2001)	- Preparing and Conveying the Invitation of Coordination Team's Meeting	- The Invitation Letter has been conveyed to all members of Coordination Team
19.	Palembang (February 27, 2001)	- To make a Meeting of Coordination Team for Discussing the Cooperation with Nutriworld Australia PTY LTD.	- They have made a Meeting of Coordination Team.
20.	Palembang (March 1, 2001)	- Sending the notes of Meeting to all members of Coordination Team, No. 050/0225/Bappeda-KP/2001.	- The Notes have been sent to all members of Coordination Team. • Increasing of connected Institution as Governor's Decree of South Sumatra. • Forming of Small Team: - To Prepare the data of potency - To Prepare the data of location choosing as 5,527.76 Ha.
21.	Palembang (March 2, 2001)	- Sending the letter of Bappeda of South Sumatra Province to the Governor Of South Sumatra, No. 610/02336?Bappeda-KP/2001.	- Report of Coordination Meeting on February 27, 2001 in Bappeda of South Sumatra Province. - Notes of Meeting.

Source: South Sumatra Provincial Government

Table 3.4.11 Access Road to Tanjung Api-Api (works completed up to 2000)

Item	Works completed
Filling by Local Soil (Swamp Soil)	68.6 km
Filling by Soil from other Area	26.6 km
Coating by Asphalt	15.5 km
Bridge	5 (560 m)
Investment	
National budget	Rp.20,530 million
Provincial budget	Rp.6,277 million
Total	Rp.26,807 million
Additional Investment needed for completion	
Street (4 Lanes)	Rp.411,684 million
(Stage 1: 2 Lanes)	(Rp.152,538 million)
Bridge (280m)	Rp.11,200 million
Total	Rp.422,884 million

Source: South Sumatra Provincial Government

It also allocated 5,500 ha of area around Tanjung Api-Api as a development area. The Provincial Government contemplates two alternative ways for the port development. One is a development as a public port and the other is as a special port. The South Sumatra Province is in negotiation with an Australian investor for the development. In short, the future of the Tanjung Api-Api development is still unclear.

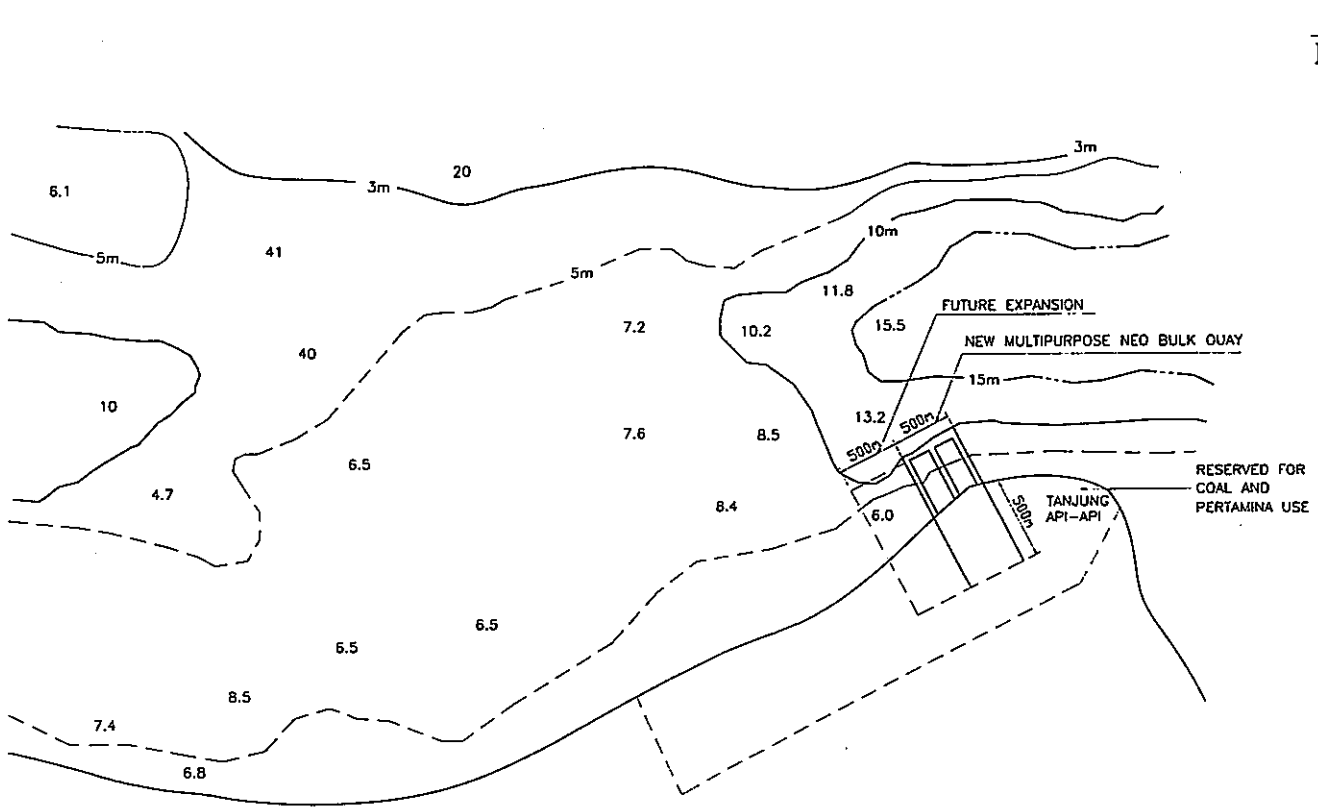


Figure 3.4.7 Master Plan of Tanjung Api-Api (by Louis Berger International)

Consultant	LOUIS BERGER INTERNATIONAL, INC. ENGINEERS. PLANNERS. SCIENTISTS. ECONOMISTS
Client	MINISTRY DE COMMUNICATIONS DIRECTORATE GENERAL OF SEA COMMUNICATIONS
Title	PORT DEVELOPMENT STRATEGY STUDY FOR THE SOUNTHERN SUMATRA AND WESTERN JAVA REGION
Sub title	*PORT TANJUNG API-API* *SOUTH SUMATRA PROVINCE*
Drawing No. 3.9	Scale NTS

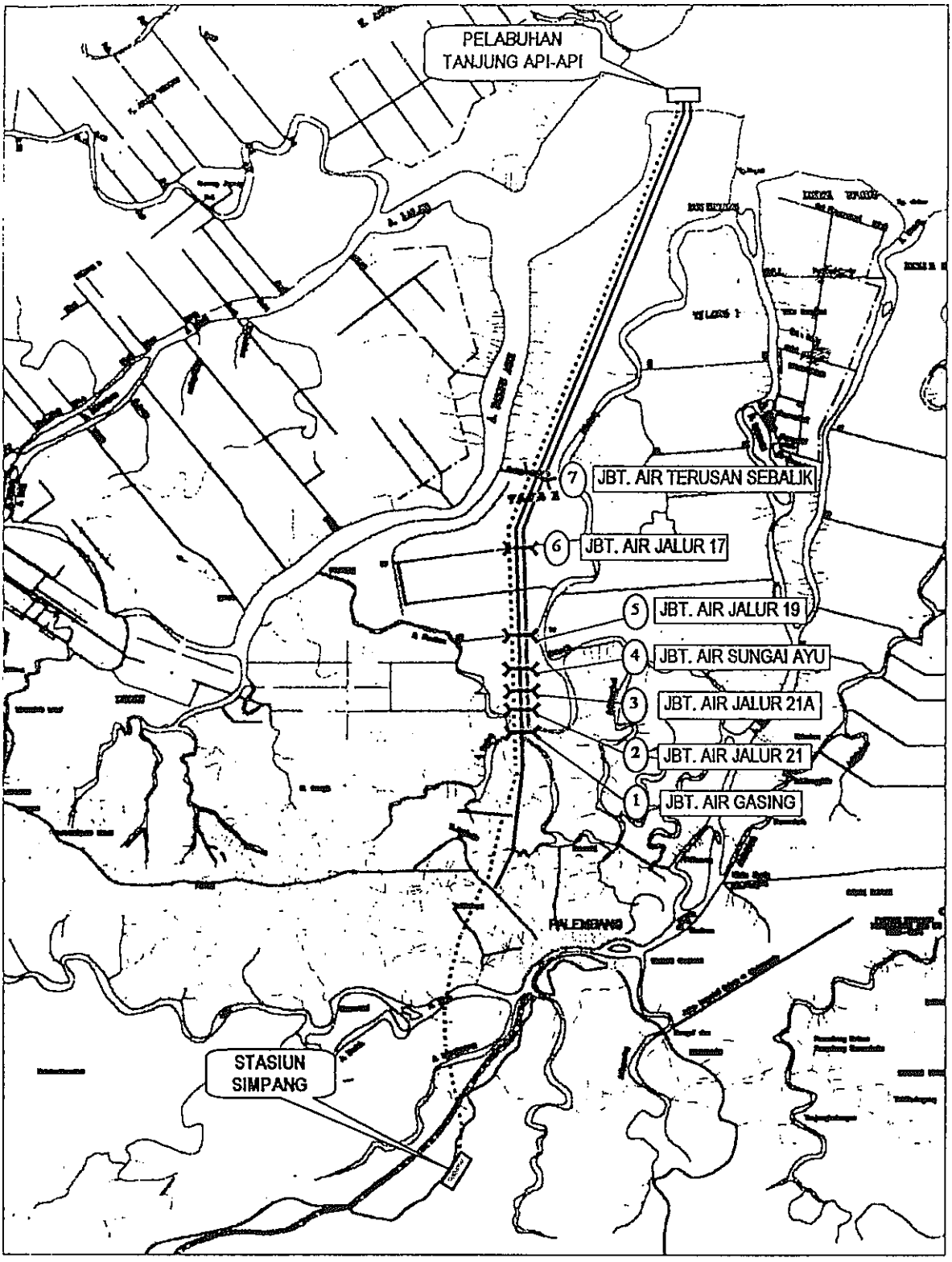


Figure 3.4.8 Access Road to Tanjung Api-Api