

14-C. ENGINEERING DESIGN AND COST ESTIMATE**14-C-1 Objective Ship Size for Tanjung Priok Port**

59. The objective ship size for the facilities to be developed under the urgent rehabilitation and short term development project of the Tanjung Priok Port is shown below.

Ship Type	Ship Size
Container Ship	50,000 DWT, L = 280 m; B = 32 m
Cargo Ship	20,000 DWT, L = 180 m; B = 22 m
Car Carrier ship	50,000 GT, L = 200 m, B = 32 m
Passenger Ship	15,000 GT, L = 150 m, B = 20 m

14-C-2 Automobile Terminal Facilities**1) Design of Berthing Structure****a) Crown Height**

60. The crown height of the berth is normally determined by the following formula:

61. For large vessel with a water depth of 4.5 m or more and tidal range smaller than 3.0m: $H = \text{HWL} + (1.0 \text{ to } 2.0 \text{ m})$;

62. For small vessel with a water depth of less than 4.5 m and tidal range smaller than 3.0m; $H = \text{HWL} + (0.5 \text{ to } 1.5 \text{ m})$

63. As a basic design of the proposed berth structure at Tanjung Priok port, the crown height of the following is fixed from MLLW considering the ship size and required efficiency of cargo handling operation.

Terminal Berth	Crown Height from MLLW (m)
Container Terminal Berth	+ 3.5 m
Car Terminal Berth	+ 2.5 m
Multipurpose Berth	+ 2,5 m
Passenger Terminal Berth	+ 2.5 m

b) Water Depth along side the Berth and Berth Length

64. Water depth is determined by the following formula:

$$\text{Water Depth} = \text{LWL} - (\text{ship max draft} + 10\% \text{ of ship draft})$$

Ship Type	Water Depth along side the Berth and Channel/Basin from MLLW	Berth Length (m)
Container Ship	Depth = - 14.0 m	300
Cargo Ship	Depth = - 10.0 m	210
Car Carrier ship	Depth = - 10.0 m	250
Passenger Ship	Depth = - 7.5 m	200

c) Tractive Force and Berthing Force

i) Mooring

65. Tractive force acting on mooring bitts is 100 tf per unit for the vessels from 10,000 to 20,000 DWT and 150 tf per unit for vessels more than 20,000 DWT which are spaced at 35 m. Regarding the tractive force acting on mooring bitts by cargo ships of 10,000 –20,000 DWT is 50 ton per unit which is spaced at 25 m

ii) Fender System

66. In design of the fender system to absorb the shock of ship berthing energy, berthing speed of vessels is adopted as follows:

- 10,000 ~ 20,000 DWT 0.15 m/sec.
- 20,000 ~ 50,000 DWT 0.10 m/sec.

67. Maximum berthing angle is 10 degrees. Spacing of rubber fenders is installed from 10 to 15.0 m. Fender frame is attached as parts of fender system.

2) Wharf structures of the Automobile Terminal

a) Soil Conditions

68. Considering the soil conditions, topographic, hydrographic conditions of the planned site the type of structures of the automobile terminal wharf is designed with the steel pipe pile type of foundation as follows:

69. According to the sub-soil data, the alluvium composed of underlain is mainly of cohesive granular material consisting of clay and shell fragment, silty clay, gravelly fine sand, and hard sandy clay. There is no indication of broken coral fragment. The site for the automobile terminal is presently planned at the east end of the Tanjung Priok port near the Koja Container Terminal. The soil conditions of the Koja Container terminal extension area is checked and found the similar nature of the west side.

70. The soil profile at Tanjung Priok site for applying the wharf design are described as follows:

- The uppermost 9.0 m average thick of alluvium consists of layers of clay and shell fragment, grey, soft. N-value generally ranged from 1 to 4, with higher N-values ranging from 5 to 10. The thickness of this layer vary from around 9.0 to 14.0 meter. It would indicate that this layer is normally consolidated. Therefore, relatively large consolidation settlement is expected should there be high embankment or fill.
- The second granular layer (below 10.0 - 20 m) consists mainly of sandy clay with gravelly fine sand, grey, dense, medium to hard. The hard, grey sandy clay with varying thickness was also observed. N-values generally ranged from 25 to more than 50. Higher N-blows exceeding 50 were frequently encountered between 18 to 22 meter depth in the borehole. The substantial increased in the N-value was probably due to the large amount of gravelly fine sand that was hit during the conduct of SPT. There is no indication of gravel-size broken coral.
- The soil below 25.0 m is the coarse sandy, grey, layer described as lose to medium grey sandy. There is no indication of gravel-size corals. N-values generally ranged between 45 to 60. The granular layer found below 25.0 to 30.0 meter depth

(average 30 m depth), described as dense to very dense, may be regarded as bearing layer. N-values generally ranged from 45 to 60.

b) Type of Structure

71. Considering soil conditions and gentle slope of seabed topography which is more or less uniform throughout the Tanjung Priok Port area, the SPP type structure is considered suitable and adopted for the basic design of berth structure of car terminal, multipurpose berth and passenger terminal. The steel pipe pile (SPP) of 900 mm Φ will be driven up to 30 m depth. Steel pipe pile supports the upper super structure of reinforced concrete deck by point bearing of the soil foundation.

72. The considerable advantage and disadvantage of the Steel Sheet Pile (SSP) type is summarized as follows.

	Steel Pipe Pile (SPP) structure
Evaluation	Simple and Fair in cost and construction period Typical cross section is shown in Figure 14-C-1.
Advantage	<ul style="list-style-type: none"> • Volume of reclamation works will be minimal. • Sheet Pile driving works and reclamation works can be progressed separately at the same time.
Disadvantage	<ul style="list-style-type: none"> • Corrosion of SPP should be considered. • Dredging works should be able to progress separately from pile driving works. • Additional retaining wall is required for reclamation works

73. Typical cross section of the wharf of the automobile terminal by SPP is shown in Figure 14-C-1. This cross section of wharf structures is applicable to the multipurpose berth and passenger terminal berth which are planned to developed in the Ancol west area.

3) *Drainage from the Automobile terminal*

74. Selection of the drainage type and relevant coefficient for drainage design of the automobile terminal and other terminal area of the short term development project are summarized below:

Table 14-C-1 Drainage Design

	Service Road	Car Parking Yard
Drain Type	L-Type Curb with Catch Basin - Concrete Pipe	Gutter with Catch Basin - Concrete Pipe
Concentration time for Surface Water: Tc (min)	5	5
Coefficient of Runoff : C	0.95	0.9

4) *Buildings and other facilities for the Short Term Development Project*

75. All the buildings inside the automobile terminal, multipurpose berth and passenger terminal will be designed in conformity with relevant national codes and standards, such as National Structural Code for Buildings, National Plumbing Code of the Indonesians, Indonesia Electrical Code, Fire Code of the Indonesians, etc. Requirements of the floor area for each building and other criteria are described here.

a) *Required Area of Buildings for the planned terminals*

76. The required floor space of buildings and office inside the terminal are estimated in the following table.

Table 14-C-2 Office and Building Space Requirement (sq.m)

Terminal	Buildings	Floor Area
Automobile	Terminal office	900 x 2 floors
	Maintenance work shop	1,500
	Power Station and Lighting Tower	300
	Washing Station/Fuel Supply Station	400
	Security Gate, Fence and ITV monitor	1 set
Passenger Terminal	Passenger Waiting Hall with office space	10,000 x 2 floor
Multipurpose	Cargo Shed	18,500
	Power Generator House	300
	Water Supply Reservoir	400

b) *Other Facilities*

77. Gate of going and coming entrances and security fence of concrete wall type installed around the automobile terminal area are planned as parts of the automobile terminal facilities.

5) *Utilities*

a) *Water Supply*

78. The required volume of water demand for the automobile terminal and new multipurpose berths and passenger terminal areas at the Ancol expansion area in the Tanjung Priok port is estimated as follows.

Table 14-C-3 Requirement of Water Supply For New Port Facility

Demand	Design
1) Domestic Consumption	
1-1) Average Domestic Consumption per Capita	100 l/day
1-2) Maximum Daily Consumption	+ 30 %
1-3) Losses	10 %
2) Ship Supply	
2-1) 2% of Full Tank for average 10,000 GWT Vessel	200 tons/call
3) Fire Fighting	
3-1) Maximum Reserve	200 tons/day

79. Water supply system consists of water reservoir, pump house, elevated water tank and distribution system for general purpose of the office, ship, hydrant, and fire fighting inside of the automobile terminal area.

80. The water source should be basically from the main supply line of the public water supply of the DKI Jakarta.

b) Power Supply

81. The electric power requirement of the Tanjung Priok port will be supplied from the National Electric Cooperation (PLN). A standby generator set for emergency purpose of the office use in the automobile terminal will be installed.

Table 14-C-4 Requirement of Power Supply at Automobile terminal Area

Demand Source	Design Values
Lighting	230 V, 3 Φ
Others	230 V, 3 Φ
TOTAL DEMAND	5 MVA

14-C-3 Design of Reconstruction of Breakwater and Recycle of the existing breakwater

1) Design Wave Height and Period for setting crown height of Breakwater

82. Two kinds of design waves are considered to the design of breakwaters, i.e., (i) high-frequency higher wave and (ii) low-frequency higher wave.

83. Based on the wave hindcast and the calculation of wave transformation, the dimensions of the representative design wave height and period of high-frequency higher wave can be set as $H_{1/3} = 1.5$ m, $T = 6.0$ s, Wave incidence: North direction.

84. The low frequency wave (return period of the design wave is 30 years) is adopted for examining the stability of breakwater and the design section thereof.

85. The dimensions of representative design deepwater wave height and equivalent deepwater wave height in front of the assumed breakwater is set as $H_{1/3} = 2.5$ m, $T = 8.5$ s, Wave incidence: North direction.

2) Design crest elevation of breakwater

86. The crest elevation of breakwater is determined at $0.6 \times H_{1/3}$ or greater above the mean monthly-highest water level. In this case, the elevation is calculated as follows.

$$\begin{aligned}\text{Assumed Crest Elevation} &= \text{MHWS} + 0.6 \times H_{1/3} \\ &= 0.91 + 0.6 \times (1.5 \text{ to } 2.5) = +1.81 \text{ to } +2.4\end{aligned}$$

3) *Crown height of the Planned Breakwater*

87. The above-mentioned crest elevation is calculated from the rate of wave over-topping based on the wave hind cast, while the existing West Breakwater has the crest elevation DL+2.50 m. Design crest elevation of the new breakwaters to be constructed should be set as DL+2.50 m following the existing structures and also considering the uncertainty of the wave information.

4) *Location of New Breakwater*

88. The new break water is planned to be relocated about 200-250m offshore from the existing breakwater located along the central parts of the inner channel in front of the container terminal in order to obtain the sufficient width of the two ways ships traffic and turning basin area. The sufficient distance from the top of the slope of the navigation channel shall be taken to prevent the slid of the breakwater.

5) *Design of New Breakwater*

89. The new breakwater is planned on the upper layer of clay at the sea bed depth of around -5.0 m. The existing sea bed clay material of upper layer is planned to be replaced with fine sandy soil in the thickness of 7 m as soil improvement of breakwater foundation.

90. The new breakwater is designed by placing the geotextile sheet on the existing sea bed and rubble stones (100-300kg) are piled up thereon, and then armor stones (250-500 kg) are covered on the rubble stones. The concrete blocks of 3 ton type is placed on the slope of the offshore side and armor stone of 250-500 kg on the slope of the harbor side. The large concrete block is placed on the top of the amour stone for protection. This armor stones placement is extending for around 14 m from the toe of the slope to prevent the scoring at the bottom of breakwater.

91. The west side of the existing breakwater about 150 m portion at the entrance of the port is removed for widening the entrance of the channel. No additional breakwater on both sides of the entrance of the channel is required fro protection according to the tranquility analysis by wave hindercast.

92. The typical section of the proposed new breakwater is shown in Figure 14-C-2.

6) *Utilization of the material of the existing breakwater after relocation*

93. The typical cross section of the existing breakwater concerned for relocation is shown in Figure 14-C-3. The demolition of the existing breakwater will be able to start after the new breakwater is constructed at the partial length. Some of concrete blocks may be utilized for the new breakwater, and the large parts of the existing material may be utilized for replacement material of the existing soft clay of the new breakwater foundation.

94. It is recommended to conduct a detailed soil investigation of the existing breakwater area to identify the exact depth and extents of existence of rubble stones, since the breakwater material at the present location shall be removed to obtain the designed depth of -14.0m as parts of the main channel by widening.

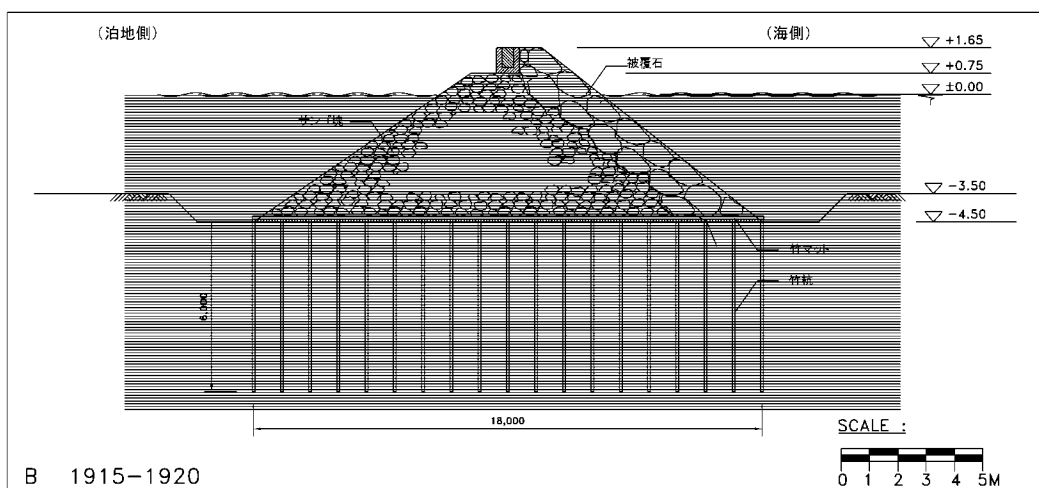
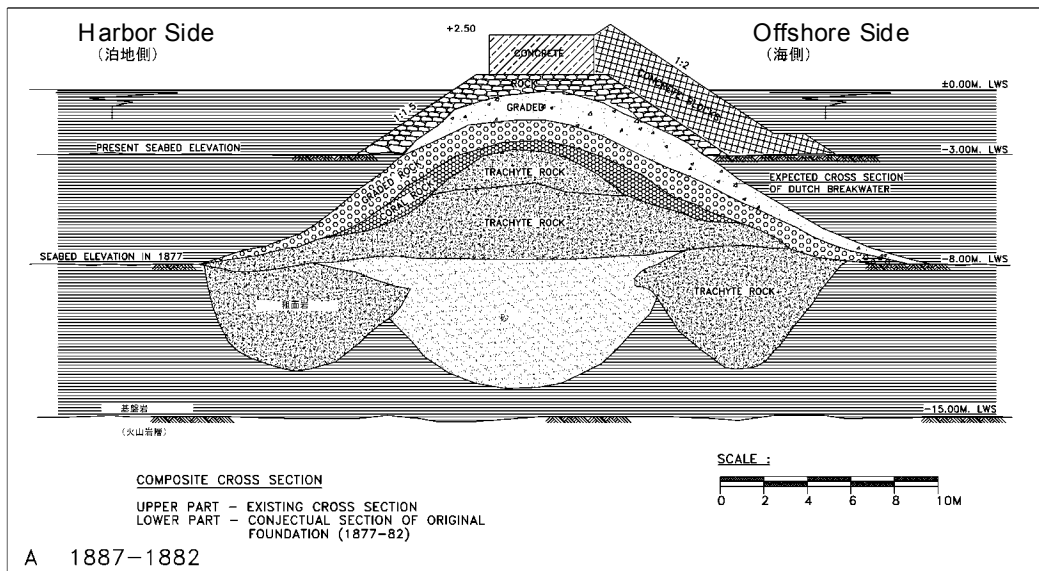
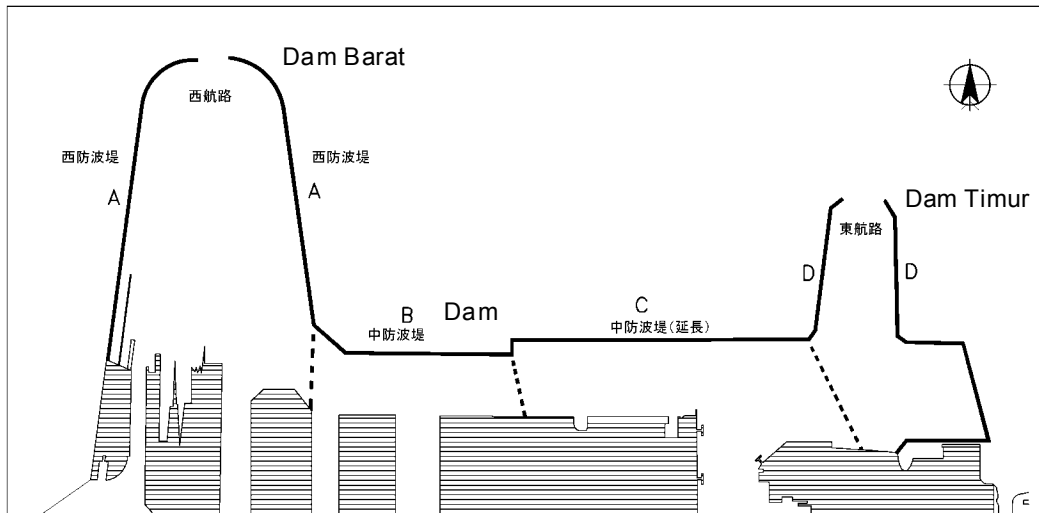


Figure 14-C-3 Typical Section of Existing Breakwater of Tanjung Priok Port

14-C-4 Navigation Channel Widening and Deepening**1) Capital Dredging Volume**

95. The total dredging volume for widening and deepening of the channel and basin of Tanjung Priok Port amounts to around 12,000 million cubic meters. (The extra dredging of 0.5 m in depth is considered in order to achieve the design depth of the channel and basin.)

Table 14-C-5 Dredging Volume for Channel and Basin Improvement

Section	Description	Dredging Volume
Access Channel outside port	D: -14 m, W: 300 m, L = 2.7 km	2,430,000 m ³
Inner Port North Channel	D: -14 m, W: 300 m, L = 2.1 km	3,875,000 m ³
Central Turning Basin	D: -14 m, Circle Dia = 560 m	1,950,000 m ³
Car Terminal Basin Area	D: -10 m, Circle Dia = 400 m	503,000 m ³
Sub Total	(Total dredging area = 1,750,000 m ²)	8,758,000 m³
Central Turning Basin (2 nd phase)	D: -14 m, W: 300 m, L: 940 m	300,000 m ³
Channel and Basin related to East-Ancol area development	D : -7.5~10m	2,970,000 m ³
Total		12,028,000 m³

2) Dredging fleet arrangement

96. A cutter suction dredger 1,200 m³/hr and 2 hopper barges of 2,000 m³ capacity will be utilized for channel dredging works.

3) Disposal Area

97. The disposal area as approved by ADPEL for the dredged material from Tanjung Priok Port is located in the area called Muara Gembong. The water depth of this disposal site ranges from 7 to 10 meters.

98. The specified disposal area had been observed to be got shallower by using for a longer time. The careful monitoring of returning disposal material toward the Tanjung Priok area will be carried out. If necessary, a new location of disposal site shall be studied at the water depth of more than -20m in the similar distance from the port as shown in Figure 14-C-4. Distance between the disposal site and Tanjung Priok Port is about 15-20 km (16.2 nautical miles of round trip).

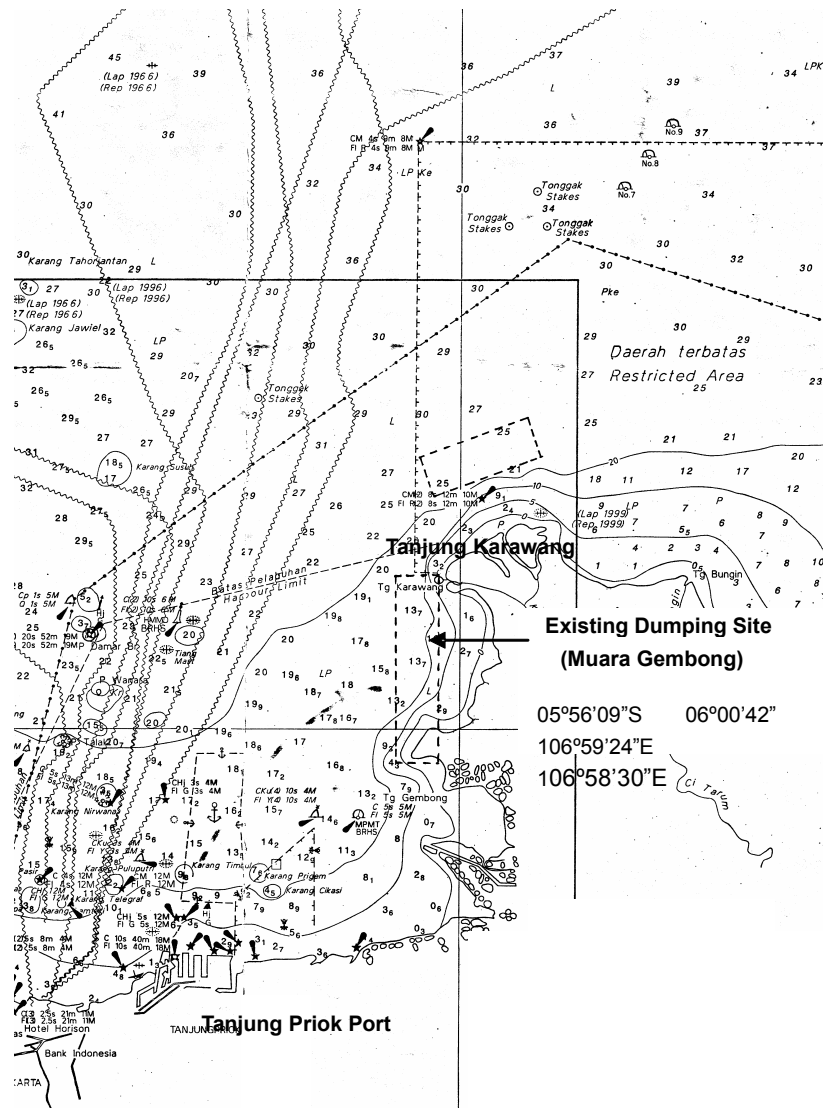


Figure 14-C-4 Location Map of Disposal Area of Dredged Material of Tanjung Priok Port

4) **Over dredging and Work period**

99. The over dredging in the depth of 0.5 m is considered in order to achieve the design depth of the channel and basin. As the total dredging area is about 1,750,000 m², the assumed over dredging volume is estimated to 875,000 m³ (0.5 m x 1,750,000 m²), which is equivalent to about 10 % of the total design volume of dredging.

100. Productivity and work period of dredging at each working area including over dredging volume is calculated as shown in Table 14-C-6.

Table 14-C-6 Productivity and Work Period of Dredging

Description	Calculation
1. Dredging Performance per cycle	800 m ³ per cycle
Working Cycle Time	5.2 hours
Time to fill 1,500 m ³ barge	0.7 hour; (2,000 x 40%)/1,200 m ³ /hour
Sailing Time (loaded)	2.3 hours (16.2 miles / speed: 7 knots)
Dumping Time	0.2 hour
Sailing Time (empty)	2.0 hours (16.2 miles / speed: 8 knots)
2. Effective Working Time per Day	21 hours/day
3. Dredging Cycle per Day	4.0 cycles/day
4. Production per Day	6,400 m ³ /day (2 x 4.0 (cycles/day) x 800 m ³)
per month	179,200 m ³ /month; 28 days/month
5. Design Dredging Volume	Work Period including Over dredging
Access Channel: 2,430,000 m ³	14.9 months, say 15 months
North Channel : 3,875,000 m ³	23.8 months, say 24 months
Central Basin : 1,950,000 m ³	12.0 months

5) *Removal of Foundation Material of Existing Breakwater*

101. According to the drawings of the existing breakwater as shown in Figure 14-C-3, the foundation material is assumed to be sand or gravel stones below the depth of – 8 m which were accumulated in the thickness of 5-7 m from the existing sea bed as soil improvement of foundation.

102. The removal of the gravel or large concrete blocks material above the sea bed of the breakwater will be carried out first by grab dredgers or clamshell type equipment.

103. These materials will be transported by hopper barges to the new breakwater area for recycling.

104. After removal of such materials the sand or gravel material at the foundation of the existing breakwater till the design depth of the navigational channel will be carried out as parts of the capital dredging works by the grab dredger or cutter suction dredgers.

14-C-5 Port Inner Road Works

105. The port inner road improvement works is implemented as parts of the project components. The design concept of the road works is briefly explained below.

1) *Access Road between the existing arterial Road and Automobile terminal*

106. There is no need to newly develop an access road to the automobile terminal because the existing road can be utilized by car carriers. However, the existing road should be improved by overlay with concrete pavement on the existing asphalt pavement.

2) *Port Inner Road Improvement*

107. The existing port inner road is heavily congested with large trucks, container trailers, public buses, business vehicles and motorcycles.

108. In order to improve the present traffic congestion the following measures are proposed.

- Some of the unused buildings and area will be demolished for open space of cargo

storage and public road area.

- All traffic should be one way on the main road Jl. Pelabuhan Raya to Gate No.9.
- Gate No.9 should be replaced on Jl. Banda in order to connect the elevated road from JORR northern extension, i.e., Eastern Port Access Highway.
- Gate No.3 will be demolished for vehicle use (passengers only)
- The existing road along the boundary fence is widened and some of the existing parking area is relocated to improve the traffic flow.

3) *Design of Pavement of Roads, Parking Yard*

109. The pavement of the parking lots, port inner road and the access road for automobile terminal will be designed for the wheel loads specified in the Table 14-C-7 and the pavement type and material are selected accordingly as shown in the same table.

Table 14-C-7 Critical Wheel Load for Pavement Design

Area Particulars	Access / Service Road	Automobile terminal	
		Berth and Apron	Car Parking area
Critical Wheel Load Type	Standard Truck (H20-44)	Standard Vehicle	Standards car trailer
Critical Wheel Load (ton)	8.0	8.0	8.0
Pavement Type	Concrete	Concrete	Inter-lock block

4) *Eastern Access Port Highway Improvement*

110. The Eastern Access Port Highway improvement which has been essentially requested by all port users for some time is also proposed as parts of the Urgent Rehabilitation project to improve the traffic access to /from the port.

111. This road development works is suggested to be implemented by the other organization called Ministry of Settlement and Regional Infrastructure (Kimpraswil), Directorate General of Regional Infrastructure (Road Constructions).

112. The proposed alignment of the road is the east-west direction of the elevated 2 lanes port highway of 3.0 km distance from the JORR north extension toll road to the port (Gate No.9). New dedicated on and off ramp for JICT 1 and Koja Container Terminal are provided from the elevated roads.

14-C-6 Environmental Treatment Facilities

113. The following environmental treatment facilities will be provided in the automobile terminal and new multipurpose and passenger terminal area at the expansion in the Ancol west area for the Tanjung Priok port.

- Drainage/sewerage outfall facilities
- Solid wastes management facilities
- Ballast and Bilge Waste Treatment System

14-C-7 Construction Methods

114. The work methods of demolition of the existing breakwater and dredging channel/basin and reclamation behind the automobile terminal wharf which are major components of the urgent rehabilitation project are specifically noted in this section.

1) *Demolition of Breakwater*

115. The breakwater to be relocated was built at the initial stage of Tanjung Priok Port construction during 1882-1887. Figure 14-C-3 shows the assumed cross section of history of breakwater construction in which the present condition of material indicate unexpectedly complicated accumulation of the past construction works.

116. An appropriate soil investigation on the existing breakwaters concerned is necessary in order to plan the suitable work methods and to identify the possibility of recycling such materials.

117. However the tentative construction method of removal of the existing breakwater is considered as follows: The blocks placed on the slope for shore protection would be removed by clam shell or grab and transported to the land for recycling to the new breakwater construction materials. The materials below the blocks till the designed depth of the channel around -14m would be removed by grab dredgers and transported by hopper barges to the specified dumping area.

118. This issue should be reconsidered in the stage of the detail design stage.

2) *Procurement of Reclamation Sand*

119. About 170,000 m³ of reclamation is required for the construction of the automobile terminal in Tanjung Priok Port. The quarry location where the required volume of such reclamation material is available is an important problem in planning construction works economically.

120. The dredged material from the existing channel and basin at Tanjung Priok Port is judged not suitable for the use of reclamation material. For reference, the soil materials for the reclamation in the Koja Terminal expansion work are mountain sand procured from Bangka Island (South Sumatra) and sea sand from Belitung Island.

121. In the case of Merakmas Port construction, sea sand for the reclamation was quarried at the borrow area off Cigading. This borrow area (Gosong Serdang = Serdang sandbar) has a 40 million m³ of deposits of fine to medium sand.

122. Although the dimension of the reclamation work in the rehabilitation project is under the critical scale that requires EIA (more than area 25 ha or dredged soil volume 500,000 m³), sea sand quarrying is to be controlled and supervised by Ministry of Maritime Affairs and Fisheries (Presidential Decree No.33/2002; May 2002).

123. The reclamation material for this project is tentatively planned to be procured from the Belitung Island in the South Sumatera region around 250-300 N miles. The material will be transported by large hopper barges from the quarry in Belitung to Tanjung Priok.

3) *Dredging Works for Channel and Basin Improvement*

a) *Selection of Dredger Type for Channel Dredging*

124. The total dredging volume for widening and deepening of the channel and basin of Tanjung Priok Port are estimated to over 8.25 million cubic meters as shown in the Table 14-C-5. In order to complete the required dredging works in a limited work period of 2 and half years, a dredging method with high productivity should be selected.

125. Since the sediment material of the sea bed of the channel/basin in the Tanjung Priok Port is sand or silt, mechanical/hydraulic dredgers such as cutter suction dredger and trailing suction hopper dredger are usually employed on capital and maintenance dredging of channel and basin. These types of dredging equipment are characterized by high production rates and mobility.

126. Out of these dredgers, Trailing Suction Hopper Dredger (TSHD) is used mainly for the maintenance purpose of the long navigation channel being used by sailing ships and brings out its high productivity in the dredging of ‘soft and loose’ deposit material.

127. Meanwhile, in the case of initial dredging of channel and basin to be newly excavated, the deposit material is consolidated after compaction. The use of Cutter Suction Dredger is considered more suitable rather than TSHD.

128. Hence, the combination of Cutter Suction Dredger and hopper barge is applied in the Tanjung Priok Development as the economical dredging method with high productivity. The disposal area of dredged material is used at the location as approved by ADPEL as shown in Figure 14-C-4.

i) *Proposed Dredger Fleet*

129. Dredger fleet arrangement for the dredging works of channel and basin is planned by utilizing the equipment available and owned by PT Rukindo in the maximum possible ways.

130. Two hopper barges are to be deployed for transporting dredged materials between Tanjung Priok to the planned dumping areas.

- Cutter Suction Dredger: Batang Anai (built in 1994)
Moulded depth: 7.0 m,
Total installed power: 12,966 kW
Dredging depth: 24 m,
Dredging capacity: 1,200 m³/hour
Base Port: Tanjung Priok
- Anchor Boat 65 GT Class, 150 HP
- Hopper Barge Capacity: 2,000 m³ x 2
- Tug Boat Pusher 200 GT Class (1,600 HP) x 2

ii) *Productivity of Dredging Works*

131. Productivity of the proposed dredger fleet arrangement for channel dredging is examined to check whether the required dredging works can be completed within the required time period and the productivity and work period of such dredging works is shown in the Table 14-C-6.

132. Considering the dredging volume of around 500,000 m³ including the over-dredging volume in the basin in front of the automobile terminal wharf, the dredging works thereof is

planned to employ a grab dredger having grab capacity of 10-15 m³ and daily productivity of 2,400 m³/day with two hopper barges (capacity: 1,500 m³) for transporting dredged material.

133. The total period required for dredging work is worked out for 4 months.

14-C-8 Project Cost

1) Basic of Cost Estimation and Exchange Rate

a) Unit Prices of Labor/Material/Equipment

134. Unit price of each element of labour, construction material and construction equipment for estimate of the cost of works are determined on the basis of the information collected from the latest similar projects in the Jakarta metropolitan region and market surveys of major construction companies and suppliers of material during the year of 2002.

135. Some of the major items of labor, materials are listed below.

Table 14-C-8 Unit Prices of Labor and Material in West Java Area in 2002

No	Items	Unit	Cost (Rp)
Labor Cost			
1	Supervisor/Foreman	day	65,000
2	Skilled Labor	day	45,000
3	Mechanic/Electrician	day	55,000
4	Equipment Operator	day	70,000
5	Surveyor/Captain of boat	day	100,000
6	Diver	day	200,000
7	Engineer	month	2,500,000
8	Assist Engineer	month	2,000,000
9	Secretary	month	1,000,000
Construction material			
1	Steel Bar	kg	2,700
2	Steel pipe pile	kg	4,500
3	Portland cement	ton	500,000
4	Ready mixed Concrete	cum	270-300,000
5	Coarse Aggregate	cum	115,000
6	Sand (local / Import)	cum	45-60,000
7	Asphalt concrete mix	ton	300,000

b) Basic Price and Exchange Rate

136. The basic prices are as of December 2002 and the following foreign exchange rate is applied for estimating the project cost considering the current trend in the market as of June 2003.

$$1 \text{ USD} = 8,500 \text{ Rupiah} = 120 \text{ Yen} \quad (1 \text{ Yen} = 70.83 \text{ Rupiah})$$

c) Maintenance Cost of Facility, Equipment and Dredging

137. The maintenance cost for facilities is set out as 1 % of the facility construction cost based on the annual maintenance fee of the facilities. Also, 5 % of the equipment cost is adopted as the maintenance cost for the equipment.

138. Access channels and basins of Tanjung Priok Port are maintained by the periodical maintenance dredging, which is financed by IPC2 and carried out by P.T Pengerukan

INDONESIA (RUKINDO). The average annual volume of maintenance dredging of the inner port channel is about 330,000 m³/year based on the recent years experiences.

139. The unit price of maintenance dredging is given as Rp13,000/m³ based on the latest JICA Study (River Port Development, 2001 - 2002).

d) Unit cost of works

140. The combined unit cost for major construction works is estimated from the costs of labor, required materials, required construction equipment, and the site expense of labor and equipment. The applicable unit cost of major works is estimated as follows:

Table 14-C-9 Applicable Unit Cost of Major Construction Works (Direct Construction Cost)

Item	Description	Unit	Unit Cost (1,000Rp)
Tanjung Priok Port Development			
Breakwater	Rubble Mound Type, from -5 m	m	83,557
Quay wall (-10m)	RC Deck on Pile	m	174,060
Revetment	Wave breaking with Mangrove	m	70,167
Dredging works	Soft Clay material	cum	27.1
Reclamation works	Reclaimed by local sand	cum	52.1

e) Indirect Cost to the Construction Works

141. The indirect costs such as general temporary works, overheads profit and site expenses are estimated in this study and included as parts of the Project Cost.

142. The temporary works, site expenses and overhead are assumed as about 8%, 15% and 8% respectively of the direct construction cost of the works.

143. In addition to the construction cost and procurement cost, the engineering fee of 8 % of the total construction cost for the detail design and supervision, physical contingency and VAT are estimated as parts of the project cost.

144. The physical contingency is 10 % for the construction cost, VAT is 10% of the whole cost of the above.

2) Project Cost Estimate

145. The project cost in each phase described in the next section is estimated as follows: It should be noted that these figures are for the components selected in the feasibility study, and thus they do not include port access road such as Eastern Access Port Highway as well as urban development components which are included in the Master Plan.

Table 14-C-10 Cost Estimate for Urgent Rehabilitation Plan of Tanjung Priok

	million Rp			
	Local	Foreign	Total	Remarks
Total Construction Cost (Direct & Indirect) (TC)				
~2008				
Breakwater (Dam Tengah)	94,470	103,560	198,029	
Breakwater (Dam Barat)	14,310	15,687	29,997	
Access Channel (-14 m, 300 m)	9,693	80,762	90,455	
North Channel (-14 m, 300 m)	15,457	128,788	144,245	
Improvement of Central Basin	7,778	64,809	72,588	
Car Terminal	83,599	55,974	139,573	
Infrastructure	58,657	46,358	105,015	
Superstructure	24,942	9,616	34,558	Terminal Operator (Private)
Improvement of Port Related Road	47,390	33,934	81,324	
Gate Improvement	42,746		42,746	
Sub Total	315,444	483,514	798,958	
~2012				
Breakwater (Dam Tengah)	60,860	66,716	127,576	
Improvement of Central Basin	1,197	9,971	11,167	
Ancol Development	1,103,948	533,587	1,637,535	
Breakwater for Ancol Development	57,077	62,568	119,645	
New Access Channel and Basin for Ancol	11,849	98,725	110,574	
Multi-purpose Terminal	325,272	128,056	453,327	
(Land Development)	131,377	21,105	152,482	Ancol Developer (Private)
(Terminal Construction)	193,895	106,950	300,845	
Passenger Terminal	106,091	46,551	152,642	
(Land Development)	36,257	4,684	40,941	Ancol Developer (Private)
(Terminal Construction)	69,834	41,867	111,701	
Port-related Zone	119,091	59,417	178,508	Ancol Developer (Private)
Ancol Access Road	484,568	138,270	622,838	50% shared by Ancol Developer
Port Re-development	154,287	94,731	249,018	
Cargo handling Equipment	4,400	39,600	44,000	Private
Sub Total	1,324,691	744,605	2,069,295	
(Access Channel to Nusantara)	51,089	91,889	142,978	(Excluded in FS)
(Total)	1,375,779	836,494	2,212,273	
Total (FS Components)	1,640,134	1,228,119	2,868,253	
Contingency	164,013	122,812	286,825	10% of TC
Consulting Services	131,013	96,468	227,480	
VAT (10%)	193,516	144,740	338,256	
Administration Cost	73,683		73,683	Including Compensation
Grand Total	2,202,359	1,592,138	3,794,497	

14-D. PROJECT IMPLEMENTATION SCHEDULE

146. Project components of the Urgent Rehabilitation Plan of Tanjung Priok is divided two packages as follows:

Package-1: Projects up to 2008

Automobile Terminal Development
Channel and Basin Improvement
Port Inner Road Improvement

147. Project implementation period will be 5 years including project preparation and 30 months of construction works. The car terminal facility should be operational in 2006. The other facility should be in 2008.

Package-2: Projects up to 2012

Extension of Breakwater (Dam Tengah)
Improvement of Central Basin dredging up to -14m

Breakwater for Ancol Development
New Access Channel Development by dredging up to -10m
Multipurpose Berth Construction and expansion
Passenger Terminal Development
Ancol Access Road Development and Extension
Re-development of the existing port area (Inter-island container terminal at Pier III and berth 101 north)

148. Project implementation period will be 5 years including project preparation and 36 months of construction works. The facility should be operational by 2012.

149. The construction schedule of Package-1 project is prepared in Table 14-D-1 based on the following assumption.

- The executing agency is the Directorate General of Sea Communications, Ministry of Communications. The executing agency will arrange the project finance by the beginning of the 1st quarter of 2004 and begin to procure consultants.
- For the urgent rehabilitation project, the work schedule includes the detailed design and tender assistant period of about eighteen (18) months, construction period of thirty three (33) months and maintenance period of twelve (12) months. The total period of the project is estimated at 66 months.
- Based on the request from port users, the automobile terminal facilities should be commissioned by the end of 2006, and channel dredging and breakwater reconstruction works should be completed in 2008, assuming that the consulting service would be started in the last quarter of 2004.
- The construction work of the Car Carrier Terminal should be started earlier than other channel/basin dredging and breakwater demolition / reconstruction works. The construction works of the automobile terminal should commence in the last quarter of the year 2005 and be completed by the end of 2006.
- The improvement works of port inner road will be started in 2006 and completed in 2007.

150. The construction schedule of Package-2 project is prepared in Table 14-D-2 based on the following assumption.

- The financial arrangement for the short term development projects should commence from 2005 and engineering study including the design and tender documents preparation should be completed in 2007.
- The construction works should be started from 2009 and completed in 2011 in order to make facilities operational in 2012.

Table 14-D-1 Construction Schedule for Package-1 Projects (up to 2008)

Description	2003	2004	2005	2006	2007	2008
Financial Arrangement	■					
Procurement of Consultants		■				
Survey / Detail Design (Car Terminal)			■			
Tender Process / Contractor Selection (Car Terminal)			■			
Survey / Detail Design (Marine / Road)			■			
Tender Process / Contractor Selection (Marine / Road)			■			
Car Carrier Terminal Construction Works						
(1) Basin Improvement by Dredging						
Basin (-10 m)				■		
(2) Car Carrier Terminal						
Demolition of Existing Structures			■			
Quay Wall Construction (-10 m)			■	■		
Reclamation (+2.5 m)			■	■		
Pavement				■		
Utility Facilities				■		
(3) Access Road						
Access Road				■		
Entrance Work				■		
Channel and Basin Improvement						
Phase 1						
(1) Breakwater (Dam Tengah)						
New Construction				■	■	■
Demolition Old Dam Tengah				■	■	
(2) Breakwater (Dam Barat)						
New Construction					■	■
Demolition Old Dam Barat					■	■
(3) Channel Improvement by Dredging						
Access Channel (-14 m, 300 m)				■	■	■
North Channel (-14 m, 300 m)				■	■	■
Phase 2						
(4) Breakwater (Dam Tengah)						
New Construction					■	■
Demolition Old Dam Tengah					■	■
(5) Improvement of Central Basin						
Basin (-14 m, 560 m)					■	■
Port Inner Road Improvement						
(1) Road Widening						
(2) Pavement						
(3) New Road Construction				■		
(4) Viaduct / Flyover						
Substructure				■	■	
Superstructure				■	■	
(5) Utility Facilities					■	

Table 14-D-2 Construction Schedule for Package-2 Projects (up to 2012)

Description	2006	2007	2008	2009	2010	2011	2012
Construction Works up to 2012							
(1) Breakwater (Dam Tengah)							
New Construction of Dam Citra				■			
Demolition Old Dam Citra					■		
(2) Improvement of Central Basin							
Basin (-14 m) Dredging					■		
(3) Breakwater for Ancol Development							
New Construction (980 /1,370 m)				■	■	■	
Demolition Old Dam Barat					■		
(4) New Access Channel by Dredging							
Access Channel (-10 m, 120 m)				■	■	■	
New Basin (-10 m, 400 m)				■	■	■	
New Basin (-7.5 m, 300 m)				■	■	■	
(5) Multi-purpose Terminal Development & Expansion							
Quay Wall Construction (-10 m)				■	■	■	
Revetment for Reclamation					■	■	
Reclamation (+2.5 m)					■	■	
Pavement						■	■
Utility Facilities						■	■
(6) Passenger Terminal							
Quay Wall Construction (-7.5 m)				■	■	■	
Revetment for Reclamation					■	■	
Reclamation (+2.5 m)					■	■	
Pavement						■	■
Utility Facilities						■	■
(7) Port-related Zone							
Revetment for Reclamation				■	■	■	
Revetment for Reclamation					■	■	
Reclamation (+2.5 m)						■	■
Surface Pavement						■	■
(8) Ancol Access Road							
Access Road (Ancol)							
Substructure				■	■	■	
Superstructure					■	■	
Access Road (Offshore Island) & extension							
Substructure					■	■	
Superstructure						■	■
Access Road (Bridge over sea)							
Substructure				■	■	■	
Superstructure					■	■	
Utility Facilities						■	■
(9) Port Re-development							
Dermaga 101 Utara							
Demolition of Existing Structures				■	■	■	
Revetment					■	■	
Surface Pavement						■	■
Lapangan Multi Terminal							
Demolition of Existing Structures						■	■
Quay Wall (-9 m)						■	■
Surface Pavement						■	■

14-E. MANAGEMENT AND OPERATION SCHEME

14-E-1 Basic Scheme of Development, Operation and Management of Port Facilities

1) Breakwater and Access Channel

151. Fundamental port infrastructure such as breakwaters and access channels are to be developed by the central government, and their development cost will be borne by her, since

they require a huge cost and generate very little profit by their operation. In addition, the beneficiaries are widely distributed and difficult to specify.

152. However, when it is suitable for them to be managed together with inner channels and basins, they are transferred to the port management body (Pelindo-II in case of Tanjung Priok) for their management/operation.

2) *Inner Channel and Basin*

153. Development and management/operation of inner channel and basin in a port area will be basically the responsibility of the port management body and their cost will be borne by her.

3) *Automobile terminal*

154. Generally speaking, terminal infrastructure including quay, front turning basin, land reclamation will be developed by the port management body and operated by the private sector, if the operation of the terminal is sufficiently profitable. The cost will be covered by future collection from an operator of the terminal, which should develop superstructure such as pavement, handling equipment and other terminal facilities, depending on profit levels as well as the trend of demand. However, in case that a terminal will be newly developed and the project risk will be considered to be high due to the uncertainty of cargo demand, or there is an urgent need viewing from the national benefit, or a terminal is not likely to be profitable, it should be examined whether the Central Government will bear the initial development cost of infrastructure.

As for the automobile terminal development in Tanjung Priok port, it is not feasible for a private sector to cover the whole cost including infrastructure because the profit coming from handling charge will be relatively low due to uncertainty of future demand of export/import volume of cars as well as the need to remain competitive with other major ports in ASEAN countries. Thus, IPC2 should bear the initial development cost of infrastructure while private sector will bear the development cost of superstructure together with operation of the terminal.

155. shows some alternatives for the terminal development and operation.

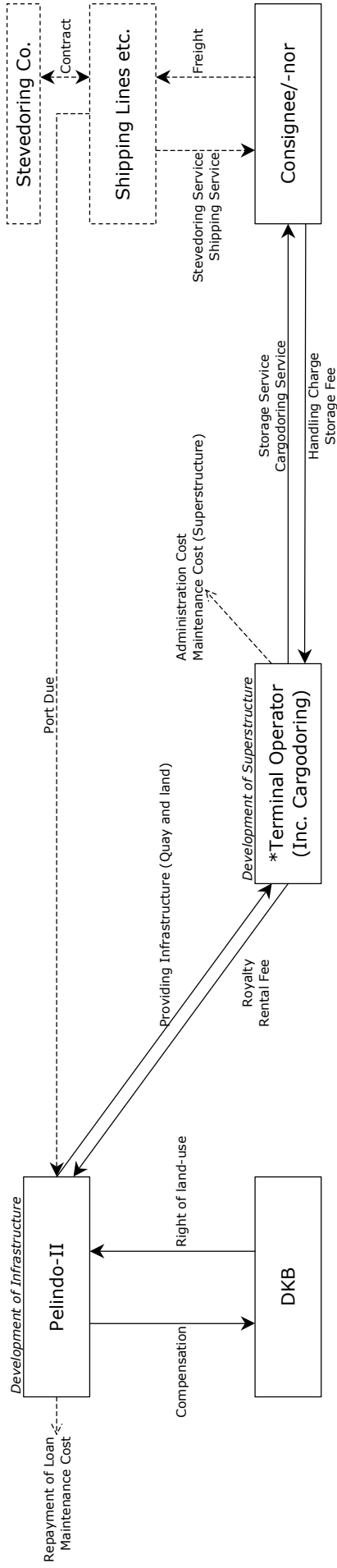
Figure 14-E-1 Alternative Schemes for Development and Operation of Automobile terminal

156. The followings are characteristics of each alternatives:

	Alternative-1	Alternative-2
Involvement of DKB	IPC2 obtains the vacant land by paying compensation to DKB, before development and operation of the automobile terminal.	Joint implementation between IPC2 and DKB remaining the current status of each body to the land. (e.g. establishment of joint implementation body such as “Terminal Holding Company”)
Terminal Operator	Stevedoring origin	Carrier (Shipping line) origin (e.g. establishment of “Terminal Operating Company” who leases the terminal infrastructure from “Terminal Holding Company”)

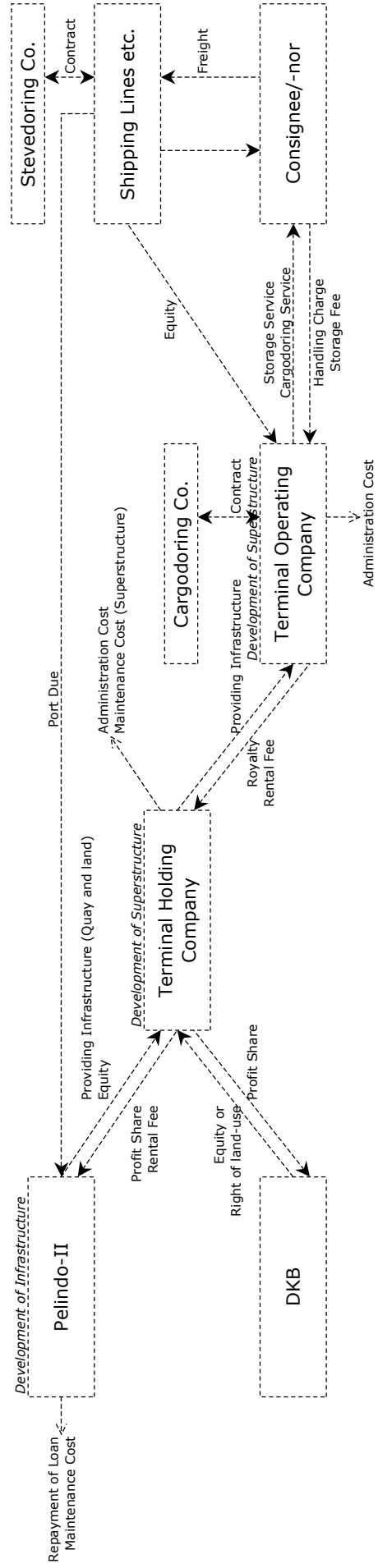
Alternative Schemes for Development and Operation of Automobile Terminal

Alternative-1



* Terminal Operator: Can be JV of Pelindo and Private Sectors (Shipping Lines etc.), or Pure Private Sectors

Alternative-2



4) Port Inner Road and Port Access Road

157. Development and management/operation of port inner road will be the responsibility of the port management body and their cost will be borne by her since the major beneficiaries are port users.

158. On the other hand, the development and management / operation of port access road located outside of the port area will be the responsibility of the central government (DGH, Kimpraswil) since the major beneficiaries will be public transport users. (Specific beneficiaries cannot be identified.)

159. DGH (the Directorate General of Highways – previously the Directorate General of Highways, Bina Marga) under MSRDC (Kimpraswil, the Ministry of Settlements and Regional Development – previously the Ministry of Public Works) has jurisdiction over public roads. The Indonesia Highway Corporation (PT. Jasa Marga) is responsible for the development and maintenance of the highway toll road network.

160. As for a new access road to Tanjung Priok Port, it is proposed by the JICA study that the existing Jakarta Outer Ring Road will be extended to the port area directly by elevating the existing arterially road in front of the JICT 1 and Koja container terminal and connecting to the planned toll way of the JORR. It is recommended that the extension of Jakarta Outer Ring Road project should be implemented by the Directorate General of Highways, Kimpraswil from the planning stage to the construction and operation stages to ensure uniform management of the metropolitan highway network. It is required to establish the responsible body of the access road improvement to take necessary action at the same time of the port development project.

14-E-2 Cost Allocation

161. There will be on-lending to IPC2 for the development of inner channel and basin, Automobile terminal (infrastructure) and port inner road in line with the “Basic Scheme of Development, Operation and Management of Port Facilities” described in 13-D, while the executing agency of the proposed project component will be likely DGSC.

Table 14-E-1 Possible Development Scheme

Project Components	Executing Agency for Development	Remarks
Access Channel	DGSC	
Breakwater Reconstruction	DGSC	
Inner Channel and Basin	DGSC	On –Lending to IPC 2
Automobile Terminal	DGSC	On –Lending to IPC 2
Port Inner Road	DGSC	On –Lending to IPC 2

162. The Directorate General of Sea Communications, MOC Government of Indonesia which is in charge of planning, development, management, operating the project and other relevant administrative matters according to the Shipping Law (UU No.21/1992), Government Regulation of Port Affairs (PP No.69/2001), could be the executing agency of the project.

163. On the other hand, Indonesian Port Corporation is acting as a port management body for commercial ports. All the rights and obligations of operation/management on ports facilities of Tanjung Priok are under IPC2.

164. Based on this scheme, the preliminary cost sharing of the proposed project components were discussed and worked out between IPC2 and DGSC.

14-F. ECONOMIC ANALYSIS

14-F-1 Purpose and Methodology of Economic Analysis

1) *Objective*

165. The purpose of the economic analysis is to appraise the economic feasibilities of the Development Plan from the viewpoint of the national economy. The economic analysis is conducted to study the economic benefits as well as the economic costs arising from this project, and to evaluate whether the benefits of the project exceed those that could be obtained from other investment opportunities in Indonesia.

166. The Development Plan consists of the Urgent Development Plan and the Short-Term Development Plan for Tanjung Priok Port, and Road Development Plan.

2) *Methodology*

167. Economic analysis will be carried out according to the following method. The three Development Plans will be defined and they will be compared to the “Without the project” case (hereinafter referred to as the “Without” case). All benefits and costs in market price of the difference between “With the project” case (hereinafter referred to as the “With” case) and “Without” case will be calculated and it will be converted to economic price. All benefits and costs are evaluated using economic prices.

168. In this study, the economic internal rate of return (EIRR) and the benefit/cost ratio (B/C ratio) based on a cost-benefit analysis are used to appraise the feasibility of the project. The EIRR is a discount rate which makes the costs and the benefits of the project during the project life equal. The benefit/cost ratio is obtained by dividing the benefits by costs based on the present value. The procedure used for the economic analysis is shown in Figure 14-F-1.

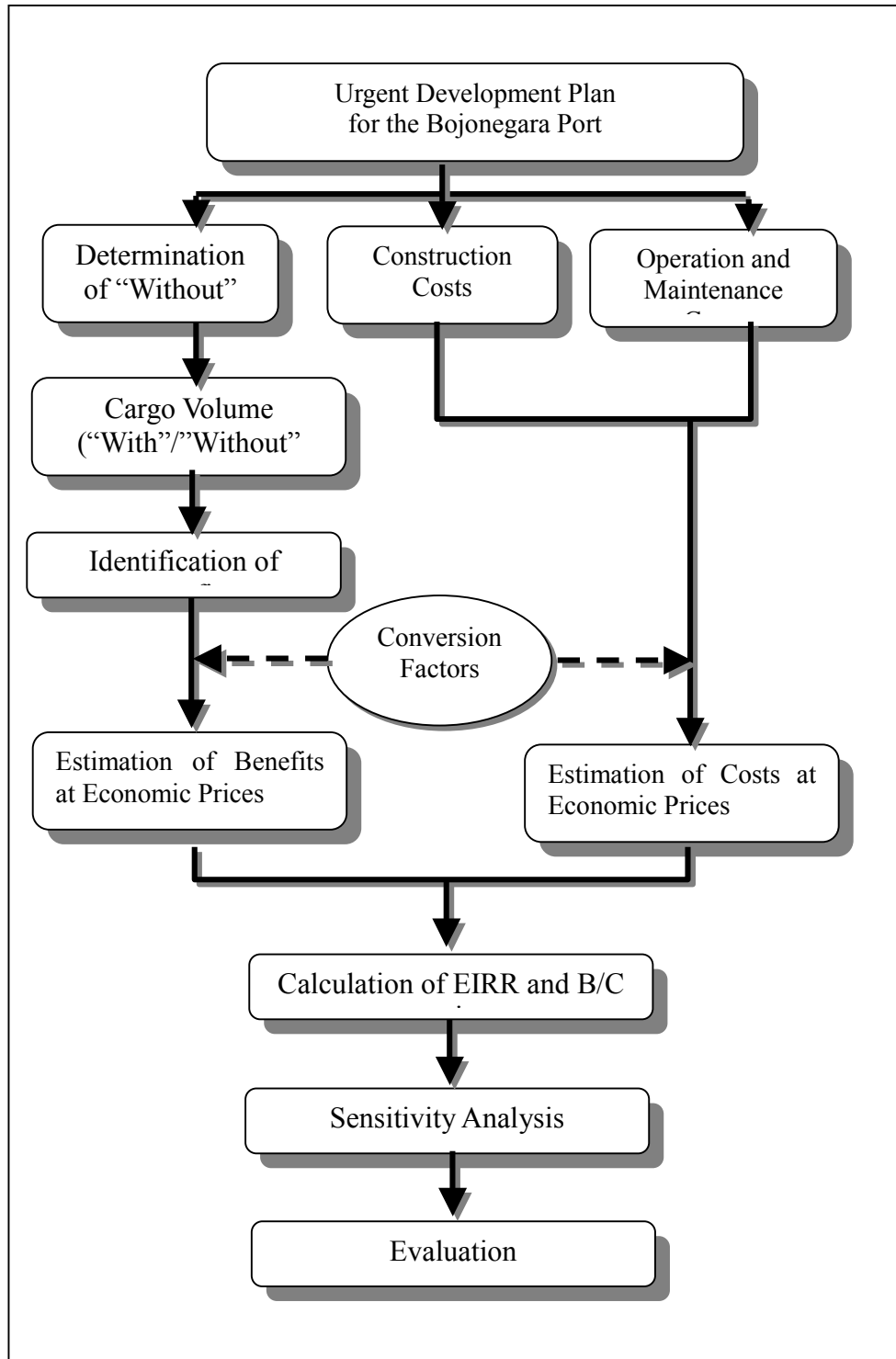


Figure 14-F-1 Procedure of Economic Analysis

14-F-2 Prerequisites for Economic Analysis

1) *Base Year*

169. The “Base Year” here means the standard year in the estimation of costs and benefits. In this study, 2002 is set as the “Base Year”.

2) *Covered Projects in the Analysis*

170. The scope of the economic analysis covers the projects in the Development Plan for Tanjung Priok Port. The project is divided into two cases. One is the port development project and the other is the road development project. In addition, the port development project includes two plans, namely Urgent Development Plan and Short-Term Development Plan. Major project components and their implementing schedule are as follows:

Table 14-F-1 Project and Development Schedule

Project component	Urgent Port Plan	Short-Term Port Plan	Short-Term Road Plan	Development	Operation
I. Port Development Project					
Breakwater Relocation	Yes	Yes	No	2006~2010	2007~(Partly)
Channel and Basin Dredging	Yes	Yes	No	2006~2010	2007~(Partly)
Automobile Terminal	Yes	Yes	No	2005~2006	2006~
Port Inner Road	Yes	Yes	No	2006~2007	2006~(Partly)
Ancol Development	No	Yes	No	2009~2011	2012~
II. Road Development Project					
Eastern Highway	No	No	Yes	2006~2008	2008~

3) *Project Life*

171. The period of calculation (project life) in the economic analysis is assumed to be 34 years for the Port Development Plan and the Road Development Plan from the starting year, taking into consideration the depreciation period of the main facilities.

172. The Port and Road Development Plan start in 2004. Both are scheduled to be completed in 2037.

4) *Foreign Exchange Rate*

173. The exchange rate adopted for this analysis is US\$ 1.00 = Rupiah 8,500, the same rate as used in the cost estimation.

5) *“With” Case*

174. As a cost-benefit analysis is conducted on the difference between the “With” case and the “Without” case, it is important to define the “With” case and the “Without” case.

175. In the economic analysis, the three projects, Channel and Basin Improvement Project, Automobile Terminal Development Project and Ancol Terminal Development Project are assessed simultaneously for the Port Development project.

176. The Road Development Project is analyzed independently on Eastern Highway.

177. In an economic analysis of the port development project, benefits are mainly brought about by additional cost for midstream operation and transshipment of container cargoes counted in “Without” case.

178. On the other hand, smooth traffic flow by a reduction of congestion is a benefit of the road development project.

6) “Without” Case

179. No investment is made for the Port Development Plan. In the “Without” case scenario, the cargo is assumed to be handled by Midstream operation at existing berths in Tanjung Priok Port and the coast or riverside of Jakarta Bay. Following conditions are adopted as the "Without" case for the port project.

a) *Channel and Basin Improvement Project (for Urgent and Short-Term)*

- No investment is made for the channel and basin improvement.
- The volume of cargo is the same as the “With” case
- The working efficiency of cargo handling is the same as the “With” case within the capacity
- Foreign Container cargo exceeding current capacity shall transshipped to smaller ship equipped with ship crane for conducting midstream operation
- Foreign container vessel has a priority to enter the port up to the same number as the present
- Domestic container vessel and general cargo vessel shall handle cargoes by midstream operation for exceeded volume than current capacity

b) *Automobile Terminal Development Project (for Urgent and Short-Term)*

- Car loading /discharging operation is conducted at the existing general cargo berths in the “Without” case
- A tentative automobile terminal is assumed to stock 350 PCU at the berth and 150 PCU at the distant area near the berth. These stock areas are mainly used for discharging cars.
- Outgoing cars are transported from the stock yard and directly loading on the vessel
- The size of vessels is the same as the “With” case
- Large vessel have to control the cargo weight to call existing shallow berth

c) *Ancol Terminal Development Project (for Short-Term)*

- No investment is made for the Ancol Terminal Development
- Existing passenger terminal continues to serve for travelers
- General cargo and bag exceeding the capacity have to be load/discharge by mid stream operation.

180. No investment is made for the Short-Term Road Development Plan. In the “Without” case scenario, the road traffic is assumed to be passed by existing road around the Tanjung Priok Port. Following conditions are adopted as the "Without" case for road project.

d) *Eastern Access Port Highway Project (for Short-Term)*

- No investment is made for the eastern access road improvement.
- The volume of traffic is the same as the “With” case
- The distribution of traffic is the same as the “With” case.

14-F-3 Economic Prices**1) General**

181. For the economic analysis, all prices must be expressed in economic prices which means the international prices or border prices. In general, the value of goods quoted at market price do not always represent the value of goods. The market prices often include transfer items, such as tax, customs duties, subsidies, etc, which don't actually reflect any consumption of resources. Therefore, the market prices can be converted into economic prices by eliminating these.

2) Conversion Factors**a) Standard Conversion Factor (SCF)**

182. Customs duties creates a price difference between the domestic market and the international market. The SCF is used to determine the economic prices of non-traded goods that have only market prices, and makes up for this price difference. The SCF is calculated by the following formula.

$$SCF = \frac{I + E}{(I + Di) + (E - De)}$$

where, *I*: Total value of imports (CIF)
E : Total value of exports (FOB)
Di : Total value of import duties
De: Total value of export duties

183. In this report, total value of duties is inferred from duty rate and value of each trade goods, and the average SCF from 1996 to 2001 is adopted. The Standard Conversion Factor is calculated as 0.99 (See Table 14-F-3).

Table 14-F-2 Trade Data of Indonesia

Year	1996	1997	1998	1999	2000	2001
<i>I(millionUSD)</i>	42,900	41,700	27,300	24,000	33,500	31,000
<i>E(millionUSD)</i>	49,800	53,400	48,800	48,700	62,100	56,300
<i>Di(billionRp)</i>	2,580	3,000	2,310	4,180	6,700	9,030
<i>De(billionRp)</i>	80	130	4,630	860	330	540

Source: I and E by BPS, and Di and De based on Government Revenues by Bank of Indonesia

Table 14-F-3 Standard Conversion Factor

Year	1996	1997	1998	1999	2000	2001	Average
SCF	0.99	0.99	1.00	0.99	0.99	0.99	0.99

184. The reason why the Standard Conversion Factor in Indonesia is almost 1.0 is due to the lowered custom duties brought about by the following:

- In connection with the trade liberalization policy of the government, import duties are presently being lowered.
- Tariff rates with ASEAN Countries are being lowered to 0--5% by the year 2003.

- For purposes of industrial development, the Government employs import duties reduction and exemption measures, bonded areas and bonded warehouse systems for foreign and local investors.

185. Based on statistics from the Government, the calculated import duties account for about 3% of import costs, however, the proportion of taxes with the total trade amount for both imports and exports does not reach 2%.

186. In fact, in comparison with that of other ASEAN countries where import duties exceed 10%, since 1972, the trend for the proportion of duties in relation to the national tax of Indonesia show an extremely low value of 2.2% in 1999. (see Figure below).

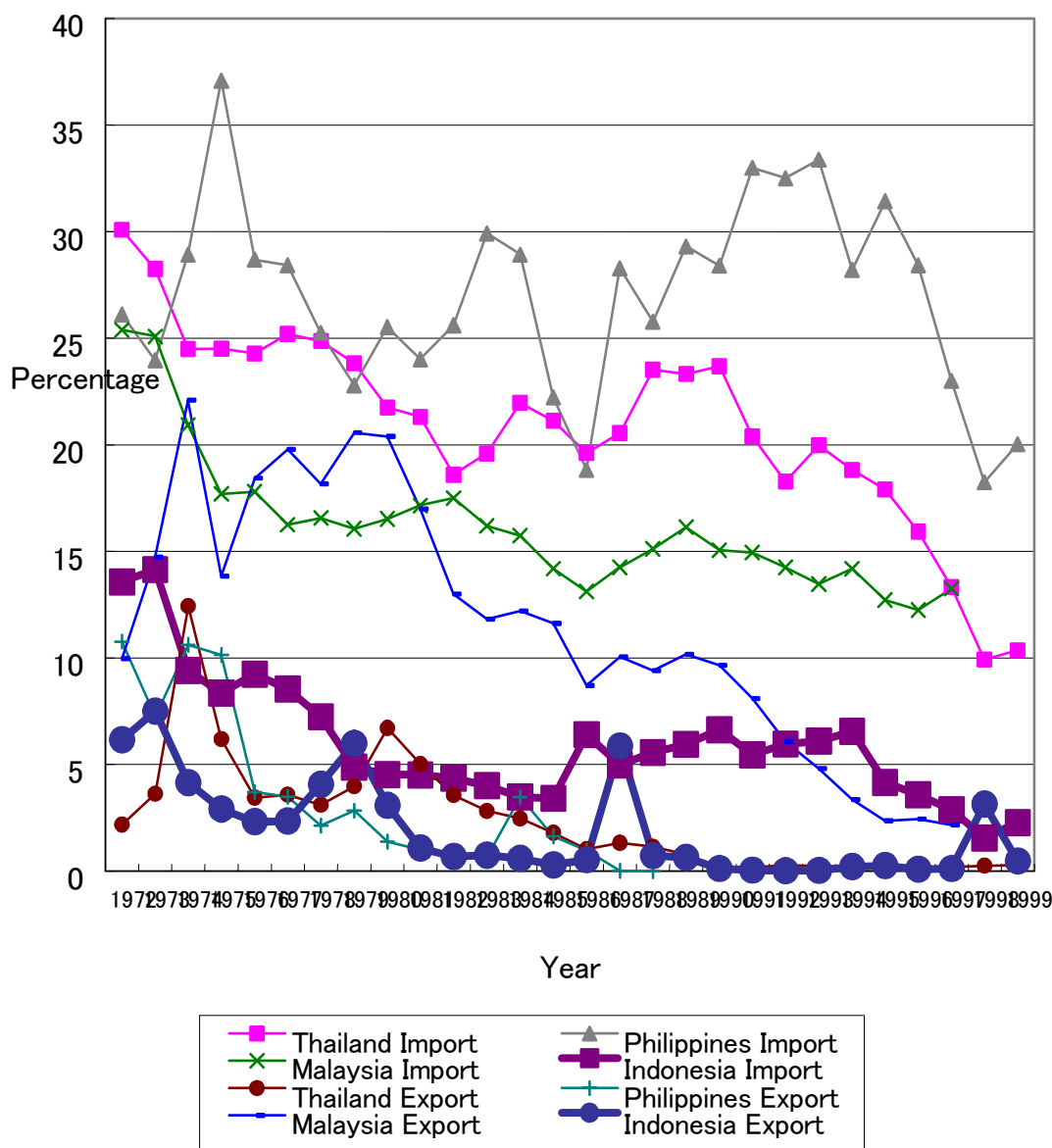


Figure 14-F-2 Import and Export Duties against Tax Revenue

b) Conversion Factor for Consumption (CFC)

187. This conversion factor is used to convert the market prices of consumer goods into the border prices. The Conversion Factor for Consumption is usually calculated in the same manner as the Standard Conversion Factor, replacing total imports and exports by total imports and exports of consumer goods. The CFC is calculated by the following formula.

$$\text{CFC} = \frac{Ic + Ec}{(Ic + Dic) + (Ec - Dec)}$$

where, Ic : Total value of consumer goods imports (CIF)
 Ec : Total value of consumer goods exports (FOB)
 Dic : Total value of consumer goods import duties
 Dec : Total value of consumer goods export duties

188. In calculating for the conversion factor for consumer goods, the tariff income for consumer goods is not known, and it is not possible to find this value. However, in Indonesia, the trade value for consumer goods in relation to the total trade amount is at a low (5.2%~10.3%), and it is adjudged that the consumer lifestyle is controlled by non-tradable goods, thus the CFC is set at 1.00.

Table 14-F-4 Import Share of Consumer Goods by Value

Year	1996	1997	1998	1999	2000	2001
Import of Consumer Goods(percent)	6.5	5.2	7.0	10.3	8.1	7.3

Source: Statistical Year Book of Indonesia 2001

c) Conversion Factor for Skilled Labor (CFSL)

189. The cost of skilled labor is calculated based on actual market wages, assuming that the market mechanism is functioning properly. However, as the data are domestic prices or market prices, they should be converted to border prices by multiplying by the Conversion Factor for Consumption. The Conversion Factor for Skilled Labor (CFSL) is calculated by the following formula.

$$\text{CFSL} = \frac{\text{Opportunity cost of skilled labor} \times \text{CFC}}{\text{Actual market wages of skilled labor}}$$

where, $\text{Opportunity cost of skilled labor} / \text{Actual market wages of skilled labor} = 1$
 CFC : Conversion Factor for Consumption (1.00)

190. The CFSL is calculated using above formula as 1.00.

d) Conversion Factor for Unskilled Labor (CFUL)

191. As the wage rate is controlled by a minimum wage system and other regulations despite the existence of a large amount of unskilled labors, the wages paid to unskilled labors by a project are generally above the opportunity cost. Hence, these wages shouldn't be used for calculation of the economic value of the unskilled labors. The Conversion Factor for Unskilled Labor (CFUL) is calculated by the following formula.

$$\begin{aligned} \text{CFUL} &= \frac{\text{Opportunity cost of unskilled labor} \times \text{CFC}}{\text{Nominal wage rate of unskilled labor}} \\ &= \frac{\text{Provincial Minimum Wage in Banten} \times \text{CFC}}{\text{Assumed wage rate of unskilled labor}} \end{aligned}$$

where, *CFC* : Conversion Factor for Consumption (1.00)

192. In this report, the Conversion Factor for Unskilled Labor is calculated as 0.79 (See Table 14-F-5).

Table 14-F-5 Conversion Factor for Unskilled Labor

Year	Provincial Minimum Wage in Jakarta (Rupiahs/month)	Assumed wage rate of unskilled labor (Rupiahs/month)	CFC	CFUL
2002	591,266	750,000 (25 working days/month)	1.00	0.79

3) Construction Costs

193. Construction costs are divided into the categories of foreign currency portion and local currency portion. Those are consisting of skilled labor, unskilled labor and non-tradable material.

194. Evaluating on conversion factors, CFUL shall be applied but portion of cost can be assumed to be around 1.0%.

Table 14-F-6 Conversion Factor for Economic Pricing

Kind of Cost	Conversion Factor
Non-Tradable Goods	SCF=1.0
Tradable Goods	CIF price
Skilled Labour	CFSL=1.0
Unskilled Labour	CFUL=0.79

195. Transfer cost, which does not actually represent the consumption of national resources, shall be excluded in the economic analysis. Tax, duties, profit and compensation are recognized as transfer cost in this study. Following values are set for transfer cost.

- ◆ Cost of Land Acquisition CLA= 45 billion Rp.
- ◆ Transferable Operating Profit (half) TOP= 3%
- ◆ Value Added Tax VAT= 10% of cost

196. Economic price is computed by the following formula;

$$(1 + \text{TOP}) * \text{CCE} = (\text{CCM} - \text{CLA} - \text{VAT}) * (0.99 + 0.01 * \text{CFUL})$$

$$\text{CCE} = 0.9689 * (\text{CCM} - \text{CLA} - \text{VAT})$$

where, CCE : Construction Cost by economic pricing

CCM : Construction Cost by market pricing

14-F-4 Benefits of the Port Projects**1) Benefit Items**

197. As benefits brought about by the Urgent Port Development Plan of the study port, the following items are identified.

- ◆ (1) Savings in ship and cargo staying cost for cargo handling
- ◆ (2) Savings in sea transportation cost
- ◆ (3) Savings in handling cost by Midstream Operation for the excess cargoes
- ◆ (4) Savings in land transportation cost
- ◆ (5) Savings in time cost of vehicle and cargo on land transportation
- ◆ (6) Reduction of cargo damage and accident at the port
- ◆ (7) Promotion of regional economic development
- ◆ (8) Increase in employment opportunities and income
- ◆ (9) Reduction of the traffic congestion in the port area

198. Item (1), (2) and (3) are considered countable in this study and the monetary benefits of those items are counted.

2) Calculation of Benefits**a) Saving in ship staying costs**

199. In the “With” case, total ship staying cost at berths is less than that of the “Without” case owing to the implementation of the four projects. Actually, productivity at wider yard using modern methods is higher than midstream operation. The difference of ship cost and cargo value between the “With” case and the “Without” case during Midstream Operation is counted as a benefit of the projects. Saving in ship staying costs of container cargo and general cargo at berths are shown in Table 14-F-7 and Table 14-F-8 and that of car carrier is shown in Table 14-F-9.

Table 14-F-7 Saving in Staying Costs of Container Cargo and Ship

(Unit: billion Rp)

Year No.	Project	Container Vessel Staying Cost	Container Cargo Staying Value	Total
1-9		422	166	588
10-19		1,360	433	1,793
20-29		1,534	481	2,015
30-34		767	240	1,007
Total of F-1- to 34		4,083	1,321	5,405

Table 14-F-8 Saving in Staying Costs of General Cargo and Bags

(Unit: billion Rp)

Project Year No.	Vessel Staying Cost	Cargo Staying Value	Total
1-9	175	37	213
10-19	1,570	339	1,910
20-29	1,812	392	2,204
30-34	906	196	1,102
Total oF-1- to 34	4,465	965	5,431

Table 14-F-9 Saving in Staying Costs of Car Carrier

(Unit: billion Rp)

Project Year No.	Car Carrier
1-9	129
10-19	248
20-29	248
30-34	124
Total oF-1- to 34	750

b) Saving in sea transportation costs of foreign container

200. At the beginning stage of maritime transport, the loading/unloading of goods is conducted by Midstream Operation, in which case, a ship must be equipped with ship cranes. Some of large container ships, however, are not equipped with such crane, which gives rise to transshipment in Singapore Port, etc. in order to do the midstream operation at destination port. It is possible to add on some portion of the transshipment cost of this as a benefit of “With case”.

201. In this case, gear-less vessels, 62% of all, are also taken into account, and for these, a quarter of the transshipment cost at other ports on the maritime route is added.

Table 14-F-10 Saving in Sea Transportation Costs (Unit: billion Rp)

Project Year No.	Container Handling Charge	Delayed Transport Of Cargo
1-9	362	49
10-19	857	116
20-29	944	127
30-34	472	63
Total oF-1- to 34	2,636	356

c) Saving in cargo handling costs by midstream operation

202. In performing Midstream Operation, plural barge transport system is necessary. The cost of these facilities is added on as a benefit of the “with case”. But the operational cost at the coast is assumed the same as that of the “with case”.

203. Assuming that the size of the barge is a 30TEU (self propelled) vessel, the corresponding land facilities are available in and out of the port.

Table 14-F-11 Saving in Cost of Mid Stream Operation (unit: billion Rp)

Year No.	Project	Multipurpose Terminal	Container Terminal
	1-9		113
10-19		1,012	414
20-29		1,168	466
30-34		584	233
Total oF-1- to 34		2,878	1,245

Table 14-F-12 Benefit in the Urgent Development Plan (unit:million Rp)

Year	Mid Stream operation (Barge Cost)		Foreign Container Transshipment		Delayed Operation (Vessel & Cargo)			Total
	Container	G.C.+Bag	Cargo Stay	Cargo Handling	Container	G.C.+Bag	Car	
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	18,600	18,600
2008	14,016	0	5,208	38,471	62,353	0	19,680	139,728
2009	24,384	0	9,060	66,929	108,476	0	20,880	229,730
2010	28,224	0	10,487	77,469	125,559	0	22,200	263,939
2011	31,680	47,147	11,772	86,955	140,934	88,968	23,520	430,974
2012	33,984	66,075	12,556	92,752	151,092	124,686	24,840	505,985
2013	34,224	72,948	11,647	86,033	150,887	137,655	24,840	518,232
2014	33,408	79,941	10,416	76,942	146,074	150,852	24,840	522,473
2015	36,816	87,058	10,505	77,601	159,734	164,282	24,840	560,836
2016	40,176	94,301	10,559	77,996	173,157	177,949	24,840	598,978
2017	42,000	101,671	11,076	81,817	181,067	191,857	24,840	634,328
2018	43,344	109,171	11,575	85,506	187,046	206,010	24,840	667,492
2019	44,736	116,803	12,093	89,327	193,239	220,412	24,840	701,449
2020	46,080	116,835	12,592	93,016	199,218	220,471	24,840	713,052
2021	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2022	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2023	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2024	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2025	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2026	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2027	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2028	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2029	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2030	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2031	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2032	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2033	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2034	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2035	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2036	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
2037	46,608	116,835	12,788	94,465	201,567	220,471	24,840	717,574
Total	1,245,408	2,878,143	356,944	2,636,713	5,405,467	5,431,157	750,720	18,704,553

14-F-5 Costs of the Port Projects**1) Construction Costs**

204. The following items are identified as costs of the urgent port project.

- ◆ Construction and dredging costs
- ◆ Maintenance and renewal costs
- ◆ Administration cost

205. Construction costs consist of Direct Construction Cost, Indirect Construction Cost, Project Related Cost, Administration Cost and VAT. Total Project Cost is estimated at 1,035 billion Rp by market price. Details are shown in the Table bellow.

Table 14-F-13 Project and Direct Construction Cost of Urgent Port Plan (unit:billion Rp)

Item	Urgent
a. Channel and Basin Improvement Project	403
a.1 Breakwater(Dam Tengah)	144
a.2 Breakwater(Dam Barat)	22
a.3 Western Channel Improvement by Dredging	171
a.4 Basin Improvement by Dredging	66
b. Domestic Container Terminal Development Project	0
c. Automobile Terminal Development Project	88
c.1 Car Carrier Terminal	86
c.2 Access to Car Terminal	2
d. Re-organizing and Developing Conventional Wharves Project	0
e. Passenger Terminal Relocation Project	0
f. Land Transport Improvement Project	69
f.1 Improvement of Port Related Road	69
g. Other Project	0
Total a. to g.	584

Table 14-F-14 Construction Cost of Urgent Port Development Plan (unit:billion Rp)

Items	Urgent
I. Direct Construction Cost	584
II. Indirect Construction Cost	172
III. Project Related Expense	136
IV. Administration Cost and Compensation	53
V. Total I to IV	945
VI. VAT	89
VII. Construction Cost	1,035

206. Maintenance cost are estimated at 1% of civil cost and 5% of mechanical cost. Refer financial analysis on administration cost.

207. Economic price is computed by following formula;

$$CCE = 0.9689 * (CCM - CLA - VAT)$$

where, CCE : Construction Cost by economic pricing

CCM : Construction Cost by market pricing = 1,034.7 billion Rp.

CLA: Cost of Land Acquisition = 45.0 billion Rp.

VAT: 10% of cost = 89.3 billion Rp.

CCE = 872.4 billion Rp.

2) *Maintenance and Operation Costs*

a) *Maintenance costs*

208. The annual costs of maintaining the port facilities are estimated as a fixed rate, specifically 1% for structure (excluding dredging and reclamation) and 5% for equipment of the original construction costs.

Table 14-F-15 Maintenance Costs for Structure and Equipment

(Unit: billion Rp)

Year No.	Project Structure and Equipment
1-9	3.8
10-19	5.6
20-29	5.6
30-34	2.8
Total oF-1- to 34	18.0

b) *Personnel and administration costs*

209. The annual personnel costs are estimated almost even for “With” case and “Without” case.

3) *Total Costs*

210. Table 14-F-16 shows total costs at economic prices in the Urgent Development Plan.

Table 14-F-16 Costs in the Urgent Development Plan (Unit: million Rp)

Year	Construction Cost	Maintenance Cost	Total
2004	14,347	0	14,347
2005	51,182	49	51,231
2006	385,775	437	386,212
2007	390,078	567	390,645
2008	31,040	567	31,607
2009	0	567	567
2010	0	567	567
2011	0	567	567
2012	0	567	567
2013	0	567	567
2014	0	567	567
2015	0	567	567
2016	0	567	567
2017	0	567	567
2018	0	567	567
2019	0	567	567
2020	0	567	567
2021	0	567	567
2022	0	567	567
2023	0	567	567
2024	0	567	567
2025	0	567	567
2026	0	567	567
2027	0	567	567
2028	0	567	567
2029	0	567	567
2030	0	567	567
2031	0	567	567
2032	0	567	567
2033	0	567	567
2034	0	567	567
2035	0	567	567
2036	0	567	567
2037	0	567	567
Total	872,422	18,063	890,485

4) *Evaluation of Projects*

a) *Calculation of the EIRR*

211. The economic internal rate of return (EIRR) based on a cost-benefit analysis is used to appraise the economic feasibility of the project. The EIRR is the discount rate which makes the costs and benefits of a project during the project life equal.

212. It is calculated by using the following formula.

$$\sum_{i=1}^n \frac{Bi - Ci}{(1+r)^{i-1}} = 0$$

where, n : Period of economic calculation (project life = 35 years)

Bi : Benefits in i -th year

Ci : Costs in i -th year

r : Discount rate

213. The results of the EIRR calculation are shown in Table 14-F-17.

Table 14-F-17 Result of EIRR Calculation

Project	Whole
EIRR	33.0 %

b) Calculation of the Benefit/Cost Ratio

214. The benefit/cost ratio is obtained by dividing the benefit by the cost. The results of the B/C are shown in Table 14-F-18. The discount rate adopted for calculation of B/C is 15% in this study.

Table 14-F-18 Result of B/C Calculation (unit: billion Rp)

Items	Cost	Benefit	B/C
NPV	546	1,722	3.15

c) Calculation of the Net Present Value (NPV)

215. The Net Present Value is calculated by using the following formula.

$$NPV = \sum_{i=1}^n \frac{Bi - Ci}{(1+r)^{i-1}}$$

where, n : Period of economic calculation (project life = 35 years)
 Bi : Benefits in i-th year
 Ci : Costs in i-th year
 r : Discount rate = 15%

216. The results of the NPV calculation are shown in Table 14-F-19.

Table 14-F-19 Result of NPV Calculation (Unit: billion Rp)

Item	Net
PV	1,176

d) Sensitivity Analysis

217. In order to see whether the project is still feasible when some conditions change, a sensitivity analysis is made for the following three alternatives.

- Case A: The costs increase by 10%
- Case B: The benefits decrease by 10%
- Case C: The costs increase by 10% and the benefits decrease by 10%

218. The results of the sensitivity analysis are shown in Table 14-F-20.

Table 14-F-20 Sensitivity Analysis for EIRR

Project	Whole
Base Case	33.0%
Case A	31.0%
Case B	30.8%
Case C	29.0%

e) Evaluation

219. In general, it is said that a project with an EIRR of more than 15% is economically feasible considering the opportunity cost of capital in Indonesia. As for this study, the resulting EIRRs of all Case are larger than 15%.

220. This means that the planned project is economically feasible.

Table 14-F-21 Cost and Benefit of Tanjung Priok Port Urgent Project (unit:million Rp)

Year	Cost	Benefit	Net
2004	14,347	0	-14,347
2005	51,231	0	-51,231
2006	386,212	0	-386,212
2007	390,645	18,600	-372,045
2008	31,607	139,728	108,121
2009	567	229,730	229,163
2010	567	263,939	263,372
2011	567	430,974	430,407
2012	567	505,985	505,418
2013	567	518,232	517,665
2014	567	522,473	521,906
2015	567	560,836	560,269
2016	567	598,978	598,411
2017	567	634,328	633,761
2018	567	667,492	666,925
2019	567	701,449	700,882
2020	567	713,052	712,485
2021	567	717,574	717,007
2022	567	717,574	717,007
2023	567	717,574	717,007
2024	567	717,574	717,007
2025	567	717,574	717,007
2026	567	717,574	717,007
2027	567	717,574	717,007
2028	567	717,574	717,007
2029	567	717,574	717,007
2030	567	717,574	717,007
2031	567	717,574	717,007
2032	567	717,574	717,007
2033	567	717,574	717,007
2034	567	717,574	717,007
2035	567	717,574	717,007
2036	567	717,574	717,007
2037	567	717,574	717,007
Total	890,485	18,704,553	17,814,068

14-F-6 Benefits and Costs of the Short-Term Port Projects**1) Benefit**

221. According to the same method as the Urgent Port Development Project, three types of benefits can be counted for the Short-Term Development Project.

a) Saving in ship staying costs

222. Details of the ship staying costs are the same as the Urgent Port Projects.

Table 14-F-22 Saving in Staying Costs of Container Cargo and ship

(Unit: billion Rp)

Year No. \ Project	Container Vessel Staying Cost	Container Cargo Staying Value	Total
1-9	421	166	588
10-19	1,240	457	1,697
20-29	1,515	542	2,058
30-34	757	271	1,029
Total of 1 to 34	3,935	1,437	5,373

Table 14-F-23 Saving in staying Costs of General Cargo and Bags

(Unit: billion Rp)

Year No. \ Project	Vessel Staying Cost	Cargo Staying Value	Total
1-9	175	37	213
10-19	1,643	355	1,999
20-29	2,256	488	2,744
30-34	1,128	244	1,372
Total of 1- to 34	5,203	1,125	6,329

Table 14-F-24 Saving in staying Costs of Car Carrier

(Unit: billion Rp)

Year No. \ Project	Car Carrier
1-9	129
10-19	248
20-29	248
30-34	124
Total of 1- to 34	750

b) Saving in sea transportation costs of foreign container

223. Details of the sea transportation costs of foreign container are the same as the Urgent Port Projects.

Table 14-F-25 Saving in Sea Transportation Costs (Unit: billion Rp)

Year No.	Project	Container Handling Charge	Delayed Transport Of Cargo
1-9		362	49
10-19		857	116
20-29		944	127
30-34		472	63
Total of F-1- to 34		2636	356

c) Saving in cargo handling costs by midstream operation

224. Details of the cargo handling costs by midstream operation are the same as the Urgent Port Projects.

Table 14-F-26 Saving in Cost of Mid Stream Operation (unit: billion Rp)

Year No.	Project	Multipurpose Terminal	Container Terminal
1-9		113	132
10-19		1,059	836
20-29		1,454	2,373
30-34		727	1,764
Total of F-1- to 34		3,353	5,106

Table 14-F-27 Benefit in the Short-Term Port Development Plan (unit:million Rp)

Year	Mid Stream operation (Barge Cost)		Foreign Container Transshipment		Delayed Operation (Vessel & Cargo)			Total
	Container	G.C.+Bag	Cargo Stay	Cargo Handling	Container	G.C.+Bag	Car	
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	18,600	18,600
2008	0	0	5,208	38,471	62,353	0	19,680	125,712
2009	24,384	0	9,060	66,929	108,476	0	20,880	229,730
2010	28,224	0	10,487	77,469	125,559	0	22,200	263,939
2011	31,680	47,147	11,772	86,955	140,934	88,968	23,520	430,974
2012	34,091	66,075	12,556	92,752	150,694	124,686	24,840	505,693
2013	35,931	72,948	11,647	86,033	144,909	137,655	24,840	513,962
2014	38,101	79,941	10,416	76,942	134,916	150,852	24,840	516,009
2015	46,256	87,058	10,505	77,601	142,002	164,282	24,840	552,544
2016	56,149	94,301	10,559	77,996	148,751	177,949	24,840	590,545
2017	69,003	101,671	11,076	81,817	160,961	191,857	24,840	641,224
2018	83,568	109,171	11,575	85,506	172,957	206,010	24,840	693,627
2019	99,941	116,803	12,093	89,327	185,167	220,412	24,840	748,584
2020	117,952	124,570	12,592	93,016	197,073	235,069	24,840	805,111
2021	136,955	132,474	12,788	94,465	205,439	249,983	24,840	856,944
2022	152,560	140,517	12,788	94,465	205,804	265,161	24,840	896,134
2023	167,973	145,419	12,788	94,465	205,804	274,410	24,840	925,699
2024	183,387	145,419	12,788	94,465	205,804	274,410	24,840	941,113
2025	198,800	145,419	12,788	94,465	205,804	274,410	24,840	956,526
2026	214,213	145,419	12,788	94,465	205,804	274,410	24,840	971,939
2027	229,627	145,419	12,788	94,465	205,804	274,410	24,840	987,353
2028	245,040	145,419	12,788	94,465	205,804	274,410	24,840	1,002,766
2029	260,453	145,419	12,788	94,465	205,804	274,410	24,840	1,018,179
2030	275,867	145,419	12,788	94,465	205,804	274,410	24,840	1,033,593
2031	291,280	145,419	12,788	94,465	205,804	274,410	24,840	1,049,006
2032	306,693	145,419	12,788	94,465	205,804	274,410	24,840	1,064,419
2033	322,107	145,419	12,788	94,465	205,804	274,410	24,840	1,079,833
2034	337,520	145,419	12,788	94,465	205,804	274,410	24,840	1,095,246
2035	352,933	145,419	12,788	94,465	205,804	274,410	24,840	1,110,659
2036	368,347	145,419	12,788	94,465	205,804	274,410	24,840	1,126,073
2037	383,760	145,419	12,788	94,465	205,804	274,410	24,840	1,141,486
Total	5,092,795	3,353,960	356,944	2,636,713	5,373,051	6,329,040	750,720	23,893,223

2) Construction Costs

225. Construction costs consist of Direct Construction Cost, Indirect Construction Cost, Project Related Cost, Administration Cost and VAT. Total Project Cost is estimated at 3,823 billion Rp by market price. Details are shown in the Table bellow.

Table 14-F-28 Project and Direct Construction Cost of Short-term Port Plan

Item	(unit: billion Rp.)		
	Urgent	Short	Total
a. Channel and Basin Improvement Project	403	372	775
a.1 Breakwater(Dam Tengah)	144	93	236
a.2 Breakwater(Dam Barat)	22	0	22
a.3 Western Channel Improvement by Dredging	171	0	171
a.4 Basin Improvement by Dredging	66	8	75
a.5 Access Channel	0	104	104
a.6 Dredging of Channel and Basin	0	0	0
a.7 Breakwater for Ancol Development	0	87	87
a.8 New Access Western Channel by Dredging	0	80	80
a.9 Breakwater(East Entrance)	0	0	0
a.10 Dredging for East Entrance Channel	0	0	0
b. Domestic Container Terminal Development Project	0	269	269
b.1 Multi Purpose Terminal	0	269	269
c. Automobile Terminal Development Project	88	0	88
c.1 Car Carrier Terminal	86	0	86
c.2 Access to Car Terminal	2	0	2
d. Re-organizing and Developing Conventional Wharves Project	0	181	181
d.1 Port Re-development(Demaga)	0	21	21
d.2 Port Re-development(Lapangan)	0	160	160
e. Passenger Terminal Relocation Project	0	111	111
e.1 Passenger Terminal	0	111	111
f. Land Transport Improvement Project	69	0	69
f.1 Improvement of Port Related Road	69	0	69
f.2 Eastern Access Port Highway	0	0	0
g. Other Cost	61	662	722
g.1 Mobilization and Demobilization	25	79	103
g.2 Port-related Zone	0	130	130
g.3 Ancol Access Road	0	122	122
g.4 Access Road (offshore island) extension	0	128	128
g.5 Access Road (bridge over sea)	0	203	203
g.6 Gate Improvement	36	0	36
Total a. to g.	621	1,594	2,215

Table 14-F-29 Construction Cost of Short-term Plan (unit: billion Rp.)

Items	Urgent	Short	Total
I. Direct Construction Cost	621	1,594	2,215
II. Indirect Construction Cost	179	494	673
III. Project Related Expense	144	376	520
IV. Administration Cost and Compensation	53	21	74
V. Total I to IV	996	2,486	3,482
VI. VAT	94	246	341
VII. Construction Cost	1,091	2,732	3,823

226. Economic price is computed by the following formula;

$$CE = 0.9689 * (CM - CLA - VAT)$$

where, CE : Cost by economic pricing

CM : Cost by market pricing = 3,822.6 billion Rp.

CLA: Cost of Land Acquisition = 45.0 billion Rp.

VAT: 10% of cost = 340.8 billion Rp.

CE = 3,330 billion Rp.

3) *Maintenance and Operation Costs*

227. Details of the maintenance costs are the same as the Urgent Port Projects.

Table 14-F-30 Maintenance Costs for Structure and Equipment

(Unit: billion Rp)

Year No.	Project	Structure and Equipment
1-9		9.2
10-19		31.5
20-29		31.5
30-34		15.7
Total of F-1- to 34		88.2

4) *Total Costs*

228. Table 14-F-31 shows total costs at economic prices in the Short-Term Development Plan.

Table 14-F-31 Costs in the Short-Term Port Development Plan (Unit: million Rp)

Year	Construction Cost	Maintenance Cost	Total
2004	15,010	0	15,010
2005	51,845	49	51,894
2006	404,390	441	404,831
2007	418,763	589	419,352
2008	211,953	589	212,542
2009	442,854	589	443,443
2010	974,796	890	975,686
2011	760,288	2,981	763,269
2012	50,123	3,158	53,281
2013	0	3,158	3,158
2014	0	3,158	3,158
2015	0	3,158	3,158
2016	0	3,158	3,158
2017	0	3,158	3,158
2018	0	3,158	3,158
2019	0	3,158	3,158
2020	0	3,158	3,158
2021	0	3,158	3,158
2022	0	3,158	3,158
2023	0	3,158	3,158
2024	0	3,158	3,158
2025	0	3,158	3,158
2026	0	3,158	3,158
2027	0	3,158	3,158
2028	0	3,158	3,158
2029	0	3,158	3,158
2030	0	3,158	3,158
2031	0	3,158	3,158
2032	0	3,158	3,158
2033	0	3,158	3,158
2034	0	3,158	3,158
2035	0	3,158	3,158
2036	0	3,158	3,158
2037	0	3,158	3,158
Total	3,330,022	88,236	3,418,258

14-F-7 Evaluation of the Short-Term Port Projects**a) Calculation of the EIRR**

229. The economic internal rate of return (EIRR) based on a cost-benefit analysis is used to appraise the economic feasibility of the project. The EIRR is the discount rate which makes the costs and benefits of a project during the project life equal.

230. The results of the EIRR calculation are shown in Table 14-F-32.

Table 14-F-32 Result of EIRR Calculation

Project	Whole
EIRR	18.2 %

b) Calculation of the Benefit/Cost Ratio

231. The benefit/cost ratio is obtained by dividing the benefit by the cost. The results of the B/C are shown in Table 14-F-33. The discount rate adopted for calculation of B/C is 15% in this study.

Table 14-F-33 Result of B/C Calculation (unit: billion Rp)

Items	Cost	Benefit	B/C
NPV	1,493	1,873	1.25

c) Calculation of the Net Present Value (NPV)

232. The results of the NPV calculation are shown in Table 14-F-34.

Table 14-F-34 Result of NPV Calculation (Unit: billion Rp)

Item	Net
NPV	380

d) Sensitivity Analysis

233. In order to see whether the project is still feasible when some conditions change, a sensitivity analysis is made for the following three alternatives.

- Case A: The costs increase by 10%
- Case B: The benefits decrease by 10%
- Case C: The costs increase by 10% and the benefits decrease by 10%

234. The results of the sensitivity analysis are shown in Table 14-F-35.

Table 14-F-35 Sensitivity Analysis for EIRR

Project	Whole
Base Case	18.2%
Case A	16.8%
Case B	16.7%
Case C	15.3%

e) Evaluation

235. In general, it is said that a project with an EIRR of more than 15% is economically feasible considering the opportunity cost of capital in Indonesia. As for this study, the resulting EIRRs of all cases are larger than 15%.

236. This means that the planned project is economically feasible.

Table 14-F-36 Cost and Benefit of Short-Term Port Development Project (unit:million Rp)

Year	Cost	Benefit	Net
2004	15,010	0	-15,010
2005	51,894	0	-51,894
2006	404,831	0	-404,831
2007	419,352	18,600	-400,752
2008	212,542	139,728	-72,815
2009	443,443	229,730	-213,713
2010	975,686	263,939	-711,747
2011	763,269	430,974	-332,295
2012	53,281	505,693	452,412
2013	3,158	513,962	510,804
2014	3,158	516,009	512,851
2015	3,158	552,544	549,386
2016	3,158	590,545	587,387
2017	3,158	641,224	638,066
2018	3,158	693,627	690,469
2019	3,158	748,584	745,426
2020	3,158	805,111	801,953
2021	3,158	856,944	853,786
2022	3,158	896,134	892,976
2023	3,158	925,699	922,541
2024	3,158	941,113	937,955
2025	3,158	956,526	953,368
2026	3,158	971,939	968,781
2027	3,158	987,353	984,195
2028	3,158	1,002,766	999,608
2029	3,158	1,018,179	1,015,021
2030	3,158	1,033,593	1,030,435
2031	3,158	1,049,006	1,045,848
2032	3,158	1,064,419	1,061,261
2033	3,158	1,079,833	1,076,675
2034	3,158	1,095,246	1,092,088
2035	3,158	1,110,659	1,107,501
2036	3,158	1,126,073	1,122,915
2037	3,158	1,141,486	1,138,328
Total	3,418,258	23,907,239	20,488,981

14-F-8 Benefits of the Short-Term Road Projects

1) *Benefit Items*

237. As benefits brought about by the Urgent development plan of the study port, the following items are identified for the road project.

- ◆ (1) Saving in time costs of car and cargo
- ◆ (2) Saving in land transportation costs
- ◆ (3) Reduction of cargo damage and traffic accidents
- ◆ (4) Promotion of regional economic development
- ◆ (5) Increase in employment opportunities and income
- ◆ (6) Reduction of the traffic congestion of the Metropolitan Road Network

238. Item (1), and (2) are considered countable in this study and the monetary benefits of those items are counted.

2) Calculation of Benefits

a) Saving in time cost of car and cargo

239. Traffic congestion due to the increase in the number of cars will delay the arrival of car and cargo. In this case, values of car and cargo lose the difference on passing time between “With” case and “Without” one.

240. The lower transport speed results in a large economic loss. Distribution of number of cars by traffic congestion is shown in Table 14-F-37.

241. The difference of transport time can be counted by vehicle transport speed on “With” case and “Without” one. Values of car and cargo are assumed at 84.0 million Rp and 46.7 million Rp respectively.

Table 14-F-37 Number of Cars and Average Speed on Eastern Access Port Highway

Project Year	Number of Cars per day (unit: PCU)	Under capacity	Up to 50% over capacity	Up to 100% over capacity	Beyond 100% over capacity
2002	80,189	42,040	34,451	3,698	0
2012	117,299	22,599	42,328	42,281	10,091
2025	174,628	18,369	15,275	29,125	111,859
Speed (km/h)		60	30	15	10

Table 14-F-38 Saving in Time Costs of Car and Cargo

(Unit: million Rp)			
Project Year No.	Time Cost of Car	Time Cost of Cargo	Total
1-9	190	105	295
10-19	1,011	562	1,573
20-29	2,485	1,380	3,866
30-34	2,378	1,321	3,699
Total of F-1- to 34	6,065	3,369	9,435

b) Saving in land transportation costs

242. Most economical speed of land transport by vehicle is recognized as around 60 km per hour from the view point of energy consumption.

243. Estimated congestion level based on number of vehicle by time can provide reasonable speed by time. Summation of difference of cost by speed indicates benefit of investment.

Table 14-F-39 Running Cost by speed

Project Speed(km/h)	Running cost (PCU Rp/km/unit)
60	604.2
30	910.5
15	1,451.3
10	1,944.3

Source: JICA study on JABOTABEK, Phase I

Table 14-F-40 Saving in Land Transportation Costs (Unit: million Rp)

Year No.	Project Cost Saving by 3.2 km
1-9	168
10-19	835
20-29	1,882
30-34	1,696
Total of 1- to 34	4,582

Table 14-F-41 Benefit in the Short-Term Road Development Plan (unit: million Rp)

Year	Savings in Time Cost of Car	Saving in Time Cost of Cargo	Saving in Land Transport Cost	Total
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	36,968	20,538	32,988	90,493
2010	43,263	24,035	38,386	105,684
2011	50,629	28,127	44,669	123,425
2012	59,250	32,917	51,979	144,146
2013	65,306	36,281	56,381	157,968
2014	71,448	39,693	61,156	172,298
2015	78,169	43,427	66,335	187,930
2016	85,521	47,512	71,952	204,985
2017	93,565	51,980	78,046	223,591
2018	102,365	56,870	84,655	243,890
2019	111,993	62,219	91,824	266,036
2020	122,527	68,071	99,600	290,198
2021	134,052	74,473	108,035	316,560
2022	146,660	81,478	117,184	345,322
2023	160,455	89,142	127,108	376,704
2024	175,547	97,526	137,872	410,945
2025	192,058	106,699	149,548	448,305
2026	210,123	116,735	162,212	489,070
2027	229,886	127,715	175,949	533,551
2028	251,509	139,727	190,850	582,086
2029	275,165	152,870	207,012	635,047
2030	301,047	167,248	224,543	692,838
2031	329,362	182,979	243,558	755,900
2032	360,341	200,190	264,184	824,715
2033	394,234	219,019	286,557	899,810
2034	431,315	239,619	310,824	981,758
2035	471,883	262,157	337,146	1,071,187
2036	516,267	286,815	365,698	1,168,780
2037	564,826	313,792	396,667	1,275,285
Total	6,065,734	3,369,852	4,582,920	14,018,506

14-F-9 Costs of the Road Projects**1) Construction Costs**

244. Construction costs consist of Direct Construction Cost, Indirect Construction Cost, Project Related Cost, Administration Cost and VAT. Total Project Cost is estimated at 560 billion Rp by market price. Details are shown in the Table bellow.

Table 14-F-42 Project and Direct Construction Cost of Road Development Plan

Item	(unit:billon Rp.)		
	Urgent	Short	Total
a. Channel and Basin Improvement Project	0	0	0
b. Project	0	0	0
c. Automobile Terminal Development Project	0	0	0
d. Re-organizing and Developing Conventional Wharves Project	0	0	0
e. Passenger Terminal Relocation Project	0	0	0
f. Land Transport Improvement Project	363	0	363
f.2 Eastern Access Port Highway	363	0	363
g. Other Project	0	0	0

Table 14-F-43 Construction Cost of Road Plan (unit:billion Rp.)

Item	Urgent	Short	Total
I. Direct Construction Cost	363	0	363
II. Indirect Construction Cost	65	0	65
III. Project Related Expense	77	0	77
IV. Administration Cost and Compensation	4	0	4
V. Total I to IV	510	0	510
VI. VAT	51	0	51
VII. Construction Cost	560	0	560

245. Economic price is computed by the following formula;

$$CE = 0.9689 * (CM - CLA - VAT)$$

where, CE : Cost by economic pricing
 CM : Cost by market pricing = 560.4 billion Rp.
 CLA: Cost of Land Acquisition = 0.0 billion Rp.
 VAT: 10% of cost = 50.6 billion Rp.
 CE = 494 billion Rp.

2) **Maintenance and Operation Costs**

a) **Maintenance costs**

246. Maintenance cost are estimated at 1% of civil cost and 5% of mechanical cost.

Table 14-F-44 Maintenance Costs for Structure and Equipment

Year No.	(Unit: billion Rp)	
	Project	Structure and Equipment
1-9		1.6
10-19		2.9
20-29		2.9
30-34		1.4
Total of F-1- to 34		9.0

b) **Personnel and administration costs**

247. The annual personnel costs are estimated as almost even for both the “With” case and “Without” case.

3) *Total Costs*

248. Table 14-F-45 shows total costs at economic prices in the Short-term Road Development Plan.

Table 14-F-45 Costs in the Short-Term Road Development Plan (Unit: million Rp)

Year	Construction	Maintenance	Total
2004	6,643	0	6,643
2005	6,643	0	6,643
2006	152,293	18	152,311
2007	221,372	137	221,509
2008	107,087	298	107,385
2009	0	298	298
2010	0	298	298
2011	0	298	298
2012	0	298	298
2013	0	298	298
2014	0	298	298
2015	0	298	298
2016	0	298	298
2017	0	298	298
2018	0	298	298
2019	0	298	298
2020	0	298	298
2021	0	298	298
2022	0	298	298
2023	0	298	298
2024	0	298	298
2025	0	298	298
2026	0	298	298
2027	0	298	298
2028	0	298	298
2029	0	298	298
2030	0	298	298
2031	0	298	298
2032	0	298	298
2033	0	298	298
2034	0	298	298
2035	0	298	298
2036	0	298	298
2037	0	298	298
Total	494,038	9,095	503,133

14-F-10 Evaluation of the Short-Term Road Projects

a) *Calculation of the EIRR*

249. The economic internal rate of return (EIRR) based on a cost-benefit analysis is used to appraise the economic feasibility of the project. The EIRR is the discount rate which makes the costs and benefits of a project during the project life equal.

250. It is calculated by using the following formula.

$$\sum_{i=1}^n \frac{Bi - Ci}{(1+r)^{i-1}} = 0$$

where, n : Period of economic calculation (project life = 34 years)
 Bi : Benefits in i-th year
 Ci : Costs in i-th year
 r : Discount rate

251. The results of the EIRR calculation are shown below.

Table 14-F-46 Result of EIRR Calculation

Project	Whole
EIRR	25.1 %

b) Calculation of the Benefit/Cost Ratio

252. The benefit/cost ratio is obtained by dividing the benefit by the cost. The results of the B/C are shown below. The discount rate adopted for calculation of B/C is 15% in this study.

Table 14-F-47 Result of B/C Calculation (unit: billion Rp)

Items	Cost	Benefit	B/C
PV	292	716	2.45

c) Calculation of the Net Present Value (NPV)

253. The Net Present Value is calculated by using the following formula.

$$NPV = \sum_{i=1}^n \frac{Bi - Ci}{(1+r)^{i-1}}$$

where, n : Period of economic calculation (project life = 34 years)
 Bi : Benefits in i-th year
 Ci : Costs in i-th year
 r : Discount rate = 15%

254. The results of the NPV calculation are shown below.

Table 14-F-48 Result of NPV Calculation (Unit: billion Rp)

Item	Net
PV	425

d) Sensitivity Analysis

255. In order to see whether the project is still feasible when some conditions change, a sensitivity analysis is made for the following three alternatives.

- Case A: The costs increase by 10%
- Case B: The benefits decrease by 10%
- Case C: The costs increase by 10% and the benefits decrease by 10%

256. The results of the sensitivity analysis are shown below.

Table 14-F-49 Sensitivity Analysis for EIRR

Project	Whole
Base Case	25.1%
Case A	23.7%
Case B	23.6%
Case C	22.4%

e) Evaluation

257. In general, it is said that a project with an EIRR of more than 15% is economically feasible considering the opportunity cost of capital in Indonesia. As for this study, the resulting EIRRs of all Case are larger than 15%.

258. This means that the planned project is economically feasible.

Table 14-F-50 Cost and Benefit of Short-Term Road Project (unit: million Rp)

Year	Cost	Benefit	Net
2004	6,643	0	-6,643
2005	6,643	0	-6,643
2006	152,311	0	-152,311
2007	221,509	0	-221,509
2008	107,385	0	-107,385
2009	298	90,493	90,195
2010	298	105,684	105,386
2011	298	123,425	123,127
2012	298	144,146	143,848
2013	298	157,968	157,670
2014	298	172,298	172,000
2015	298	187,930	187,632
2016	298	204,985	204,687
2017	298	223,591	223,293
2018	298	243,890	243,592
2019	298	266,036	265,738
2020	298	290,198	289,900
2021	298	316,560	316,262
2022	298	345,322	345,024
2023	298	376,704	376,406
2024	298	410,945	410,647
2025	298	448,305	448,007
2026	298	489,070	488,772
2027	298	533,551	533,253
2028	298	582,086	581,788
2029	298	635,047	634,749
2030	298	692,838	692,540
2031	298	755,900	755,602
2032	298	824,715	824,417
2033	298	899,810	899,512
2034	298	981,758	981,460
2035	298	1,071,187	1,070,889
2036	298	1,168,780	1,168,482
2037	298	1,275,285	1,274,987
Total	503,133	14,018,506	13,515,373

14-G. FINANCIAL ANALYSIS

14-G-1 Objective of the Financial Analysis

259. The purpose of the financial analysis is to evaluate the financial feasibility of the project. The analysis focuses on the viability of the project itself and the financial soundness of the Bojonegara project during the project life assuming as implementation scheme based on the concept of cost allocation. The result of the analysis will feedback to the implementation scheme. The following analysis is based on the basic scheme of development, management and operation of port as described **14-D**.

14-G-2 Methodology

1) General

260. Viability of project is evaluated using the Financial Internal Rate of Return (FIRR). The FIRR is a discount rate which makes the cost and the revenue during the project life equal. The FIRR is calculated by the following formula.

$$\sum_{i=1}^n \frac{Ri - Ci}{(1 + r)^{i-1}} = 0$$

n : Project life

Ri : Revenue in the i^{th} year

Ci : Cost in the i^{th} year

r : Discount rate

261. When the calculated FIRR exceeds the weighted average interest rate of the total funds for investment of the project is regarded as financially feasible. Financial soundness is appraised with its projected financial statements (income statement, cash flow statement and balance sheet). The appraisal is made in terms of profitability, loan repayment capacity and operational efficiency, using the following ratios.

i) Profitability

$$\text{Rate of Return on Net Fixed Assets} = \frac{\text{Net Operating Income}}{\text{Total Fixed Assets}} \times 100\%$$

262. Rate of return on net fixed assets is related to operating fixed assets. It is necessary to keep the rate above the average interest rate of the funds for the investment.

ii) Loan repayment capacity

$$\text{Debt Service Coverage Ratio} = \frac{\text{Net Operating Income before Depreciation}}{\text{Repayment of Principal and Interest on Long - Term Loan}} \times 100\%$$

263. Debt service coverage ratio shows whether the operating income can cover the repayment of principal and interest on long-term loans. The ratio must be higher than 1.0.

iii) Operation efficiency

$$\text{Operating Ratio} = \frac{\text{Operating Expenses}}{\text{Operating Revenues}}$$

264. Operating ratio shown the percentage of port revenue that is consumed by operating expenses. It must be less than 80-75%.

$$\text{Working Ratio} = \frac{\text{Operating Expenses} - \text{Depreciation}}{\text{Operating Revenues}}$$

265. Working ratio shown the efficiency of the routine operations in the port. It must be less than 50-60%.

2) *Base Year*

266. All costs and revenues are indicated in price as of 2002, when the price survey was conducted (US \$ 1.00= 8,500 Rp). We call this year the "Base Year".

3) *Covered Projects in the Analysis*

267. The scope of the financial analysis covers the projects in the Urgent Development Plan for Tanjung Priok. The project major components and their implementing schedule are as follows:

Table 14-G-1 Development Schedule

	Development	Operation
Channel and Basin Improvement	2004~2010	2008~
Automobile terminal	2004~2006	2006~
Port Related Road Improvement	2004~2008	2008~
Ancol Project	2009~2011	2012~

4) *Project Life*

268. Considering the long-term loans and service lives of the port facilities, the project life in the financial analysis is assumed to be 30 years from the initial operation year 2006. Neither inflation nor an increase in nominal wages is considered during the project life.

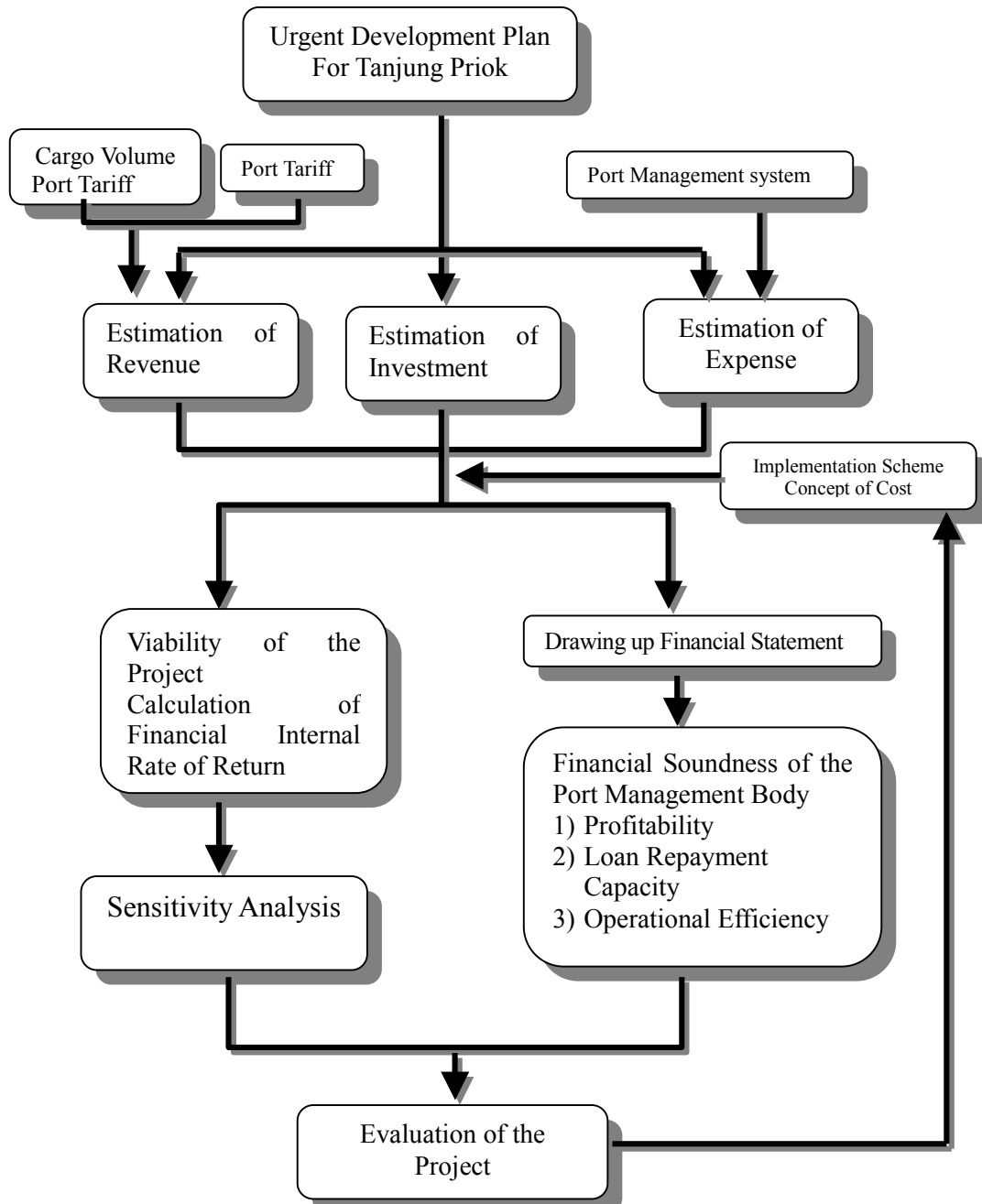


Figure 14-G-1 Procedure of Financial Analysis

14-G-3 Financial Analysis for Automobile terminal

269. Study team estimates car handling charge and storage fee is set up by financial analysis.

1) Assumption**a) Capital Cost and Operating Revenue****i) Capital Cost**

270. The roles of IPC and terminal operator are as follows based on the concept of cost allocation.

Table 14-G-2 Implementation Scheme

Facility	IPC2	Terminal Operator
Basin Improvement		
Demolition of existing structure		
Quay wall		
Reclamation		
Pavement		
Utility Facilities		
Access Road to Automobile terminal		
Operation		

271. Capital cost is summarized as follows.

Table 14-G-3 Capital Cost (000Rp)

	Project Cost	IPC2	Terminal Operator
Basin Improvement	22,683,085	22,683,085	0
Demolition of existing structure	14,484,877	14,484,877	0
Quay wall	72,424,383	72,424,383	0
Reclamation	14,841,962	14,841,962	0
Pavement	24,978,640	0	24,978,640
Utility Facilities	16,836,748	0	16,836,748
Access Road to Automobile terminal	2,662,968	2,662,968	0
Total	168,912,663	127,097,275	41,815,388

ii) Operating Cost

272. Study team estimated operating cost based on Tanjung Priok branch.

Table 14-G-4 Operating Cost

	IPC	Terminal Operator
Number of Person	-	50 Persons
Personnel Cost	-	36,000,000 Rp/person/year
Administration and Other Cost	-	100% of Personnel cost
Maintenance Cost	Infrastructure : 1% of the original construction cost Equipment : 5% of the original construction cost	
Depreciation	Civil structure : 40 year Equipment : 20 year	

b) Revenues

273. Classification of revenues from port activities is shown as Table 14-G-5.

Table 14-G-5 Classification of Revenues from Port Activities

		IPC2	Terminal Operator
Port Due			
Terminal Charge	Cargodoring Charge		
	Storage Fee		

274. Car imports and exports volume forecast is summarized in Table 14-G-6. Automobile terminal will start to be operated in 2006. Capacity of the terminal will be estimated around 300,000 units, however, demand after 2012 are the same as 2012 for safety side.

Table 14-G-6 Car Imports/Exports Volume

	Imports/Exports Volume (Units)
2006	48,757
2007	103,365
2008	164,350
2009	174,211
2010	184,664
2011	195,744
2012	207,488
2013	207,488

275. Study team estimated future average vessel as follows.

Table 14-G-7 Average vessel

	Year	GRT	U/L Unit
Car Carrier Vessel	2010	14,000	500
	2014	14,000	500

276. As for revenue and expenditure, the study team gave due consideration to the following matters;

- Terminal operator who operates automobile terminal pays a royalty to IPC2. Royalty is assumed to be 20% of terminal operator's gross revenue.
- Terminal operator who operates automobile terminal pays a royalty to IPC2. Royalty is assumed to be 20% of terminal operator's gross revenue.
- Terminal operator also pays land rental fee every year. (Land rental fee is set as 4,300 million Rp which is calculated assuming a rate of 50,000 Rp/ m² for area of 8.6ha.)
- IPC2 pays some compensation (equivalent to the above land rental fee in maximum) to DKB until 2022, since DKB has a right of use of land until 2022 where the automobile terminal is located.

c) Debt for Capital Cost

i) IPC2

277. Fund raising is divided into foreign and equity. In this study, referring to funding conditions of soft loan by international financial institute, the upper limit of finance for foreign funds is assumed to be the total amount of foreign portion or 85% of initial investment costs, whichever is higher. In the proposal projects, eighty-five percent of initial investment costs is assumed to be raised by foreign fund. The remaining initial investment costs (15%) and all renewal investment are assumed to be raised by equity of self-fund. Conditions of loans are assumed as follows.

- Foreign fund
 - Amount : 85% of total cost
 - Loan period : 30 years, including a grace period of 10 years
 - Interest rate : 2.0%
 - Repayment : Fixed amount repayment of principal
 - Equity (self-fund)
 - Amount : 15% of total cost
 - Weighted average interest rate
 - $1.7 \% = 2.0\% \times 0.85$
- ii) *Terminal Operator*

278. Fund raising is divided into hard loan and equity. In this study, the equity is assumed to be the total amount of around 30% of initial investment costs. The remaining initial investment costs (around 70%) and all renewal investment are assumed to be raised by hard loan. Conditions of loans are assumed as follows.

- Hard Loan
 - Amount : Around 70% of total cost
 - Loan period : 10 years
 - Interest rate : 15.0%
 - Repayment : Fixed amount repayment of principal
- Equity (self-fund)
 - Amount : 30% of total cost
- Weighted average interest rate
 - $10.50 \% = 15.0\% \times 0.70$

d) Evaluation of FIRR

279. Result of FIRR by fluctuation is summarized in Table 14-G-8.

Table 14-G-8 Sensitivity of FIRR for Terminal Charge and Demand

Terminal Charge	Cost	Royalty	Demand	Whole	IPC2	TO
16\$	+10%	20%	± 0%	10.21%	4.47%	21.40%
			-10%	8.50%	3.74%	17.01%
			-20%	6.68%	2.70%	12.43%
			-30%	4.70%	1.57%	7.41%
15\$	+10%	20%	± 0%	9.31%	4.39%	19.22%
			-10%	7.64%	3.43%	15.04%
			-20%	5.86%	2.40%	10.62%
			-30%	3.90%	1.29%	5.65%
14\$	+10%	20%	± 0%	8.38%	4.07%	17.01%
			-10%	6.76%	3.12%	13.02%
			-20%	5.00%	2.10%	8.73%
			-30%	3.05%	1.00%	3.73%
13\$	+10%	20%	± 0%	7.43%	3.73%	14.75%
			-10%	5.83%	2.80%	10.93%
			-20%	4.10%	1.80%	6.72%
			-30%	2.15%	0.70%	1.55%
12\$	+10%	20%	± 0%	6.43%	3.39%	12.43%
			-10%	4.83%	2.47%	8.73%
			-20%	3.15%	1.48%	4.52%
			-30%	1.19%	0.40%	-
11\$	+10%	20%	± 0%	5.38%	3.04%	10.01%
			-10%	3.84%	2.13%	6.37%
			-20%	2.12%	1.15%	2.01%
			-30%	0.13%	0.08%	-

Note : Terminal charge is cargodoring charge and storage fee.

280. Relation between terminal charge and FIRR is shown in Figure 14-G-2, assuming the case in which costs increase by 10 % and demands decrease by 10%.

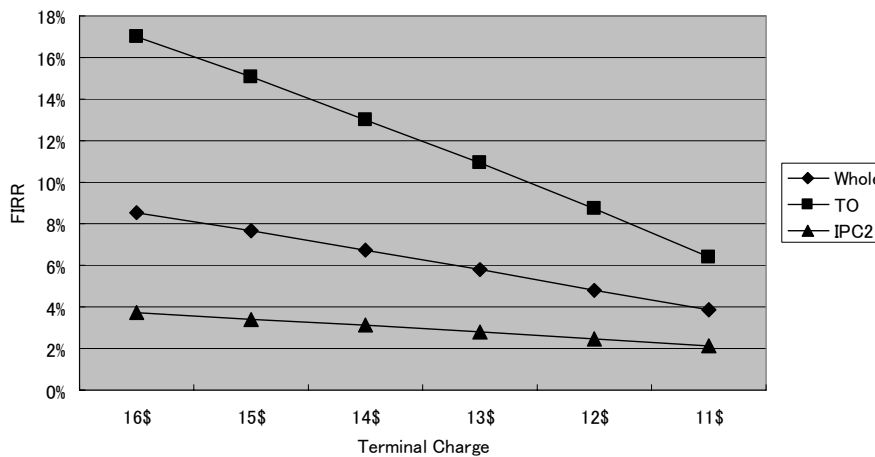


Figure 14-G-2 Relation between Fluctuation of Terminal Charge and FIRR

281. Judging from the minimum profit for IPC2 (FIRR > 2%) and comparison of handling charges among other major ports in ASEAN countries, it is considered that **13US\$ per unit of car** (around 12 metric ton) including cargodoring charge and storage fee is feasible and favorable.

2) *Financial Situation of IPC2*

a) *Revenue*

282. Revenue is calculated by calling ship, cargo volume and tariff. IPC2 receives royalty of 20% of the gross revenue from private sector.

Table 14-G-9 Revenue of IPC2 (million Rp)

	Berthage	Pilot Fee	Shiptowage Fee	Royalty	Land Rental Fee	Total
2006	643	28	465	1,076	4,300	6,512
2007	1,365	60	988	2,284	4,300	8,996
2008	2,166	95	1,568	3,624	4,300	11,754
2009	2,298	101	1,664	3,845	4,300	12,208
2010	2,444	107	1,769	4,089	4,300	12,708
2011	2,589	113	1,874	4,332	4,300	13,208
2012	2,734	120	1,979	4,575	4,300	13,708

b) *Capital cost and Operating Cost*

283. Capital and operating cost is shown in Table 14-G-10 and Figure 14-G-3. Operating costs are comprised of salaries and wages, maintenance, insurance, administration.

Table 14-G-10 Capital and Operating Cost (million Rp)

	Construction	Maintenance	Land Rental Fee	Financing charges including Interest	Total
2005	2,559	0	0	0	2,559
2006	124,538	1,044	4,300	0	129,882
2007	0	1,044	4,300	2,161	7,505
2008	0	1,044	4,300	2,161	7,505
2009	0	1,044	4,300	2,161	7,505
2010	0	1,044	4,300	2,161	7,505
2011	0	1,044	4,300	2,161	7,505
2012	0	1,044	4,300	2,161	7,505
Total	127,097	7,309	30,100	12,964	177,470

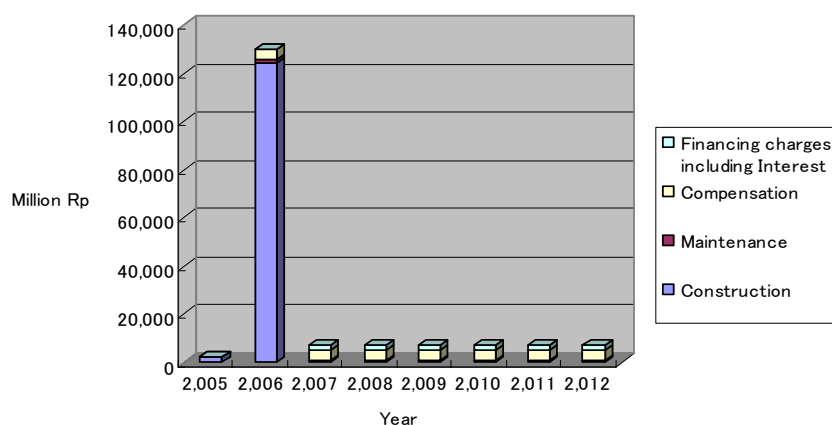


Figure 14-G-3 Capital and Operating Cost

c) Debt for Capital Cost

284. Based on capital and operating cost, funding resource is set out as follows. IPC2 should prepare equity around 19,000 million Rp.

Table 14-G-11 Financing Schedule (million Rp)

	Foreign Fund	Equity	Revenue	Fund-total	Cost	Difference
2005	0	0	0	0	0	0
2006	0	2,559	0	2,559	2,559	0
2007	108,033	16,505	6,512	131,050	129,882	1,168
2008	0	0	8,996	8,996	7,505	1,492
2009	0	0	11,754	11,754	7,505	4,249
2010	0	0	12,208	12,208	7,505	4,703
2011	0	0	12,708	12,708	7,505	5,203
2012	0	0	13,208	13,208	7,505	5,703
Total	0	0	13,708	13,708	7,505	6,203

d) Evaluation FIRR

285. On the basis of 13US\$/unit terminal charge, fluctuation of FIRR for public sector (i.e. IPC-2) is summarized in Table 14-G-12. Since the FIRR exceeds the weighted averaged interest rate in all cases, automobile terminal of IPC2 side is deemed to be financially viable.

Table 14-G-12 Sensitivity Analysis on FIRR of IPC-2 (Terminal charge=13US\$/unit)

Case		IPC2 (%)
Cost	Revenue	
0%	0%	4.51
0%	-10%	3.54
+10%	0%	3.73
+10%	-10%	2.80

e) Financial Soundness

286. Projected financial statements and financial indicators for IPC2 are shown in Figure 14-G-4.

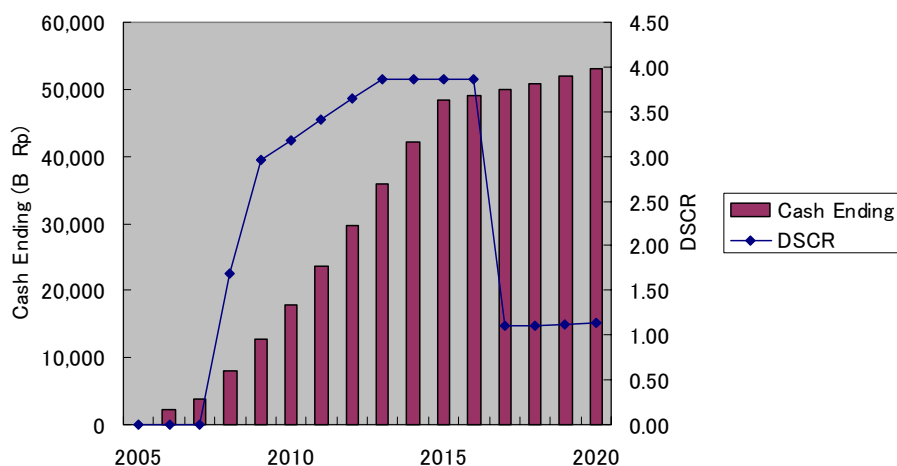


Figure 14-G-4 Cash Ending and DSCR

287. In case of projected IPC2's financial statement, the indicators of cash balance are satisfied. Debt service coverage ratio exceeds 1.0 after 2008. IPC2 should prepare self-fund of 19,000 billion Rp to ease the cash flow shortage in the initial stage of the project.

3) Financial Situation of Terminal Operator

a) Revenue

288. Revenue is calculated by cargo volume and tariff.

Table 14-G-13 Revenue of Terminal Operator (million Rp)

	Revenue
2006	5,378
2007	11,418
2008	18,122
2009	19,227
2010	20,443
2011	21,658
2012	22,874

b) Capital cost and Operating Cost

289. Capital and operating cost is shown in Table 14-G-14 and Figure 14-G-5. Operating costs are comprised of salaries and wages, maintenance, insurance, administration.

Table 14-G-14 Capital and Operating Cost (million Rp)

	Construction	Personnel	Admi & other	Maintenance	Land Lease Fee	Royalty	Financing charges including Interest	Tax	Total
2006	41,815	1,800	1,800	668	4,300	1,076	0	0	51,459
2007	0	1,800	1,800	668	4,300	2,284	7,454	0	18,306
2008	0	1,800	1,800	668	4,300	3,624	7,007	91	19,291
2009	0	1,800	1,800	668	4,300	3,845	6,559	291	19,264
2010	0	1,800	1,800	668	4,300	4,089	6,112	504	19,273
2011	0	1,800	1,800	668	4,300	4,332	5,665	717	19,282
2012	0	1,800	1,800	668	4,300	4,575	5,218	930	19,290

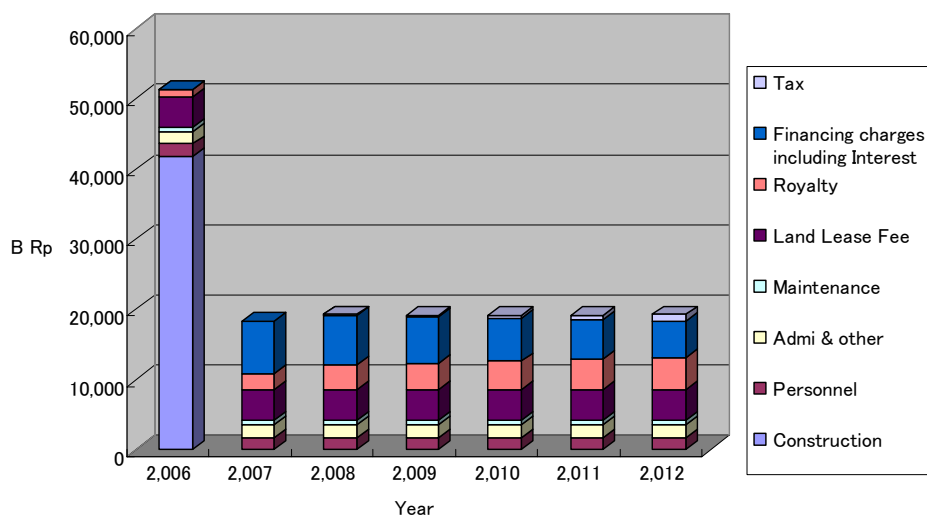


Figure 14-G-5 Capital and Operating Cost

c) Debt for Capital Cost

290. Based on capital and operating cost, funding resource is set out as follows. IPC2 should prepare equity around 24,500 million Rp.

Table 14-G-15 Financing Schedule (000,000Rp)

	Hard Loan	Equity	Revenue	Fund-total	Cost	Difference
2006	29,815	12,000	5,378	47,193	51,459	-4,266
2007	0	0	11,418	11,418	18,306	-6,887
2008	0	0	18,122	18,122	19,291	-1,169
2009	0	0	19,227	19,227	19,264	-37
2010	0	0	20,443	20,443	19,273	1,170
2011	0	0	21,658	21,658	19,282	2,376
2012	0	0	22,874	22,874	19,290	3,583
Total	29,815	12,000	119,119	160,934	166,164	-5,230

d) Evaluation FIRR

291. Results of the sensitivity analysis on FIRR are summarized in Table 14-G-16. Since the FIRR exceeds the weighted averaged interest rate in all cases, automobile terminal of terminal operator side is deemed to be financially viable.

Table 14-G-16 Sensitivity Analysis on FIRR of Terminal Operator (Terminal charge=13US\$/unit)

Case		Terminal Operator (%)
Cost	Revenue	
0%	0%	15.95
0%	-10%	11.89
+10%	0%	14.75
+10%	-10%	10.93

e) Financial Soundness

292. Projected financial statements and financial indicators for IPC2 are shown in Figure 14-G-6.

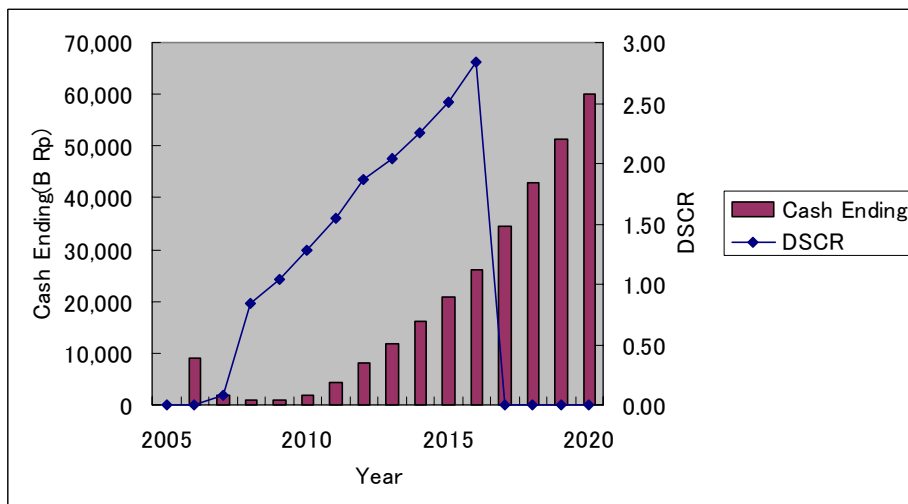


Figure 14-G-6 Cash Ending and DSCR

293. In case of projected terminal operator’s financial statement, the indicators of cash balance are satisfied. Debt service coverage ratio exceeds 1.0 after 2009. Terminal operator should prepare self-fund of 24,500 billion Rp to ease the cash flow shortage in the initial stage of the project.

4) *Fluctuation of Land Rental Fee*

294. Assuming compensation of 4,300 million Rp per year (equivalent to land rental fee), cash ending is shown in Table 14-G-17 and Figure 14-G-7.

Table 14-G-17 Cash Ending (4,300 million Rp/year)

	2,005	2,006	2,007	2,008	2,009	2,010	2,011	2,012	2,013	2,014	2,015	2,016	2,017	2,018	2,019	2,020	2,021	2,022
IPC2	0	2,212	3,704	7,952	12,656	17,859	23,563	29,766	35,969	42,172	48,376	49,177	49,979	50,888	51,906	53,032	54,266	55,607
TO	0	8,902	2,015	846	809	1,979	4,355	7,939	11,902	16,245	20,969	26,072	34,538	43,003	51,468	59,934	68,399	76,864
Land Rental Fee	0	4,300	8,600	12,900	17,200	21,500	25,800	30,100	34,400	38,700	43,000	47,300	51,600	55,900	60,200	64,500	68,800	73,100

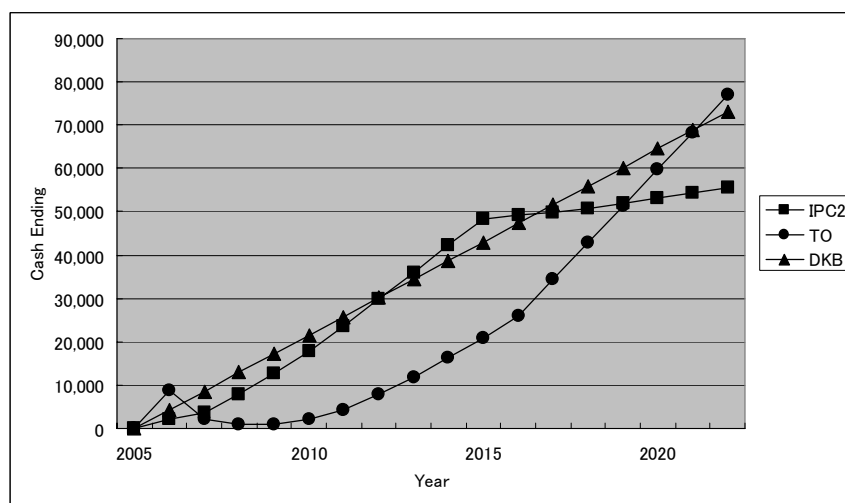


Figure 14-G-7 Cash Ending (4,300 million Rp)

295. Alternative case of compensation of 2,150 million Rp every year is shown in Table 14-G-18 and Figure 14-G-8.

Table 14-G-18 Cash Ending (2,150 million Rp/year)

	2,005	2,006	2,007	2,008	2,009	2,010	2,011	2,012	2,013	2,014	2,015	2,016	2,017	2,018	2,019	2,020	2,021	2,022
IPC2	0	4,362	8,004	14,402	21,256	28,609	36,463	44,816	53,169	61,522	69,876	72,827	75,779	78,838	82,006	85,282	88,666	92,157
TO	0	8,902	2,015	846	809	1,979	4,355	7,939	11,902	16,245	20,969	26,072	34,538	43,003	51,468	59,934	68,399	76,864
Land Rental Fee	0	2,150	4,300	6,450	8,600	10,750	12,900	15,050	17,200	19,350	21,500	23,650	25,800	27,950	30,100	32,250	34,400	36,550

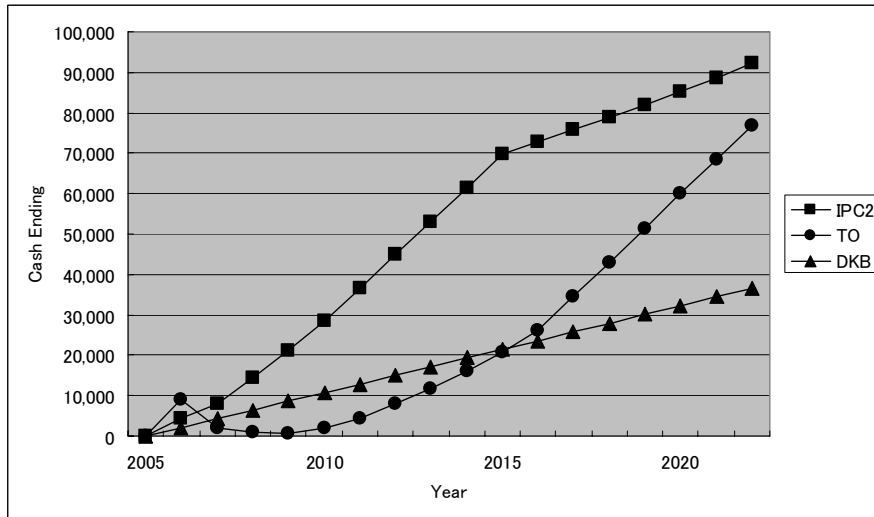


Figure 14-G-8 Cash Ending (2,150 million Rp)

296. Alternative case in which compensation of 45,000 million Rp is paid in the first year is shown in Table 14-G-19 and Figure 14-G-9.

Table 14-G-19 Cash Ending (45,000 million Rp)

	2,005	2,006	2,007	2,008	2,009	2,010	2,011	2,012	2,013	2,014	2,015	2,016	2,017	2,018	2,019	2,020	2,021	2,022
IPC2	0	-20,000	-13,488	-7,696	852	9,856	19,359	29,363	39,866	50,369	60,872	71,376	76,477	81,579	86,788	92,106	97,532	103,066
TO	0	0	8,902	2,015	846	809	1,979	4,355	7,939	11,902	16,245	20,969	26,072	34,538	43,003	51,468	59,934	68,399
Land Rental Fee	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000

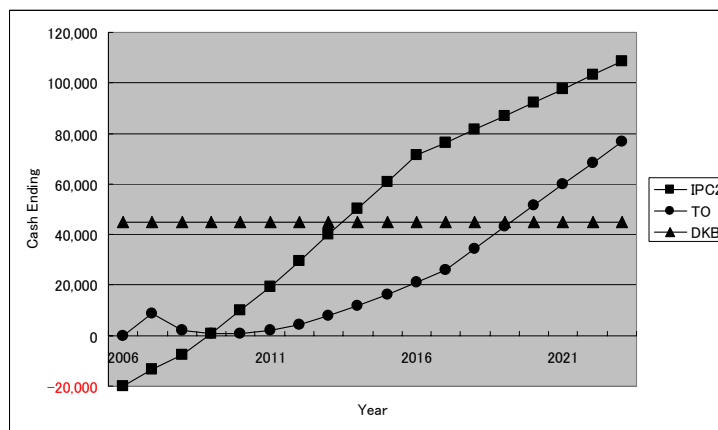


Figure 14-G-9 Cash Ending (45,000 million Rp)

14-G-4 Financial Analysis for Automobile Terminal (Alternative-2)

297. Study team analyzed alternative scheme for development and operation for car terminal. (See Figure 14-E-1)

1) Assumption**a) Capital Cost and Operating Revenue****i) Capital Cost**

298. The roles of IPC and private sector are as follows based on the concept of cost allocation.

Table 14-G-20 Implementation Scheme

Facility	IPC2	Terminal Operating Company	Terminal Holding Company
Basin Improvement			
Demolition of existing structure			
Quay wall			
Reclamation			
Pavement			
Utility Facilities			
Equipment			
Access Road to Car terminal			
Operation			

299. Capital cost is summarized as follows.

Table 14-G-21 Capital Cost (000Rp)

	Project Cost	IPC2	Terminal Operating Company	Terminal Holding Company
Basin Improvement	22,683,085	22,683,085	0	0
Demolition of existing structure	14,484,877	14,484,877	0	0
Quay wall	72,424,383	72,424,383	0	0
Reclamation	14,841,962	14,841,962	0	0
Pavement	24,978,640	0	24,978,640	0
Utility Facilities	16,836,748	0	16,836,748	0
Equipment	50,000,000	0	0	0
Access Road to Car terminal	2,662,968	2,662,968	0	0
Total	168,912,663	127,097,275	41,815,388	0

ii) Operating Cost

300. Study team estimated operating cost based on Tanjung Priok branch.

Table 14-G-22 Operating Cost

	IPC	Terminal Operating Company	Terminal Holding Company
Number of Person	-	50 Persons	10 Persons
Personnel Cost	-	36,000,000 Rp/person/year	36,000,000 Rp/person/year
Administration and Other Cost	-	100% of Personnel cost	100% of Personnel cost
Maintenance Cost	Infrastructure : 1% of the original construction cost Equipment : 5% of the original construction cost		
Depreciation	Civil structure : 40 year Equipment : 20 year		

b) Revenues

301. Car imports and exports volume forecast is summarized in Table 14-G-23. Automobile terminal will start to be operated in 2006. Capacity of the terminal will be estimated around 300,000 units, however, demand after 2012 are the same as 2012 for safety side.

Table 14-G-23 Car Imports/Exports Volume

	Imports/Exports Volume (Units)
2006	48,757
2007	103,365
2008	164,350
2009	174,211
2010	184,664
2011	195,744
2012	207,488
2013	207,488

302. Study team estimated future average vessel as follows.

Table 14-G-24 Average vessel

	Year	GRT	U/L Unit
Car Carrier Vessel	2010	14,000	500
	2014	14,000	500

303. As for revenue and expenditure, the study team gave due consideration on the following matters;

- Terminal operating company receives 13US\$ per unit of car (around 12 metric ton) as handling charge and storage fee.
- Terminal operating company pays royalty of 25% of gross revenue to terminal holding company.
- Terminal operating company also pays land rental fee every year. (Land rental fee is set as 4,300 million Rp which is calculated assuming a rate of 50,000 Rp/ m² for area of 8.6ha.)
- IPC2 and DKB hold respective shares of 60% and 40% in the terminal holding company. IPC2 and DKB receive profit share according to these shares.

c) Debt for Capital Cost*i) IPC2*

304. Fund raising is divided into foreign and equity. In this study, referring to funding conditions of soft loan by international financial institute, the upper limit of finance for foreign funds is assumed to be the total amount of foreign portion or 85% of initial investment costs, whichever is higher. In the proposal projects, eighty–five percent of initial investment costs is assumed to be raised by foreign fund. The remaining initial investment costs (15%) and all renewal investment are assumed to be raised by equity of self-fund. Conditions of loans are assumed as follows.

➤ Foreign fund

Amount	: 85% of total cost
Loan period	: 30 years, including a grace period of 10 years
Interest rate	: 2.0%
Repayment	: Fixed amount repayment of principal

➤ Equity (self-fund)

Amount	: 15% of total cost
--------	---------------------

➤ Weighted average interest rate

$$1.7 \% \quad 2.0\% \times 0.85$$

ii) Terminal operating company

305. Fund raising is divided into hard loan and equity. In this study, the equity is assumed to be the total amount of around 30% of initial investment costs. The remaining initial investment costs (around 70%) and all renewal investment are assumed to be raised by hard loan. Conditions of loans are assumed as follows.

➤ Hard Loan

Amount	: Around 70% of total cost
Loan period	: 10 years
Interest rate	: 15.0%
Repayment	: Fixed amount repayment of principal

➤ Equity (self-fund)

Amount	: 30% of total cost
--------	---------------------

➤ Weighted average interest rate

$$10.50 \% \quad 15.0\% \times 0.70$$

iii) Terminal holding company

306. Conditions of loans are assumed as follows.

➤ Equity (self-fund)

Amount	: Total cost
--------	--------------

d) Evaluation of FIRR

307. A sensitivity analysis is conducted to grasp the impact of unexpected changes on the viability of the project (See Table 14-G-26). Since the FIRR exceeds the weighted averaged interest rate in all cases, this project is deemed to be financially viable.

Table 14-G-25 Result of FIRR (%)

	IPC2	Terminal Operating Company
FIRR	5.54	13.95

Table 14-G-26 Sensitivity Analysis (%)

Case		IPC2	Terminal Operating Company
Cost	Revenue		
0%	0%	5.54	13.95
0%	-10%	4.50	10.83
+10%	0%	4.69	12.87
+10%	-10%	3.70	9.93

308. Result of FIRR by the fluctuation is summarized in Table 14-G-26. Since the FIRR exceeds the weighted averaged interest rate in all cases, this project side is deemed to be financially viable.

2) Financial Statement**a) Revenue**

309. Revenue is shown in Table 14-G-27.

Table 14-G-27 Revenue (000,000Rp)

	IPC2	Terminal Holding Company	Terminal Operating Company	DKB
2005	0	0	0	0
2006	3,803	1,344	5,378	1,674
2007	6,024	2,855	11,418	2,188
2008	8,488	4,531	18,122	2,758
2009	8,895	4,807	19,227	2,851
2010	9,342	5,111	20,443	2,955
2011	9,788	5,415	21,658	3,058
2012	10,235	5,718	22,874	3,161

b) Capital cost and Operating Cost

310. Capital and operating cost is shown in Table 14-G-28 to Table 14-G-30. Operating costs are comprised of salaries and wages, maintenance, insurance, administration.

Table 14-G-28 Capital and Operating Cost of IPC2 (000,000Rp)

	Construction	Maintenance	Financing charges including Interest	Total
2005	2,559	0	0	2,559
2006	124,538	0	0	124,538
2007	0	1,044	2,161	3,205
2008	0	1,044	2,161	3,205
2009	0	1,044	2,161	3,205
2010	0	1,044	2,161	3,205
2011	0	1,044	2,161	3,205
2012	0	1,044	2,161	3,205

Table 14-G-29 Capital and Operating Cost of Terminal Holding Company (mil Rp)

	Construction	Personnel & Admi.	Maintenance	Profit Share	Tax	Financing charges including Interest	Total
2005	0	0	0	0	0	0	0
2006	0	720	0	4,186	739	0	5,644
2007	0	720	0	5,469	965	0	7,155
2008	0	720	0	6,894	1,217	0	8,831
2009	0	720	0	7,129	1,258	0	9,107
2010	0	720	0	7,387	1,304	0	9,411
2011	0	720	0	7,645	1,349	0	9,715
2012	0	720	0	7,904	1,395	0	10,018

Table 14-G-30 Capital and Operating Cost of Terminal Operating Company (mil Rp)

	Construction	Personnel & Admi.	Maintenance	Royalty	Tax	Total
2005	0	0	0	0	0	0
2006	41,815	3,600	0	1,344	0	46,760
2007	0	3,600	668	2,855	0	7,123
2008	0	3,600	668	4,531	0	8,799
2009	0	3,600	668	4,807	183	9,258
2010	0	3,600	668	5,111	382	9,761
2011	0	3,600	668	5,415	581	10,264
2012	0	3,600	668	5,718	781	10,767

c) Debt for Capital Cost

311. Based on capital and operating cost, funding resource is set out as follows. IPC2 should prepare equity around 20,000 million Rp.

Table 14-G-31 Financing Schedule of IPC2 (000,000Rp)

	Foreign Fund	Equity	Revenue	Fund-Total	Cost	Difference
2005	0	2,559	0	2,559	2,559	0
2006	108,033	16,505	3,803	128,341	124,538	3,803
2007	0	0	6,024	6,024	3,205	2,819
2008	0	0	8,488	8,488	3,205	5,284
2009	0	0	8,895	8,895	3,205	5,690
2010	0	0	9,342	9,342	3,205	6,137
2011	0	0	9,788	9,788	3,205	6,584
2012	0	0	10,235	10,235	3,205	7,031

312. Based on capital and operating cost, funding resource is set out as follows.

Table 14-G-32 Financing Schedule of Terminal Holding Company (000,000Rp)

	Hard Fund	Equity	Revenue	Fund-Total	Cost	Difference
2005	0	0	0	0	0	0
2006	0	0	5,644	5,644	5,644	0
2007	0	0	7,155	7,155	7,155	0
2008	0	0	8,831	8,831	8,831	0
2009	0	0	9,107	9,107	9,107	0
2010	0	0	9,411	9,411	9,411	0
2011	0	0	9,715	9,715	9,715	0
2012	0	0	10,018	10,018	10,018	0

313. Based on capital and operating cost, funding resource is set out as follows. Terminal operating company should prepare equity around 26,000 million Rp.

Table 14-G-33 Financing Schedule of Terminal Holding Company (000,000Rp)

	Hard Fund	Equity	Revenue	Fund-Total	Cost	Difference
2005	0	0	0	0	0	0
2006	27,815	26,000	5,378	59,193	46,760	12,433
2007	0	0	11,418	11,418	7,123	4,296
2008	0	0	18,122	18,122	8,799	9,323
2009	0	0	19,227	19,227	9,258	9,969
2010	0	0	20,443	20,443	9,761	10,682
2011	0	0	21,658	21,658	10,264	11,394
2012	0	0	22,874	22,874	10,767	12,106

d) Financial Soundness

314. Projected financial statements and financial indicators are shown in Table 14-G-34 to Table 14-G-36.

Table 14-G-34 Financial Situation of Project Itself (IPC2)**Table 14-G-35 Financial Statement of IPC2 (With Project)****Table 14-G-36 Financial Statement of Terminal Operator**

315. In cases of projected financial statements, the indicators of cash flow are satisfied. Cash ending is shown in Figure 14-G-10.

Result of Financial Situation

Project Itself

Income Statement	2000(Act.)	2001(Act.)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Operating Revenue	0	0	0	0	0	0	3,803	6,024	63,534	113,722	133,965	152,916	156,644	156,644	158,644	158,644	158,644	158,644
Int'l Container	0	0	0	0	0	0	0	0	55,046	104,827	124,624	124,624	148,408	148,408	148,408	148,408	148,408	148,408
Car	0	0	0	0	0	0	3,803	6,024	8,488	9,342	9,768	10,235	10,235	10,235	10,235	10,235	10,235	10,235
Operating Expenses	0	0	0	0	0	0	0	5,749	51,694	59,303	59,876	60,414	60,414	60,414	60,414	60,414	60,414	60,414
Of which Depreciation	0	0	0	0	0	0	0	3,177	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745
Non Operating Revenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non Operating Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Profit Before Tax	0	0	0	0	0	0	3,803	2,466	5,610	9,224	9,224	9,224	9,224	9,224	9,224	9,224	9,224	9,224
Income Tax (20%)	0	0	0	0	0	0	0	-2,192	6,230	45,196	64,866	83,278	89,006	89,006	89,006	89,006	89,006	89,006
Net Surplus	0	0	0	0	0	0	3,803	-2,192	6,230	45,196	64,866	83,278	89,006	89,006	89,006	89,006	89,006	89,006
Accumulated Earnings	0	0	0	0	0	0	3,803	1,611	7,842	53,037	117,903	203,181	290,187	379,193	468,199	557,206	646,212	735,218

Cash Flow	2000(Act.)	2001(Act.)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cash Beginning	0	0	0	0	0	0	0	3,803	4,789	20,764	75,705	150,316	243,339	420,900	400,842	539,593	638,344	730,930
Cash Inflow	0	0	0	0	0	2,559	188,375	178,206	202,262	64,164	83,834	102,247	107,975	107,975	107,975	107,975	107,975	107,975
Operating Income	0	0	0	0	0	0	3,803	3,452	21,585	64,164	83,834	102,247	107,975	107,975	107,975	107,975	107,975	107,975
Non Operating Income	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loans	0	0	0	0	0	0	0	123,308	157,193	180,677	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Outflow	0	0	0	0	0	0	2,559	61,264	177,220	186,287	9,224	9,224	9,224	9,224	9,224	9,224	15,389	19,208
Investment	0	0	0	0	0	0	2,559	184,572	177,220	186,287	0	0	0	0	0	0	0	0
Repayment of Principal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest on Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dividend Paid	0	0	0	0	0	0	0	2,466	5,610	9,224	9,224	9,224	9,224	9,224	9,224	9,224	9,224	9,224
Tax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Balance	0	0	0	0	0	0	3,803	986	15,975	54,941	74,611	93,024	98,751	98,751	98,751	98,751	92,586	88,767
Cash Ending	0	0	0	0	0	0	3,803	4,789	20,764	75,705	150,316	243,339	342,090	440,842	539,593	638,344	730,930	819,697

Balance Sheet	2000(Act.)	2001(Act.)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Current Assets	0	0	0	0	0	0	3,803	4,789	20,764	75,705	150,316	243,339	342,090	440,842	539,593	638,344	730,930	819,697
Cash & Deposit	0	0	0	0	0	0	3,803	4,789	20,764	75,705	150,316	243,339	342,090	440,842	539,593	638,344	730,930	819,697
Dividend Advance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fixed Assets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Fixed Assets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Liabilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Short-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	3,803	4,789	20,764	75,705	150,316	243,339	342,090	440,842	539,593	638,344	730,930	819,697
Net Worth	0	0	0	0	0	0	3,803	4,789	20,764	75,705	150,316	243,339	342,090	440,842	539,593	638,344	730,930	819,697
Total Liabilities & Net Worth	0	0	0	0	0	0	3,803	4,789	20,764	75,705	150,316	243,339	342,090	440,842	539,593	638,344	730,930	819,697

Rate of Return Fixed Assets	2009	2010	2011	2012	2013	2014	2015	2016	2017
Rate of Return Fixed Assets	2.2%	9.1%	11.2%	12.4%	11.0%	10.7%	9.7%	8.9%	7.8%
Debt Service Coverage Ratio	#DIV/0!	1.40	3.85	6.96	9.09	11.71	11.71	11.71	7.02
Operating Ratio	0%	95%	81%	52%	45%	38%	36%	36%	36%
Working Ratio	0%	43%	66%	44%	37%	33%	32%	32%	32%

Result of Financial Situation

Project Itself

Income Statement	million Rp																	
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Operating Revenue	158,644	158,644	158,644	158,644	158,644	158,644	158,644	158,644	158,644	158,644	158,644	158,644	158,644	158,644	158,644	158,644	158,644	158,644
Int'l Container	148,408	148,408	148,408	148,408	148,408	148,408	148,408	148,408	148,408	148,408	148,408	148,408	148,408	148,408	148,408	148,408	148,408	148,408
Car	10,235	10,235	10,235	10,235	10,235	10,235	10,235	10,235	10,235	10,235	10,235	10,235	10,235	10,235	10,235	10,235	10,235	10,235
Operating Expenses	60,414	60,414	60,414	60,414	60,414	60,414	60,414	60,414	60,414	60,414	60,414	60,414	60,414	60,414	60,414	60,414	60,414	60,414
Of which Depreciation	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745	9,745
Non Operating Revenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non Operating Expenses	9,100	8,820	8,359	7,897	7,436	6,975	6,514	6,053	5,592	5,130	4,669	4,208	3,747	3,286	2,824	2,363	1,902	1,441
Profit Before Tax	89,129	89,410	89,871	90,332	90,793	91,255	91,716	92,177	92,638	93,099	93,560	94,022	94,483	94,944	95,405	95,866	96,328	96,789
Income Tax (20%)	89,129	89,410	89,871	90,332	90,793	91,255	91,716	92,177	92,638	93,099	93,560	94,022	94,483	94,944	95,405	95,866	96,328	96,789
Net Surplus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accumulated Earnings	824,247	913,757	1,003,628	1,093,960	1,184,754	1,276,008	1,367,724	1,459,901	1,552,539	1,645,638	1,739,199	1,833,221	1,927,703	2,022,647	2,118,053	2,213,919	2,310,247	2,407,035

Cash Flow	million Rp																	
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Cash Beginning	819,697	902,637	978,733	1,055,290	1,132,309	1,209,788	1,287,729	1,366,131	1,444,994	1,524,319	1,604,104	1,684,351	1,765,059	1,846,228	1,927,858	2,009,950	2,092,502	2,175,516
Cash Inflow	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975
Operating Income	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975	107,975
Non Operating Income	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Outflow	25,035	31,879	31,417	30,956	30,485	30,034	29,573	29,112	28,650	28,189	27,728	27,267	26,806	26,345	25,883	25,422	24,961	24,500
Investment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment of Principal	15,934	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059
Interest on Loans	9,100	8,820	8,359	7,897	7,436	6,975	6,514	6,053	5,592	5,130	4,669	4,208	3,747	3,286	2,824	2,363	1,902	1,441
Dividend Paid	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Balance	82,940	76,096	76,557	77,018	77,480	77,943	78,402	78,863	79,324	79,786	80,247	80,708	81,169	81,630	82,091	82,553	83,014	83,475
Cash Ending	902,637	978,733	1,055,290	1,132,309	1,209,788	1,287,729	1,366,131	1,444,994	1,524,319	1,604,104	1,684,351	1,765,059	1,846,228	1,927,858	2,009,950	2,092,502	2,175,516	2,258,991

Balance Sheet	million Rp																	
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Current Assets	902,637	978,733	1,055,290	1,132,309	1,209,788	1,287,729	1,366,131	1,444,994	1,524,319	1,604,104	1,684,351	1,765,059	1,846,228	1,927,858	2,009,950	2,092,502	2,175,516	2,258,991
Cash & Deposit	902,637	978,733	1,055,290	1,132,309	1,209,788	1,287,729	1,366,131	1,444,994	1,524,319	1,604,104	1,684,351	1,765,059	1,846,228	1,927,858	2,009,950	2,092,502	2,175,516	2,258,991
Dividend Advance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fixed Assets	432,188	422,442	412,698	402,953	393,208	383,463	373,718	363,972	354,227	344,482	334,737	324,992	315,247	305,502	295,757	286,011	276,266	266,521
Total Fixed Assets	432,188	422,442	412,698	402,953	393,208	383,463	373,718	363,972	354,227	344,482	334,737	324,992	315,247	305,502	295,757	286,011	276,266	266,521
Liabilities	432,188	422,442	412,698	402,953	393,208	383,463	373,718	363,972	354,227	344,482	334,737	324,992	315,247	305,502	295,757	286,011	276,266	266,521
Short-term Loans	429,094	406,035	382,976	359,917	336,858	313,799	290,740	267,681	244,622	221,564	198,505	175,446	152,387	129,328	106,269	83,210	60,151	37,092
Long-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	81,384	81,384	81,384	81,384	81,384	81,384	81,384	81,384	81,384	81,384	81,384	81,384	81,384	81,384	81,384	81,384	81,384	81,384
Net Worth	824,247	913,757	1,003,628	1,093,960	1,184,754	1,276,008	1,367,724	1,459,901	1,552,539	1,645,638	1,739,199	1,833,221	1,927,703	2,022,647	2,118,053	2,213,919	2,310,247	2,407,035
Total Liabilities & Net Worth	1,258,825	1,401,176	1,467,288	1,535,262	1,602,992	1,671,192	1,739,842	1,808,873	1,878,866	1,949,586	2,021,036	2,093,241	2,166,412	2,240,640	2,315,907	2,392,229	2,469,561	2,547,916

Rate of Return Fixed Assets	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Rate of Return Fixed Assets	7.0%	7.0%	6.7%	6.4%	6.1%	5.9%	5.6%	5.4%	5.2%	5.0%	4.9%	4.7%	4.5%	4.4%	4.3%	4.1%	4.0%	3.9%
Debt Service Coverage Ratio	4.31	3.39	3.44	3.46	3.48	3.50	3.52	3.54	3.56	3.58	3.60	3.62	3.64	3.66	3.68	3.70	3.72	3.74
Operating Ratio	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%	38%
Working Ratio	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%

Result of Financial Situation

With Project (Pelindo II Total)

Income Statement	2000(Act.)	2001(Act.)	2002(Act.)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Operating Revenue	968,687	1,317,950	1,354,323	1,396,651	1,441,267	1,489,029	1,543,740	1,595,974	1,653,484	1,703,672	1,723,915	1,742,866	1,748,594	1,748,594	1,748,594	1,748,594	1,748,594	1,748,594
Operating Expenses	527,712	671,309	768,607	804,807	841,007	877,207	913,407	955,356	1,001,301	1,008,910	1,009,483	1,010,021	1,010,021	1,010,021	1,010,021	1,010,021	1,010,021	1,010,021
Of which Depreciation	94,787	96,963	105,602	105,602	105,602	105,602	105,602	108,779	115,347	115,347	115,347	115,347	115,347	115,347	115,347	115,347	115,347	115,347
Non Operating Revenue	26,430	6,520	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
Non Operating Expenses	358,865	224,442	158,335	129,745	115,733	105,276	98,383	64,129	67,273	70,887	70,887	70,887	70,887	70,887	70,887	70,887	70,887	70,887
Profit Before Tax	108,540	428,719	475,987	510,705	533,133	554,652	580,356	623,595	633,588	672,482	694,152	710,565	716,292	716,292	716,292	716,292	716,292	716,292
Income Tax (20%)	25,476	71,574	91,073	97,034	101,295	105,384	110,368	118,768	120,368	127,772	131,509	135,007	136,096	136,096	136,096	136,096	136,096	136,096
Net Surplus	83,064	357,145	384,914	413,671	431,838	449,268	470,973	505,910	514,320	553,297	572,967	591,380	597,108	597,108	597,108	597,108	597,108	597,108
Accumulated Earnings	583,064	940,209	1,325,123	1,738,794	2,170,632	2,619,900	3,090,873	3,596,783	4,111,115	4,664,412	5,237,380	5,828,760	6,425,868	7,022,976	7,620,083	8,217,191	8,814,299	9,411,407
Cash Flow																		
Cash Beginning	232,237	177,001	92,084	276,892	264,648	343,277	303,015	53,875	340,705	646,801	1,036,666	1,438,530	1,851,625	2,268,214	2,684,803	3,101,393	3,517,382	3,938,406
Cash Inflow	580,351	861,088	714,767	790,699	799,115	813,236	1,013,760	1,071,404	1,041,460	903,362	923,032	941,445	947,173	947,173	947,173	947,173	947,173	947,173
Operating Income	450,879	774,474	621,514	697,446	705,862	717,424	735,935	749,397	767,530	810,109	829,779	848,192	853,920	853,920	853,920	853,920	853,920	853,920
Non Operating Income	26,430	6,520	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
Loans	0	0	0	0	0	0	123,308	157,193	180,677	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	2,559	61,264	17,561	0	0	0	0	0	0	0	0	0	0
Others	103,042	80,094	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647
Cash Outflow	635,647	945,995	529,969	802,944	770,535	773,419	1,342,800	730,574	735,325	513,458	521,169	528,350	530,584	530,584	530,584	530,584	530,584	530,584
Investment	162,353	172,291	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843
Repayment of Principal	190,819	485,040	127,338	289,250	212,960	263,137	590,000	60,000	60,000	0	0	0	0	0	0	0	0	0
Interest on Loans	232,046	179,243	46,424	118,082	104,070	94,113	86,720	52,466	55,610	59,224	59,224	59,224	59,224	59,224	59,224	59,224	59,224	59,224
Dividend Paid	842	50,000	76,983	82,734	86,368	89,894	94,195	101,182	102,866	110,659	114,593	118,276	119,422	119,422	119,422	119,422	119,422	119,422
Tax	49,587	59,421	63,381	97,034	101,295	105,384	110,368	118,768	120,368	127,772	131,509	135,007	136,096	136,096	136,096	136,096	136,096	136,096
Equity	0	0	0	0	0	2,559	61,264	17,561	0	0	0	0	0	0	0	0	0	0
Cash Balance	55,296	84,907	184,798	12,245	76,580	39,788	329,139	265,830	306,096	389,865	401,364	413,095	415,589	415,589	415,589	415,589	415,589	415,589
Cash Ending	177,901	92,084	276,892	264,648	343,277	303,015	53,875	340,705	646,801	1,036,666	1,438,530	1,851,625	2,268,214	2,684,803	3,101,393	3,517,382	3,938,406	4,357,011
Balance Sheet																		
Current Assets	1,185,203	954,885	804,410	631,947	728,962	809,483	561,311	903,884	1,261,448	1,647,976	2,114,175	2,596,786	3,089,125	3,579,464	4,069,804	4,560,143	5,044,316	5,524,671
Cash & Deposit	177,001	92,084	276,892	264,648	343,277	303,015	53,875	340,705	646,801	1,036,666	1,438,530	1,851,625	2,268,214	2,684,803	3,101,393	3,517,382	3,938,406	4,357,011
Dividend Advance	692,617	659,082	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732
Others	315,385	203,709	372,786	219,655	230,953	281,965	304,799	348,855	462,910	386,965	431,022	475,078	519,133	563,189	607,245	651,301	695,357	739,412
Fixed Assets	3,156,712	3,211,474	3,261,915	3,372,156	3,482,397	3,595,137	3,690,011	4,171,628	4,452,000	4,552,473	4,653,992	4,754,488	4,854,984	4,955,480	5,055,976	5,156,472	5,256,968	5,357,463
Total Fixed Assets	4,341,915	4,166,359	4,066,325	4,004,103	4,211,359	4,404,680	4,451,321	5,075,712	5,714,448	6,201,473	6,768,167	7,353,275	7,944,109	8,534,944	9,125,779	9,716,614	10,301,284	10,892,135
Liabilities	2,730,408	2,200,373	1,706,157	1,235,347	1,016,097	763,137	283,308	390,501	521,178	461,178	461,178	461,178	461,178	461,178	461,178	461,178	461,178	461,178
Short-term Loans	428,837	565,926	334,202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long-term Loans	2,130,884	1,619,304	1,371,955	1,235,347	1,016,097	763,137	283,308	390,501	521,178	461,178	461,178	461,178	461,178	461,178	461,178	461,178	461,178	461,178
Others	1,70,687	15,143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	1,028,443	1,025,777	1,035,069	1,035,069	1,035,069	1,037,628	1,098,892	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453
Net Worth	583,064	940,209	1,325,123	1,738,794	2,170,632	2,619,900	3,090,873	3,596,783	4,111,115	4,664,412	5,237,380	5,828,760	6,425,868	7,022,976	7,620,083	8,217,191	8,814,299	9,411,407
Total Liabilities & Net Worth	4,341,915	4,166,359	4,066,325	4,004,103	4,211,359	4,404,680	4,451,321	5,075,712	5,714,448	6,201,473	6,768,167	7,353,275	7,944,109	8,534,944	9,125,779	9,716,614	10,301,284	10,892,135
Rate of Return Fixed Assets	14.0%	20.1%	18.0%	17.6%	17.2%	17.0%	16.2%	15.4%	14.6%	15.3%	15.3%	15.4%	15.2%	14.9%	14.6%	14.3%	14.0%	13.8%
Debt Service Coverage Ratio	1.07	1.17	3.58	1.71	2.23	2.01	1.09	7.31	6.64	13.68	14.01	14.32	14.42	14.42	14.42	14.42	14.42	13.06
Operating Ratio	54%	51%	57%	58%	58%	59%	59%	60%	61%	59%	59%	58%	58%	58%	58%	58%	58%	58%
Working Ratio	45%	44%	49%	50%	51%	52%	52%	53%	54%	52%	52%	51%	51%	51%	51%	51%	51%	51%

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
1,748,594	1,748,594	1,748,594	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950	1,589,950
1,010,021	1,010,021	1,010,021	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607	949,607
115,347	115,347	115,347	105,602	105,602	105,602	105,602	105,602	105,602	105,602	105,602	105,602	105,602	105,602	105,602	105,602	105,602	105,602	105,602	105,602
48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
716,415	716,415	716,415	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286	627,286
136,119	136,119	136,119	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184
597,231	597,231	597,231	508,102	508,102	508,102	508,102	508,102	508,102	508,102	508,102	508,102	508,102	508,102	508,102	508,102	508,102	508,102	508,102	508,102
10,008,638	10,606,150	11,204,123	10,708,596	11,216,698	11,724,800	12,232,902	12,741,003	13,249,105	13,757,207	14,265,308	14,773,410	15,281,512	15,789,614	16,297,715	16,805,817	17,313,919	17,822,021	18,330,123	18,838,225
4,335,011	4,735,741	5,129,517	5,523,575	5,917,633	6,311,691	6,705,749	7,100,007	7,494,265	7,888,523	8,282,781	8,677,039	9,071,297	9,465,555	9,859,813	10,254,071	10,648,329	11,042,587	11,436,845	11,831,103
947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173	947,173
853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920	853,920
48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606	48,606
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647	44,647
546,443	553,396	553,396	517,804	517,804	517,804	517,804	517,804	517,804	517,804	517,804	517,804	517,804	517,804	517,804	517,804	517,804	517,804	517,804	517,804
215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843	215,843
15,934	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059	23,059
59,100	58,820	58,359	57,897	57,436	56,975	56,514	56,053	55,592	55,130	54,669	54,208	53,747	53,286	52,824	52,363	51,902	51,441	50,980	50,519
119,446	119,502	119,595	101,620	101,620	101,620	101,620	101,620	101,620	101,620	101,620	101,620	101,620	101,620	101,620	101,620	101,620	101,620	101,620	101,620
136,119	136,172	136,260	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184	119,184
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
400,730	393,777	394,058	429,569	430,030	430,491	430,952	431,414	431,875	432,336	432,797	433,258	433,719	434,181	434,642	435,103	435,564	436,025	436,486	436,947
4,735,741	5,129,517	5,523,575	5,917,633	6,311,691	6,705,749	7,100,007	7,494,265	7,888,523	8,282,781	8,677,039	9,071,297	9,465,555	9,859,813	10,254,071	10,648,329	11,042,587	11,436,845	11,831,103	12,225,361
5,999,199	6,466,883	6,935,028	7,403,635	7,872,702	8,342,231	8,812,221	9,282,672	9,753,584	10,224,057	10,694,970	11,165,882	11,636,794	12,107,706	12,578,618	13,049,530	13,520,442	13,991,354	14,462,266	14,933,178
5,060,939	5,484,627	5,908,717	6,333,267	6,758,279	7,183,752	7,609,686	8,036,081	8,462,938	8,890,255	9,317,124	9,744,000	10,170,876	10,597,752	11,024,628	11,451,504	11,878,380	12,305,256	12,732,132	13,159,008
154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732	154,732
783,468	827,524	871,580	915,635	959,691	1,003,747	1,047,803	1,091,859	1,135,914	1,179,970	1,224,026	1,268,082	1,312,137	1,356,193	1,400,249	1,444,305	1,488,361	1,532,416	1,576,472	1,620,528
5,457,059	5,558,455	5,658,951	5,759,447	5,859,943	5,960,439	6,060,935	6,161,430	6,261,926	6,362,422	6,462,918	6,563,414	6,663,910	6,764,406	6,864,902	6,965,397	7,065,893	7,166,389	7,266,885	7,367,381
11,457,158	12,025,338	12,593,518	13,161,698	13,729,878	14,298,058	14,866,238	15,434,418	16,002,598	16,570,778	17,138,958	17,707,138	18,275,318	18,843,498	19,411,678	19,979,858	20,548,038	21,116,218	21,684,398	22,252,578
429,094	406,035	382,976	359,917	336,858	313,799	290,740	267,681	244,622	221,564	198,505	175,446	152,387	129,328	106,269	83,210	60,151	37,092	14,033	1,974
429,094	406,035	382,976	359,917	336,858	313,799	290,740	267,681	244,622	221,564	198,505	175,446	152,387	129,328	106,269	83,210	60,151	37,092	14,033	1,974
1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453	1,116,453
10,008,638	10,606,150	11,204,123	11,802,557	12,401,452	13,000,408	13,600,626	14,201,004	14,801,644	15,402,545	16,003,707	16,605,131	17,206,817	17,808,764	18,410,982	19,013,471	19,616,231	20,219,162	20,822,264	21,425,538
11,554,185	12,128,638	12,703,552	13,278,927	13,854,763	14,431,061	15,007,819	15,585,039	16,162,720	16,740,862	17,319,465	17,898,530	18,478,056	19,058,043	19,638,491	20,219,400	20,800,770	21,382,602	21,964,994	22,547,846
13.5%	13.3%	13.1%	11.1%	10.9%	10.7%	10.6%	10.4%	10.2%	10.1%	9.9%	9.8%	9.6%	9.5%	9.3%	9.2%	9.1%	8.9%	8.7%	8.5%
58%	58%	58%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
51%	51%	51%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%	53%

Financial Statements(Terminal Operating Company)) Query is constructed by IPC2

Income Statement	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Operating Revenue	0	0	0	5,378	11,418	18,122	19,227	20,443	21,658	22,874	22,874	22,874	22,874	22,874	22,874
Operating Expenses	0	0	0	7,883	12,664	17,692	18,520	19,432	20,344	21,255	21,255	21,255	21,255	21,255	21,255
Personnel & Administration	0	0	0	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600
Maintenance	0	0	0	0	250	250	250	250	250	250	250	250	250	250	250
Royalty	0	0	0	4,033	8,364	13,592	14,420	15,332	16,244	17,155	17,155	17,155	17,155	17,155	17,155
Compensation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Depreciation	0	0	0	250	250	250	250	250	250	250	250	250	250	250	250
Net Operating Income	0	0	0	-2,506	-1,245	431	707	1,011	1,315	1,618	1,618	1,618	1,618	1,618	1,618
Interest on Long-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Before Income Tax	0	0	0	-2,506	-1,245	431	707	1,011	1,315	1,618	1,618	1,618	1,618	1,618	1,618
Tax	0	0	0	0	0	65	106	152	197	243	243	243	243	243	243
Net Surplus	0	0	0	-2,506	-1,245	366	601	859	1,117	1,376	1,376	1,376	1,376	1,376	1,376
Accumulated Earnings	0	0	0	-2,506	-3,751	-3,385	-2,784	-1,925	-808	568	1,943	3,319	4,694	6,070	7,446

Cash Flow	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cash Beginning	0	0	0	0	244	-751	-135	716	1,825	3,192	4,818	6,443	8,069	9,694	11,320
Cash Inflow	0	0	0	5,244	-995	681	957	1,261	1,365	1,868	1,868	1,868	1,868	1,868	1,868
Net Operating Income	0	0	0	-2,506	-1,245	431	707	1,011	1,315	1,618	1,618	1,618	1,618	1,618	1,618
Depreciation	0	0	0	250	250	250	250	250	250	250	250	250	250	250	250
Long-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	7,500	0	0	0	0	0	0	0	0	0	0	0
Cash Outflow	0	0	0	5,000	65	65	106	152	197	243	243	243	243	243	243
Investment	0	0	0	5,000	0	0	0	0	0	0	0	0	0	0	0
Repayment of principal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest on Long-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax	0	0	0	0	0	65	106	152	197	243	243	243	243	243	243
Cash Balance	0	0	0	244	-995	616	851	1,109	1,367	1,626	1,626	1,626	1,626	1,626	1,626
Cash Ending	0	0	0	244	-751	-135	716	1,825	3,192	4,818	6,443	8,069	9,694	11,320	12,946

Balance Sheet	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Current Assets	0	0	0	0	0	0	716	1,825	3,192	4,818	6,443	8,069	9,694	11,320	12,946
Cash & Deposit	0	0	0	0	0	0	716	1,825	3,192	4,818	6,443	8,069	9,694	11,320	12,946
Fixed Assets	0	0	0	4,750	4,500	4,250	4,000	3,750	3,500	3,250	3,000	2,750	2,500	2,250	2,000
Total Assets	0	0	0	4,750	4,500	4,250	4,716	5,575	6,692	8,068	9,443	10,819	12,194	13,570	14,946
Liabilities	0	0	0	7,500	8,251	7,635	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Short-term Loans	0	0	0	0	751	135	0	0	0	0	0	0	0	0	0
Long-term Loans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Net Worth	0	0	0	-2,506	-3,751	-3,385	-2,784	-1,925	-808	568	1,943	3,319	4,694	6,070	7,446
Total Liabilities & Net Worth	0	0	0	4,994	4,500	4,250	4,716	5,575	6,692	8,068	9,443	10,819	12,194	13,570	14,946

Financial Indicators	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Rate of Return Fixed Assets		#DIV/0!	#DIV/0!	-52.7%	-27.7%	10.1%	17.7%	27.0%	37.6%	49.8%	53.9%	58.9%	64.7%	71.9%	80.9%
Debt Service Coverage Ratio		#DIV/0!	#DIV/0!	146.6%	110.9%	97.6%	96.3%	95.1%	93.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%
Operating Ratio		#DIV/0!	#DIV/0!	141.9%	108.7%	96.2%	95.0%	93.8%	92.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%
Working Ratio		#DIV/0!	#DIV/0!												

(Unit: 1,000Pesos)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874	22,874
21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255	21,255
3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600
250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155	17,155
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618
243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243
1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376	1,376
8,821	10,197	11,573	12,948	14,324	15,699	17,075	18,451	19,826	21,202	22,578	23,953	25,329	26,704	28,080	29,456	30,831	32,207	

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
12,946	14,571	16,197	17,823	19,448	21,074	22,699	24,325	-24,049	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868
1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868	1,868
1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618	1,618
250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243
1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626	1,626
14,571	16,197	17,823	19,448	21,074	22,699	24,325	-24,049	-22,424	243	243	243	243	243	243	243	243	243	243

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
14,571	16,197	17,823	19,448	21,074	22,699	24,325	0	0	0	0	0	0	0	0	0	0	0	0
14,571	16,197	17,823	19,448	21,074	22,699	24,325	0	0	0	0	0	0	0	0	0	0	0	0
1,750	1,500	1,250	1,000	750	500	250	50,000	49,750	49,500	49,250	49,000	48,750	48,500	48,250	48,000	47,750	47,500	
16,321	17,697	19,073	20,448	21,824	23,199	24,575	7,500	29,924	28,298	26,672	25,047	23,421	21,796	20,170	18,544	16,919	15,293	
7,500	7,500	7,500	7,500	7,500	7,500	7,500	31,549	29,924	28,298	26,672	25,047	23,421	21,796	20,170	18,544	16,919	15,293	
0	0	0	0	0	0	0	0	24,049	22,424	20,798	19,172	17,547	15,921	14,296	12,670	11,044	9,419	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	
8,821	10,197	11,573	12,948	14,324	15,699	17,075	18,451	19,826	21,202	22,578	23,953	25,329	26,704	28,080	29,456	30,831	32,207	
16,321	17,697	19,073	20,448	21,824	23,199	24,575	24,575	49,750	49,500	49,250	49,000	48,750	48,500	48,250	48,000	47,750	47,500	

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
92.5%	107.9%	129.5%	161.8%	215.8%	323.7%	647.4%	3.2%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.4%	3.4%	3.4%	
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	
91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	91.8%	