

FEASIBILITY ANALYSIS OF NEW PRIOK PORT PROJECT PHASE 2 OF INDONESIA PORT CORPORATION II

Gina Dwi Jayanthi and Sylviana Maya Damayanti
School of Business and Management
Institute Technology of Bandung, Indonesia
gina.dwi@sbm-itb.ac.id

Abstract. Indonesia Port Corporation II (IPC) is a state-owned enterprise (SOE) that is involved in port and harbor services in ten provinces of Indonesia. Currently, the state company seeks expansion through changes in its strategic approach in order to become a world-class port operator. In order to become a world-class port operator and solve the overloaded dock in Indonesia, IPC develop and built Project New Priok Port. The complete New Priok Port project is divided into two phases. The first phase will be in total area 268 hectare, Phase II will be in total The phase 2 will be in total 300 ha, that will be built 4 containers terminal. Phase 2 become important stage since phase 1 considered not enough to handle the excess demand of the container terminal as the growth of the country by each terminal increasing 2,000 TEU/years and also in order to be a world-class port operator, phase 2 will be the trigger for Indonesia's port to attract international vessels because it makes Tanjung Priok able to handle foreign large vessels. Literature study and financial analysis methods used in this research are cash flow, Net Present Value (NPV), Internal Rate of Return (IRR), Weighted Average Cost of Capital (WACC), Capital Asset Pricing Model (CAPM), and Payback Period (PBP). Result of this analysis paper implies the feasibility of the New Priok Port Project Phase 2 and benefit for IPC II. The analysis turn out to the positive NPV, bigger IRR than WACC, sooner pay back period than economic value and the positive profitability index. This project is economically feasible and recommended to be conducted to generate profit, fulfill the demand, and to be a world-class port operator.

Keywords: Cash Flow, NPV, IRR and Payback Period

Introduction

As the economic and globalization grows, port become more important especially in industrial sector. The strategic location of Indonesia made distributor from all over the world to come to Indonesia. Then, Tanjung Priok harbor that located in North Jakarta become the busiest port since Jakarta is the capital city of Indonesia. That is why the overloaded of the port become a big problem. Jakarta's Tanjung Priok Port will increase its annual capacity from five million twenty-foot equivalent units (TEU) of containers to 18 million TEU and will be able to facilitate triple-E class container ships (with a 18,000 TEU capacity) in a 300 meters wide two-way sea lane. Tanjung Priok was originally designed to handle five million TEU of container traffic per year. In 2014, however, container traffic in this harbor reached 6.4 TEU, indicating the necessity to expand its infrastructure.

The complete New Priok Port project is divided into two phases. The first phase will be in total area 268 hectare comprising stage 1A area of 32 ha (deck on pile), stage 1B area of 180 ha (reclamation land) and the disposal area 56 ha. In the area of stage 1A and 1B will be built three-container terminals (CT 1 in 1A, CT 2 and CT 3 in 1B), which each of it can increase 1,500 TEU/year and two products terminal (oil and gas terminal). The first phase includes the installation of container terminal infrastructure and equipment (USD \$1.38 billion) as well as construction of a new petroleum product terminal (USD \$730 million). The

first phase expected to be start in 2012-2017 with expectation CT 1 will be operate in 2015. The phase 2 will be in total 300 ha, that will be built 4 containers terminal (CT 4, CT 5, CT 6, CT 7). By build phase 2, each terminal will increase the annual capacity for 2,000 TEU/year. This phase expected to be start on 2018 and be fully operated on 2023. This phase start with expectation phase 1 is already fully operated and the container terminal is about more than 70% occupied.

Phase 2 become important stage since phase 1 considered not enough to handle the excess demand of the container terminal as the growth of the country by each terminal increasing 2,000 TEU/years and also in order to be a world-class port operator, phase 2 will be the trigger for Indonesia's port to attract international vessels because it makes Tanjung Priok able to handle foreign large vessels since before this project large foreign vessels which will enter Tanjung Priok Port have to go to Singapore or Malaysia first then to Indonesia. Currently, Tanjung Priok Port can only accommodate vessels with maximum 6,000 TEU capacity whereas, the vessels with 18,000 TEU capacity has moved all around the world to support logistic activity. Before the project is conducted, a projection of the second phase of New Priok Port Project must undergo a Feasibility Study calculation for knowing whether this project will gave a benefit or not. Therefore, this research made to analyze and conclusion to see if the project is feasible or not. The objective to be achieved in this study was to determine whether it is feasible or not to conduct the phase 2. Make a feasibility calculation by calculate the Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period. Make a conclusion about the calculation of the project and give recommendation(s) for the company.

Literature Review

Feasibility Study

Feasibility study is a tool to control, analyze and evaluate the proposed project to identify the opportunities, costs and benefits also hopefully can provide some solutions to support business decision making with goal for the project will succeed based on owner's decision while using assumptions in the assessment of the process of how the project will run. (Alan Thompson, 2005). The purpose of doing feasibility study in this research is as a guide in decision-making by considering overall economic growth combined with a business proposal, the risk and return that associated so that the stakeholders can evaluate the project. By knowing the results of the evaluation, we can determine the direction of the project development and also in the field of management.

Capital Budgeting

According to Lawrence J. Gitman on his book Principles of Managerial Finance (2013: 442), the definition capital budgeting is "the process of evaluating and selecting long-term investments that are consistent with the firm's goal of maximizing owner's wealth". Capital Budgeting can be determine as company list opportunity to estimate capital cost needed to gain positive NPV with looking for right investment.

Initial Investment

"The relevant cash flow for a proposed project at time zero" (Gitman:2009) Initial investment used to financing investment from the start and happens in zero years. The initial investment of the project include with the installation cost for new asset, construction, proceed from the old asset and tax.

Payback Period

Payback Period is the amount of time required for the firm to recover its initial investment in a project, as calculated from cash inflows. When the payback period is used to make accept-reject decisions, we

should see if it is less than the maximum acceptable payback period or not. If it does not less than it, reject the project.

Cash Flow

Cash flow is a revenue or expense stream that changes a cash account over a given period. Cash inflows usually arise from financing activities, operation activities, or investing activities. When cash outflows arise from expenses or investments. Cash flow can be attributed to a specific project or to a business as a whole. Cash flow can be used as an indication of a company's financial strength.

Weighted Average Cost of Capital (WACC)

"Weighted Average cost of capital reflects the expected average future cost of capital over the long run; found by weighting the cost of each specific type of capital by its proportion in the firm's capital structure" (Gitman : 2013)

WACC is calculated by multiplying the cost of each capital source (debt and equity) by its relevant weight, and then adding the products together to determine the WACC value:

$$WACC = \frac{E}{V} \times R_e + \frac{D}{V} \times R_d \times (1 - T_c)$$

Where:

R_e = cost of equity

R_d = cost of debt

E = market value of the firm's equity

D = market value of the firm's debt

$V = E + D$

$\frac{E}{V}$ = percentage of financing that is equity

$\frac{D}{V}$ = percentage of financing that is debt

T_c = corporate tax rate

When calculating a firm's WACC, the first step is to determine what proportion of a firm is financed by equity and what proportion is financed by debt by entering the appropriate values into the $\frac{E}{V}$ and $\frac{D}{V}$ components of the equation. Next, the proportion of equity $\frac{E}{V}$ is multiplied by the cost of equity (R_e); and the proportion of debt $\frac{D}{V}$ is multiplied by the cost of debt (R_d).

The debt side of the equation ($\frac{D}{V} \times R_d$) is then multiplied by $(1 - T_c)$ to get the after-tax cost of debt (there is a tax shield associated with interest). The final step is to add the equity side of the equation to the debt side of the equation to determine WACC.

The result of the WACC calculation will be a discount factor for the after tax cash flows to determine the Net Present Value of this project. By taking a weighted average, we can see how much interest the company has to pay for every dollar it finances.

CAPM

"The capital asset pricing model provides a useable measure of risk that help investors determine what return they deserve for putting their money at risk" (Sullivan 2012: 549-551) . The cost of Equity is the amount of compensation investor required to invest in an equity investment. The cost of equity is estimated by several ways including CAPM. The formula for calculating the cost of equity using CAPM is:

$$r_e = r_f + \beta_1 (r_m - r_f)$$

Where:

r_f = Risk Free Rate

β_a = Beta of the security

r_m = Expected Market Return

Net present Value

"The Net Present Value (NPV) is capital budgeting technique by subtracting a project's initial investment from the present value of its cash inflows discounted at a rate equal to the firm's cost of capital" (Gitman: 2013: 449)

The net present value is found by subtracting a project's initial investment (CF_0) from the present value of its cash inflows (CF_t) discounted at a rate equal to the firm's cost of capital (r).

NPV = Present value of cash inflows – Initial Investment

The following is the formula for calculating NPV:

$$NPV = \sum_{t=1}^T \frac{C_t}{(1+r)^t} - C_0$$

Where :

C_t = net cash inflow during period

C_0 = initial investment

r = discount rate

t = number of time periods

When NPV is used, both inflows and outflows are measured in terms of present dollars. For a project that has cash outflows beyond the initial investment, the net present value of a project would be found by subtracting a present value of outflows from the present value of inflows. To make accept-reject decisions, the decision criteria are if the NPV is greater than \$0, accept the project the firm will earn a greater than its cost of capital. Such action should increase the market value of the firm, and therefore the wealth of its owners by an amount equal to the NPV. Then, if the NPV is less than \$0, reject the project.

Internal Rate of Return (IRR)

"The internal rate of return (IRR) is the discount rate that equates the NPV of an investment opportunity with \$0 (because the present value of cash inflows equals the initial investment). It is the rate of the return that the firm will earn if it invests in the project and receives the given cash inflows." (Gitman 2013: 453)

$$CF_0 = \sum_{t=1}^n \frac{CF_t}{(1+IRR)^t}$$

Where:

CF_0 = Initial investment

CF_t = present value of its cash inflows

t = number of time periods

When IRR used to make accept-reject decisions, the decision criteria are if the IRR is greater than the cost of capital, accept the project. If it is less than the cost of capital, reject the project.

Benefit Cost Analysis

According to Agus Sugiyono (2001:2) the definition of benefit cost analysis is as follow:

"Analisis manfaat dan biaya digunakan untuk mengevaluasi penggunaan sumber-sumber ekonomi agar sumber langka tersebut dapat digunakan secara efisien. Pemerintah mempunyai banyak program atau proyek yang harus dilaksanakan sedangkan biaya yang tersedia sangat terbatas. Dengan analisis ini pemerintah menjamin penggunaan sumber-sumber ekonomi yang efisien dengan memilih program-program yang memenuhi kriteria efisien"

Based on William G. Sullivan, Elin M. Wicks, and James T. Luxhoj (2006:466), they explained the general term of the usage of benefit-cost analysis for the evaluation of public project, which is:

"In general term, benefit-cost analysis is a systematic method of assessing the desirability of government projects and policies when it is important to take a long-term view of future effects and a broad view of possible side effects."

Depreciation

Depreciation is a method for allocating the cost of tangible assets to its useful life. Firm or organization use depreciation method mainly for tax and accounting purposes. According to Paul D. Kimmel and others, he said that, "depreciation is the process of allocating to expense the cost of a plant asset over its useful life in a rational and systematic manner." (Weygant, Kimmel, Kieso, 2011)

Depreciation methods used in this research is straight line, Straight-line method means the periodic depreciation is the same for each year of the asset's useful life.

Methodology

In describing the research methodology of the project, author use the following steps: problem identification, research Objective, literature review, data collection, data analysis, and conclusion and suggestion.

Problem Identification

The first step for doing the research is identifying or determining the main problem of the research. In this research, author will analyze the feasibility study of making crane of Project New Priok at PT Pelabuhan Indonesia II. The problem identification used to determine is the project if it is feasible or not by evaluate and calculate the data.

Research Objectives

After identifying the main problem of the research, the objectives of the research will develop. Research objective is to explain a specific result that aims to achieve from the main problems. Objectives are basic tools that underlie all planning and strategic activities.

Literature Review

In doing this research, author uses theoretical foundation that will be used as a to do the objective of this research. All the calculations, definitions, and explanations are gained from the sources of the literatures. Literature reviews in this research were gathered from journals, internet and several books as a guide for the author to understand more about the topics.

Data Collection

Source of data or data collection is the process to collect the data from sources that needed to fulfill the research. In this research, the author use secondary data, the data will directly taken from finance division of PT Pelabuhan Indonesia II. The author will use permission letter to request data from the company, a statement letter for proving the activation of students, and recommendation letter to conduct a research. This data hopefully will help author to do the research.

Data Analysis

Data analysis is the process collecting the data and processing the data to see/highlighting the important data that useful as the information to do the research. The data will be used to analyze by appropriate method analysis, to make conclusion and suggestion.

Conclusion and Suggestion

Conclusion and suggestion is the last step of the research. In this step will summarize the overall results and discussions based on research. Suggestion made to give some advice after doing the research.

Data Analysis

Overview of New Priok Port Project Phase 2

The phase 2 will be in total 300 ha, that will be built 4 containers terminal (CT 4, CT 5, CT 6, CT 7). By build phase 2, each terminal will increase the annual capacity for 2,000 TEU/year. This phase expected to be start on 2018 and be fully operated on 2023. This phase start with expectation phase 1 is already fully operated and the container terminal is about more than 70% occupied. The total area of container yard will be 180 ha and a total length of quay 4,000 meters long. For the container terminal berthing pool, the channel and basin depth is -16 M LWS and can be expand to a depth of -20 M LWS (depth berthing design).

Breakwater

Breakwater structures are the outer side protection for port and reclamation area. At the New Priok Port project used the breakwaters structures of "rubble mound" type. The Rubble Mound system means that the structure is using bamboo materials as foundation (cluster and matras) and a pile of stones as upper structure. The breakwaters consist of rock bund and A-Jack concrete armor at the outer side, usually used in open area. This method will minimize the wave effect in the construction and the core layer of breakwater should protect by armor layer as soon as possible.

Dredging and Reclamation

Dredging and reclamation at New Priok development, IPC should mobilize special equipment. In the first phase, and also will in phase 2, IPC ask Van Oord the biggest international dredging company from Netherlands, which is specialize and competent in dredging and reclamation work.

Project Market Analysis

The expansion of Indonesia's ports is not just for the connectivity of Indonesia's islands but also to bring down logistical costs and raise competitiveness between Indonesia with the other countries in the world especially in Asia. Indonesia ranks a lowly 53rd on the World Bank's logistic performance index, behind Thailand and Vietnam, which is perhaps surprising considering it is Southeast Asia's largest economy by GDP. As the country with largest economy by GDP in South East Asia there are a lot of opportunity for Indonesia to expand. More over, the growth of South East Asia economy and Industry also become a trigger for Indonesia to do more. In conclusion, from the market analysis it is a great opportunity to do the project, as the demand is already high and Indonesia have a great chance to grow its economy and industry from the maritime field.

Financial Analysis

Initial Investment

In order to build the Project New Priok Port Phase 2, the total Initial Investment of the project is US\$ \$1,373,136,000.00. The Initial Investment consists of the costs of Construction, equipment, Intangibles (IT, Permissions, etc..). The rates used in the construction cost estimates were derived from three main sources with checks being undertaken between the sources and professional judgment being used to interpolate to the most accurate assessment practical at this stage. The three methods used were:

1. Prices from known projects in Indonesia.
2. Prices from known international projects.
3. Build up of rates for specific items of construction undertaken with the assistance of Indonesian contractors.

The major elements of the project are :

- Quay – 2 Terminals (each 1,000 meters with width 50m)
- Container Yard $2000 \times 350\text{m}^2 = 70\text{ Ha}$
- Breakwaters 2,000 meters
- Reclamation $2,000 \times 10 \times 400\text{ meters}$
- Dredging $2,000 \times 10 \times 300\text{ meters}$
- Power Plant
- Equipment
- IT investment

Operational Cost

Operational Cost or Operational expenses are based on staffing and consumable estimates taken from a broad range of terminals in Asia and Europe. The costs have been modeled by assuming that as the terminal expands it will recruit and train ahead. The block used for this is 4.0 m TEU, which provides some opportunity for cost optimization at a later stage. In total the Operational Cost of the project, from the consumable costs and the staffing cost is US\$ 44,727,307.67

Revenue

In order to get the revenue projection of the New Priok Port 2 main elements of the revenue stream are Tariff and the Throughput.

At present it is assumed that the real value of this will be maintained over the period of the financial assessment.

Handling Tariff

Handling Tariff Items (US\$)	2018	2023	2028
20' Full	83	83	83
20' Empty	62	62	62
40' Full	125	125	125
40' Empty	93	93	93
20' Transhipped	56	56	56
40' Transhipped	84	84	84

Traffic Volume

Kalibaru	2023	2024	2025	2026	2027	2028	2029	2030	2031
Low	6896	8413	9918	11465	13,058	13,687	14,368	15,108	15,910
Expected	8644	10579	12562	14653	16,863	18,192	19,667	21,303	23,118
High	10216	12415	14679	16743	18,905	20,160	21,531	23,039	24,655

Revenue Estimate

To provide an estimate of the revenue of a terminal assumptions are required on the split of containers traffic between 20', 40' and the levels of empties handled.

Further assumptions are required related to dwell time. For the purposes of this research the following assumptions have been made:

- 50% of boxes will be 40', which gives a TEU/Box ratio of 1.5 and implies 33% of TEU are 40' containers

- 50% of TEU will be outgoing/export
- 20% of TEU will be from the domestic trade
- 10% of TEU will be empty
- 10% will be transhipped from one ship to another

These assumptions are consistent with the traffic analysis for many ports around the world, in Indonesia and specifically the current throughput of the Port of Tanjung Priok. There is a case that the ratio of domestic trade container to international trade will rise, and in doing so the analysis of containers passing through Tanjung Priok will change. However there is also a counter argument that as capacity is provided export growth will be enabled; as suggested in some of the traffic forecast scenarios. This growth would counteract the impact of domestic growth in the future and ensure that the analysis remains broadly the same. At this stage it is assumed that the analysis will remain roughly the same through the life of the Kalibaru Development.

2023	\$998,695.10
2024	\$1,222,257.69
2025	\$1,451,366.01
2026	\$1,692,952.25
2027	\$1,948,287.30
2028	\$2,101,834.94
2029	\$2,272,250.86
2030	\$2,461,268.12
2031	\$2,670,966.36
2032	\$2,670,966.36
2033	\$2,670,966.36
2034	\$2,670,966.36
2035	\$2,670,966.36
2036	\$2,670,966.36
2037	\$2,670,966.36
2038	\$2,670,966.36
2039	\$2,670,966.36
2040	\$2,670,966.36
2041	\$2,670,966.36
2042	\$2,670,966.36

WACC

Number of Weighted Average Cost of Capital is intended to find Present Value Interest Factor (PVIF) for the Net Present Value calculation of New Priok Port Project Phase 2. The PVIF will be the multiplier to the annual After-Tax Cash Flow to find NPV per year. Based on the table 4.8 calculation data, the WACC of this project is 7.2%

Source of Fund	Value	Weight	Cost of Capital	Weighted COC
Equity	\$411,940,800.00	30%	7.5%	2.3%
Debt	\$961,195,200.00	70%	7.0%	4.9%
Total	\$1,373,136,000.00	100%	14.5%	
WACC				7.2%

Based on the data given, company has stated that capital structure is conducted with a proportion of 70% of Debt and 30% of Equity. The construction period of this project is expected to be ready in 5 years, and the debt got the grace period interest contract from the Bank.

Cash Inflow

Cash Inflow is the record of the company cash in from sales transaction. From 2023 the project expected to be fully operated, so the sales projection completely shows cash in mostly from net profit and depreciation. The calculation result shows since 2023 the project will give a positive cash flow until 2042 and so on. For the analysis needs, the cash flow just calculated until 2042 (20 years). Depreciation include as cash in after we calculate the tax so it will reduce tax that should pay.

Depreciation

Depreciation is calculated as cost elements in the calculation of income that can be used to reduce the tax burden on profits. The calculation of depreciation cash flow is calculated for all types fixed assets that depreciable. In tis project, the depreciation of the investment is 20 years. Therefore, the depreciation of the facilities will be calculated. The depreciation method that will be used is straight-line method.

Table 4.11 Depreciation

Year	Depreciation
2023	\$68,656,800.00
2024	\$68,656,800.00
2025	\$68,656,800.00
2026	\$68,656,800.00
2027	\$68,656,800.00
2028	\$68,656,800.00
2029	\$68,656,800.00
2030	\$68,656,800.00
2031	\$68,656,800.00
2032	\$68,656,800.00
2033	\$68,656,800.00
2034	\$68,656,800.00
2035	\$68,656,800.00
2036	\$68,656,800.00
2037	\$68,656,800.00
2038	\$68,656,800.00
2039	\$68,656,800.00
2040	\$68,656,800.00
2041	\$68,656,800.00
2042	\$68,656,800.00

Before Tax Cash Flow

The first step to calculate Net Present Value is to find before tax cash flow. Before tax cash flow or net cash flow is calculated with the cash outflow and cash inflow per year.

Taxable Income Projection

After calculating before tax cash flow, the next step is calculating the taxable income. Taxable income is the basis to calculate After Tax Cash flow, because after tax cash flow must have tax structure to find cash flow after interest and taxes.

Taxable income is gained from deduction of before tax cash flow, Interest, and depreciation. Taxable income is intended by government tax rate, which is 20% to find cash flow for interest and tax, as a deduction to find after tax cash flow.

After Tax Cash Flow

The last step of making cash flow calculation before finding the net present value of the project is calculation after tax cash flow. After tax cash flow is the net profit of the whole financial feasibility projecting calculation.

First step to calculate after tax cash flow is to multiply taxable income with the government tax rate (20%) to get cash flow after interest and taxes. Cash flow after interest and taxes will be the deduction of before tax cash flow, and the result of the both subtraction are after tax cash flow. After cash flow is the number of cash flow that will be discounted and summed to find NPV.

NPV

Net Present Value (NPV) is used in capital budgeting to analyze the profitability of an investment or project. In this project if the NPV shows positive number so we can accept the project. First thing to know is the discount rate. The discount rate for this project is 8% from average of commercial bank. NPV is the main factor for the viability calculation, because the number will be the basis for the project to be accepted or not. Calculated NPV of New Priok Port Project are US\$ 352,485,427.58

IRR

Internal Rate of Return (IRR) used in capital budgeting that makes the net present value of all cash flows from a particular project equal to zero. If the IRR more bigger than dF so we can decide that the project feasible for company. IRR the project, precise number by excel calculation 10.64%.

Pay Back Period (PBP)

Payback Period is the length of time required to recover the cost of an investment. The payback period of a given investment or project is an important determinant of whether to undertake the position or project, as longer payback period are typically not desirable for investment positions. From sales projection the cash flow always shows positive numbers. The last deficit of the cumulated discounted after-tax cash flow is on year 2036, which is the 14th year. While in year 2037, which is 15th the cumulated discounted after-tax cash flow achieve surplus. So payback period of this project is between year 2036 and 2037. The calculation of payback period is:

Year		Cumulated Discounted
		After Cash Flow
		US \$
		Cumulated (3)
0	2018	-1373136000
1	2023	-1328633149
2	2024	-1263698313

3	2025	-1181093407
4	2026	-1082652712
5	2027	-970009344.1
6	2028	-854327024.4
7	2029	-735440223.3
8	2030	-613195532.3
9	2031	-487439136.8
10	2032	-372222391.1
11	2033	-266730570.5
12	2034	-170210244.7
13	2035	-81964711.73
14	2036	-1349770.174
15	2037	72230194.7
16	2038	139325833.9
17	2039	200446189
18	2040	256061796.7
19	2041	306607563.8
20	2042	352485427.6

Table 4.15 PBP Calculation

$$\text{PBP} = 14 + \frac{1,349,770.174}{72,230,194.7 + 1,349,770.174} = 14.018 \text{ years}$$

The payback period shown above is in 14,018 years. Which means the project will get a payback on 14 years, 6 days.

Conclusion and Recommendation

Conclusion of Revenue and Capital Structure

Based on the revenue data, the revenue from the container handling can cover the cash outflow gained from operation cost, which is good because it makes profitability for the investment. For the capital structure proportion IPC will use 30% Equity and 70% Debt. Cash flow of the project is in good performance, because the cash inflow still could counterbalance the cash outflow even though the revenue is fixed stagnant and the cash outflow is increasing per year.

Conclusion Market Analysis

In conclusion, from the market analysis it is a great opportunity to do the project, as the demand is already high and Indonesia have a great chance to grow its economy and industry from the maritime field.

Conclusion of Net Present Value Analysis

According to NPV calculation at previous chapter, the NPV is greater than zero, it makes that NPV has fulfilled the success criteria. NPV calculation of New Priok Port Project Phase 2 generates a good number, which is US\$352,485,427.58. As the NPV analysis fulfilled the criteria, the project is feasible.

Conclusion of Internal Rate of Return Analysis

The IRR calculation generates a number of 10.64%, which is over numbered the discount rate of IPC (dF = 8%). Therefore, the IRR calculation of New Priok Port Project Phase 2 is compatible with the success

criteria that is must overcome the discount rate. As the IRR analysis fulfilled the criteria, the project is feasible.

Conclusion of Payback Period

The payback period of New Priok Port Project Phase 2 is 14,018 years from the date the project started. This number shows a good result considering the economic value of the project that is 20 years. As the payback period is sooner than the economic value for operating period is a success criterion, the project is feasible.

Conclusion of The Project Analysis

From the four aspects above of Revenue and Capital Structure, Net Present Value, Internal Rate of Return, and Payback Period, the New Priok Port Project Phase 2 is feasible, and suggested to be conducted.

Recommendation

From the conclusion above, the New Priok Port Project Phase 2 is economically feasible and suggested to be conducted by IPC. So, the New Priok Port Project Phase 2 can contributed for company in generate profit, fulfill the demand, and become a trigger for IPC to be a world-class port operator.