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INVESTMENT ANALYSIS OF A NEW SEMI MOBILE CRUSHER PROJECT AT-PT. SEMEN JAWA A SUBSIDIARY COMPANY OF SIAM CEMENT GROUP

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Abstract

The growth in the property and infrastructure in Indonesia has contributed to the surge of cement demand. This illustrates the cement industry still has the potential to generate high profits. But, at the same time, driven by the rapid increase in the production facility, Indonesia's cement market is getting more competitive. The average profitability margin has been in a downward trend, as the new players are offering much lower selling price in a market that is already oversupplied in an effort to penetrate the market. This condition creates a price war among the players. In order to survive in difficult situations, every cement producer intended to lowering production cost and increase productivity by considering some strategies.

This paper contains the appropriate strategies generation by analyzing the external analysis namely PEST, Porter's Five Forces, and internal analysis by use VRIO and Value Chain Analysis as the tools in PT. Semen Jawa as a new cement player in Indonesia. The research focuses on advances in Capital Budgeting Techniques theory and practice and its impact on the investment decisions at the same time focused on evaluation practices of crushing plant project investment at PT. Semen Jawa. Before the decision for this investment is made, the feasibility study of the project carried out carefully to obtain optimum analysis results that can provide many benefits for the company.

The result of this research shows that the investment for the crushing plant project in PT. Semen Jawa is feasible and profitable to implement. With the capital structure contains debt and equity, the result from the analysis are positive project NPV and equity NPV, the project IRR greater than the weighted average cost of capital (WACC) and the equity IRR greater than the cost of equity (Ke), the period of return on investment less than the project period.

Keywords: Investment, Project , NPV, IRR, Cost Leadership.

1. Introduction

Cement is one of the basic materials in construction. However, it's an essential item for development in the construction industry. Cement demand is primarily derived from the following segments: housing, infrastructure, commercial construction and industrial. An increased focus on infrastructure development increases cement demand. This effect is prominent in emerging economies.

Siam Cement Group is the largest and oldest cement and building material company in Thailand and Southeast Asia. Since its founding, SCG has grown and expanded into a diversified group of operations encompassing three core business units: SCG Cement-Building Materials, SCG Chemicals, and SCG Paper. With more than 200 companies under its umbrella and

approximately 50,000 employees, SCG creates and distributes innovative products and services that respond to the current and future needs of consumers.

PT. Semen Jawa, the first SCG cement production plant in Indonesia, is located at Sukabumi district, West Java province. The total production capacity is 5,000 ton per day or equal to 1.8 Million tons of cement.

The scope of business activities of the company as the following:

- Conducting business in the field of cement industry;
- Conducting business in the field of production, mining and/or digging and/or processing certain raw materials into main materials required in cement and/or other industries. Processing the material into various cement and/or other industrial products and processing various cement and/or industrial products into more useful items;
- Conducting business in the field of trading, marketing and distribution of various cement industries as well as the products of other products using cement or other raw materials both inside and outside the country;

2. Business Issue

Driven by the rapid increase in the production facility, Indonesia's cement market is getting more competitive. The average profitability margin has been in downward trend in the past four years, as the new players are offering a much lower selling price in a market that is already oversupplied in an effort to penetrate the market. The price war in the cement market in Indonesia drives all the cement plants to invent a smartly business strategy and trying to do everything one way to reduce costs at all sources in order to survive the war. The rapid completion in the cement industry is not just the price-war matter. They also need to be concerned with their product/service quality and environment. The campaigns on environmental improvement are intensively conducted in various quarters. Otherwise, the customer could easily buy the product from a competitor rather than Semen Jawa product. Meanwhile, under increasing financial performance pressures, the cement plant has to maintain product quality without any significant cost degradation.

3. Methods

The literature review will be conducted to support theoretical and conceptual references. The method of data collection is proceeded by compiling internal data and documents, in-depth interview to a competence person or focus group discussion and additional online data supported. Qualitative methods will be used in term of the business environment, while financing references will be used by quantitative methods.

4. Conceptual Framework

In order to make the conceptual distinction and find the organizing ideas as an appropriate solution, this document will be guided by a conceptual framework that would be developed. The conceptual framework developed as this document views and issues to be gathered and analyzed as can be shown as follow:

Figure 1: Conceptual Framework

5. External and Internal Analysis

PEST and Porter's Five Forces conducted to analyze the external factors, while VRIO and VCA conducted to analyze internal factors.

Table 1: PEST Summary Analysis

POLITICAL	ECONOMIC
• The unpredictable of politic stability during the presidential election 2019 • Free Trade Agreement drives economic growth, enhanced efficiency, and increased innovation. • 16th economic policy package which allows more room for foreign investment and offering tax holidays. • The growth of government spending, especially in the infrastructure sector.	• The GDP rate projected will grow by 5.3% in 2019 • USD exchange rate projected slowdown • Oil prices fell sharply in the past two months, potentially rising again to around the US $ 65 per barrel • Higher Interest rate 5.25% encourage consumers to save as returns, the economy slows, and inflation decreases.
SOCIOCULTURAL	**TECHNOLOGICAL**
• The population forecasted an increase to be more than 270 million with a growth rate of 1.07% per year • High rainfall rate	• Technology improvements and Technological advancements are directly affecting the company's products, services, distributors, supplier, customers, and competitive advantages

The summary of Industry analysis by Porter's five forces for the cement industry as follows:

Table 2: Porters Five Forces Cement Industry Summary

OPPORTUNITY	THREAT
• The threat of new entrance is low where high barriers to entry due to needing huge investment for capital and high fixed cost in the cement industry. • The threat of substitute product is low due to lack of substitutes, and no product exists to date that can substitute effectively for cement..	• Bargaining power of supplier is high due to the high cost of switching material or fuel and raw material. • Bargaining Power of the buyer is high because buyers can quickly change the brand with a low switching cost. • Moderate rivalry among competitors because of high barriers to entry and high barriers to exit.

From the above explanation, it can conclude Porter's five forces for the cement industry as follows:

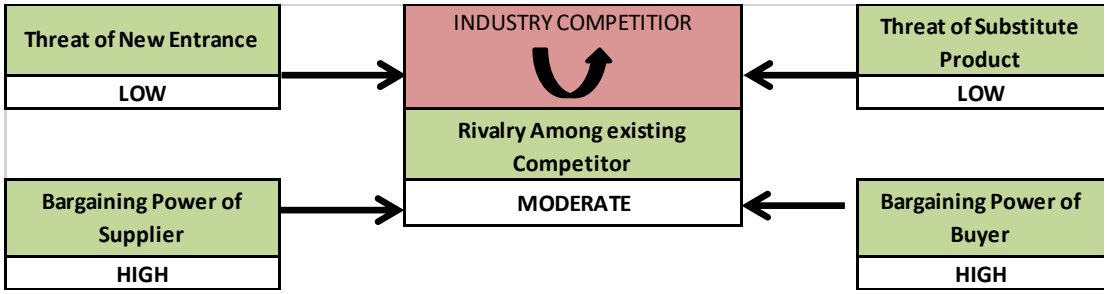


Figure 2. Porters Five Forces Cement Industry

Table 3: External Analysis Summary

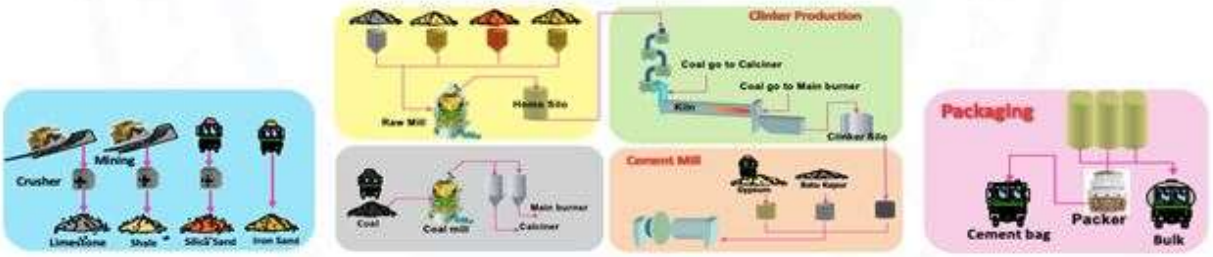
No.	Opportunity	Threat	Direct impact on the company
Political			
1		The unpredictable of politic stability during the presidential election 2019	Changing policies on the industry and business of the company
2	Free Trade Agreement drives economic growth, enhanced efficiency, and increased innovation.		Ease of providing company facilities
3	The growth of government spending, especially in the infrastructure sector.		Increasing cement demand for infrastructure development
Economic			
4	The GDP rate projected will grow by 5.3% in 2019		Potential increasing of cement demand due to the increasing economic capacity of the Indonesian people
5	USD exchange rate projected slowdown		
6		Oil prices potentially rising again.	Potential increase in production cost, wages, and others
7		Higher Interest rate 5.25% encourage consumers to save as returns, the economy slows, and inflation decreases.	Higher interest rates tend to reduce the rate of economic growth

Sociocultural			
8	The population forecasted an increase with a growth rate of 1.07%/year.		Potential increasing of cement demand due to the increase of housing
9		The high rate of rainfall	Potential decreasing of cement demand
Technology			
10	Technology improvements and Technological advancements are directly affecting the company's products, services, distributors, supplier, customers, and competitive advantages		Potential to do cost efficiency and production effectivity by improving the technology

Industrial Environment			
11	The threat of new entrance is low where high barriers to entry due to needing huge investment for capital and high fixed cost in the cement industry.		a low threat of entry makes the industry less competitive and increases potential profit
12	The threat of substitute product is low due to lack of substitutes, and no product exists to date that can substitute effectively for cement.		Potential increasing cement demand and profit
13		Bargaining power of supplier is high due to the high cost of switching material or fuel.	Potential to get the lower cost is decreasing and reduce potential profit
14		Bargaining Power of the buyer is high because buyers can easily change the brand with a low switching cost.	Potential to lose customer and reduce potential profit
15		Moderate rivalry among competitors because of high barriers to entry and high barriers to exit.	it tends to increase competitive pressure and negatively influence industry profitability

Value Chain Analysis

Competitive advantage is also derived from the configuration of resources rather than simply the uniqueness of those resources. Therefore, the internal resources analysis should investigate the linkage between resources and how they form part of a system with the objective of adding value. Value chain analysis will be used to analyze it.



% Cost			
40%	40%	10%	10%
Important	**Important**	**Important**	**Important**
Cost Driver			
Amount of raw material purchased from mining and supplier	Number of Raw Mill produced	Amount of Grinding Aid purchased	Amount of cement produced
Fuel Consumption (HSD)	Fuel consumption (MFO)	Amount of Gypsum purchased	Amount of paper bag purchased
	Amount of Coal Usage		
	Amount of clinker produced.		
Power consumption	Power consumption	Power consumption	Power consumption
Amount of employee overtime during the raining season	Amount of employee overtime during the holiday	Amount of employee overtime during the holiday	Amount of employee overtime during high season
	Number of lost time production		
Link between activities			
- Amount of raw material purchased from supplier impact to production cost because the price is higher - Raw material shortage reduce clinker production volume then reduce cement production volume and reduce profit from sales			
Opportunities for cost reduction			
- Reduce raw material purchase from the supplier - Improve technology for increasing production capacity			

Figure 3: Value chain analysis PT. Semen Jawa

VRIO Analysis

The VRIO Analysis was developed as a way of evaluating the resources of an organization (company's micro-environment). The importance of evaluating the company's resources, capabilities and competencies are to know the particular strength and weakness in order to determine the strategy. The resource-based view of both tangible and intangible resources. The generic question in the VRIO framework as follows:

- Valuable. A resource is valuable if it can be used. The resource that is not valuable or is irrelevant cannot be a source of competitive advantage.

- Rare. Rarity is important because if competitors possess the same resources, there is no inherent advantage in the resource. If a valuable resource is not available to all competitors, it is "rare" and therefore a potential source of competitive advantage.
- Imitable. It must be difficult or expensive for competitors to imitate or acquire the resource. If a resource is easy to imitate it confers only a temporary competitive advantage, not a sustainable one.
- Organization: a business must be capable of taking advantage of the resource. If a resource valuable, rare and difficult to imitate, a business must be able to exploit it. Otherwise, it is of little use. This may require reorganizing the company.

The following table performs the result of the assessment of internal resources as a summary:

Table 4: PT. Semen Jawa's Internal Resources VRIO Summarize Result

Resources	Resource characteristics				Strategic implications		
	Valuable	Rare	Costly imitate	Organization exploit it	Competitive implication	Impact on economic	SWOT Category
Physical	Yes	No	No	No	Competitive parity	Normal	Weakness
Raw Material	Yes	Yes	Yes	Yes	Sustainable competitive advantage	Above normal	Strength and Long-term core competence
Technological	Yes	No	No	Yes	Competitive parity	Normal	Strength
Financial Support	Yes	No	No	Yes	Competitive parity	Normal	Strength
Organizational	Yes	No	Yes	Yes	Temporary Competitive advantage	Above normal	Strength
Brand Image	Yes	Yes	Yes	Yes	Sustainable competitive advantage	Above normal	Strength
Human Resource	Yes	No	No	Yes	Competitive parity	Normal	Weakness
Innovation	Yes	Yes	Yes	Yes	Sustainable competitive advantage	Above normal	Strength

From the above explantion, the internal analysis summary concluded in the following table.

Table 5: Internal Analysis Summary

No.	Opportunity	Threat	Direct impact on the company
VRIO			
1	Strong financial resource supported by the sustainability of mother company SCG		The company can aggressively make the investment in order to cost efficiency and production effectivity
2	Good control in organizational resource		The company can manage the resource effectively
3	Strong brand image and reputation for more than 100 years in ASEAN		Potential increase in market share and profit
4		ordinary human resource and can be imitated by anyone	potential decreasing of productivity in the organization
VCA			
5		High loss time production during the material shortage	potential decreasing profit
6		The high price of raw material purchased from outside sources	Potential decreasing profit
7		Low market share	potential decreasing profit

SWOT Analysis

The SWOT analysis is a framework used to evaluate a company's competitive position, strengths, weaknesses, opportunities, and threats. The point of a SWOT analysis is to help the organization to develop a strong business strategy by considering all of strengths and weaknesses. Implicit in the SWOT analysis is the aim of achieving the optimum match of a firm's resources with the environment in order to gain a sustainable competitive advantage. The following summarizes the strengths, weaknesses, opportunities, and threats that are gained from external and internal analysis as the industry key success factors:

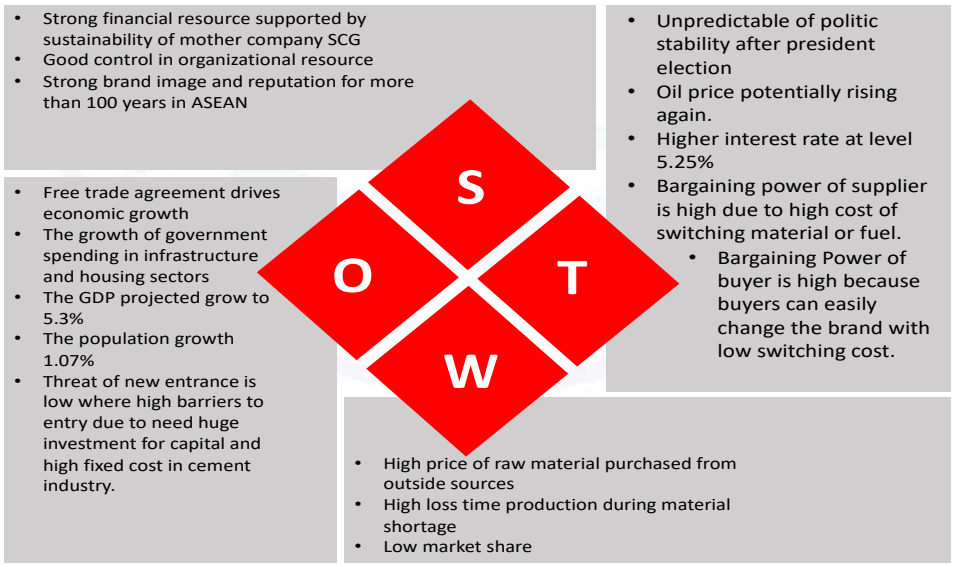


Figure 4: SWOT factors

6. Strategy Formulation

Strategy formulation is the process of choosing the most suitable action for the realization of organizational goals and objectives to achieve the corporate vision as the business solution. Formulated strategy for the business solution formula will be using EFAS and IFAS Analysis and the TOWS matrix.

EFAS (External Factor Analysis Summary) and IFAS (Internal Factors Summary) used for formulating the strategy. The expansion would be done by SWOT or TOWS matrix analysis. Identification of external and Internal factors in the previous analysis and summarized as industry and company key success factors. EFAS consists of two factors, namely opportunities and threats, while IFAS consist both of strengths and weaknesses. Focus Group Discussion in the management meeting determined the weight and rating for each internal and external factors The XY axis is made with the X-axis as the Internal Factor and Y axis parameters as the External Factor parameters. According to the result form quantification the industry key factors, the internal score value is -0.2 while the external score value is 0.4. The strategic position is requiring to capture opportunities and minimize weakness.

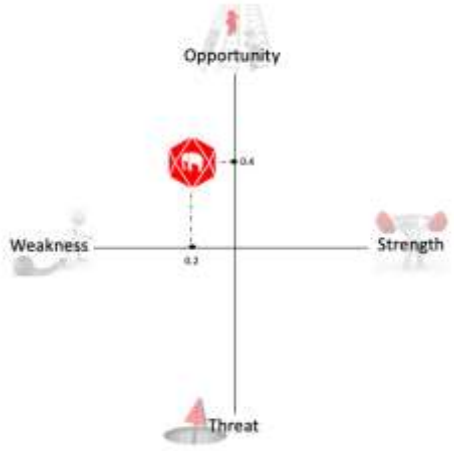


Figure 5: Grand strategy matrix of PT.Semen Jawa

Considering the strengths, weaknesses, opportunities, and threats from the previous explanation, the company choose to implement a cost leadership strategy. The cost leadership strategy is proposed by considering the competitive advantage and competitive scope that PT. Semen Jawa has. As mentioned before that cement demand will increase potential growth following the growth of infrastructure and housing development and also the population, where the company is targeting a broad market. The competitive advantage that PT. Semen Jawa has a lower price than other competitors with acceptable quality. In order to run this strategy, the company must find a way to reduce the production cost to increase the market share and profitability.

The SWOT analysis will be extending to the TOWS matrix where the strategy will be generated through each factor. TOWS matrix illustrates how the external factors facing a particular corporation can be matched with the company's strength and weaknesses to result in four sets of possible strategic alternatives. Basically, the TOWS matrix generates four alternative strategies. Those are S-O, W-O, S-T, and W-T. According to the above explanation, it can develop the TOWS matrix that can be generated alternative strategy which appropriates to overall external and internal factors as follows:

		Strength		Weakness
		S1 Strong financial resource supported by the sustainability of mother company SCG	W1	The high price of raw material purchased from outside sources
		S2 Good control in organizational resource	W2	Low market share
		S3 Strong brand image and reputation for more than 100 years in ASEAN	W3	High loss time production during the material shortage
	Opportunity	SO strategies:		WO strategies:
O1	Free trade agreement drives economic growth	S1-S2-S3-O1-O2-O3-O4-O5		W1-W2-W3-O1-O2-O3-O4-O5
O2	The growth of government spending in infrastructure and housing sectors	With strong financial support and economic growth increase market share and profitability by lowering production cost.		Reducing cost of goods sold by purchase a more efficient and productive new crusher so that some of the raw materials that currently supplied by third parties can be self-provided at a lower price, lower fuel consumption and lower labor cost
O3	The GDP projected to grow to 5.3%			
O4	The population growth 1.07%	Use organizational resources to offset the growth of infrastructure and housing to increase profitability.		
O5	The threat of new entrance is low where high barriers to entry due to needing huge investment for capital and high fixed cost			
	Threat	ST Strategies:		WT strategies:
T1	Unpredictable of politic stability after president election	S1-S2-S3-T1-T2-T3-T4-T5		W1-W2-W3-T1-T2-T3-T4-T5
T2	Oil price is potentially rising again.	Use organizational resource to maintain the potential increase of production cost due to oil price rises, high-interest rate and the high price of material from the supplier		Increase the major raw material production capacity and reduce the power consumption
T3	The higher interest rate at level 5.25%			Increase the productivity of the machine and find another potential resource to reduce the bargaining power of the supplier
T4	Bargaining power of supplier is high due to the high cost of switching material or fuel.			
T5	Bargaining Power of the buyer is high because buyers can easily change the brand with a low switching cost.	Increase brand awareness and reputation to increase market share and customer engagement		

Figure 6: TOWS Matrix

7. Analysis of Business Solution

One of the major raw materials for cement production is limestone with at least 75% portion of raw material. In the cement production process, especially milling and burning process of cement raw materials in the kiln often stopped because of the availability of limestone issue. The kiln capacity is 5,000 tons per day with the limestone requirements quantity is 2.5 million tons per year. The low capacity of limestone production came from the crushing plant often breakdown during the raining season. Wet materials during rainy season clog the machine performance. The existing crusher type is impact crusher wobble screen with production capacity is 850 ton per hour in the normal condition. The effects of this problem are the roller screen, and rotor crusher needs to clean first before operated. It made the loss of production time. This type of crusher was very sensitive by the moisture of material inputted. In the rainy season, the existing crusher

machine should operate 24 hours/day in 7 days/week. This condition made 100% overtime of the operator. The average production capacity only can reach 2 million tons per year and unable to fulfill the required quantity of cement production.

PT. Semen Jawa has an interest in lowering production costs because of limestone shortage by purchase new crusher machine which can have high productivity in the rainy season. There are two alternatives machine suitable to solve this problem. One unit double roll crusher capacity 1,400 ton/hour and two units of roll sizer with the same capacity.

Technical specification was carefully considered for machine selection. Mining engineers of PT. Semen Jawa and PT. Tambang Semen Sukabumi collaborates with a senior engineer from SCG cement plant in Thailand and Cambodia to clarify the appropriate machine. Final clarification was submitted by the engineer to the committee. According to the suggestion from senior engineers, semi-mobile crushing plant with double roll crusher has been selected for this project because this type of machine can be operated with the maximum moisture more than 20%.

The new roller crusher machine will increase limestone production capacity and can achieve the production requirement to supply limestone for cement production. The new crushing plant will be maximumly operated in the rainy season. Rainy season is estimated to be eight months in a year. With six days working for one shift operation, the new crushing plant can reduce 30% overtime of labors.

This project investment will add new semi-mobile crushing pant with double roll crusher to support existing crushing plant which unable to operate during the rainy season. The existing crusher will be operated and run for four months a year in dry season only (33% operation), and the new crusher will be operated and run for eight months a year in the rainy season just (67% operation). Both machines will only operate one shift a day (8 hours) with six working days. This operating model is expected to reduce overtime and stable production capacity to supply enough limestone for the cement production process.

The project cost is estimated at 116,043 Million IDR. From the total use of funds, 38% of the equity portion will be raised by PT. Semen Jawa as equity finance amounting 44,304 Million IDR. Additionally, 62% of the funds required (71,738 Million IDR) will be raised through project debt financing.

8. Financial Model

The critical assumptions used in this project includes the project period as 10 years, the financial assumption, the capital structure, the loan amortization schedule and etc. The interest rate assumed in this crushing plant project is 12.85%. Debt payment using a straight line loan.

The corporate rate assumed for this project is 25%. The cost escalation or cost multiplier is computed based on the inflation rate % and the consumer price index (CPI). 5-year historical average date of the inflation rate and CPI were provided to have a reference in assuming the appropriate escalation rate.
For the foreign exchange rate, a 5-year historical average data were provided for reference of assumptions.

The total investment cost of the project is approximately IDR 116 Billion, which includes pre-development costs, construction costs and other fees such as financing fees. Construction costs assume to have contingency cost in-case of cost overruns during the construction phase of the project.

As mentioned in the financial assumptions, the project will use a debt-equity ratio of 62%/38% where the debt portion is IDR 71.738 Billion (62%), and equity portion is IDR 44 billion (38%). Financing fees such as interest during construction and commitment fees are capitalized in the debt portion of the funding.

The operating assumptions for the new crushing plant are assumed to run at 8 hours per day in 112 days per year for the dry season and 224 days per year for the rainy season. This already includes allotted days for the maintenance schedule of the crushing plant.

9. Investment Performance

The cash flow projections for the entire concession period is shown in the table below:

YEAR		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
FROM		01-Jul-19	01-Jan-20	01-Jan-21	01-Jan-22	01-Jan-23	01-Jan-24	01-Jan-25	01-Jan-26	01-Jan-27	01-Jan-28	01-Jan-29
TO		31-Dec-19	31-Dec-20	31-Dec-21	31-Dec-22	31-Dec-23	31-Dec-24	31-Dec-25	31-Dec-26	31-Dec-27	31-Dec-28	31-Dec-29
Cash Flow from Operating Activities												
EBITDA	IDR '000s	-	27,690,671	32,225,735	33,979,721	35,514,360	38,509,061	42,132,170	46,517,452	51,837,978	58,318,726	66,253,878
Changes in Working Capital	IDR '000s											
(Increase) Decrease in Receivables	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Increase (Decrease) in Accounts Payable	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Proceeds from VAT recovery	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Current Income Tax (Expense) Credit	IDR '000s	-	(2,351,442)	(3,946,128)	(4,845,545)	(5,690,125)	(6,899,721)	(8,035,959)	(9,132,279)	(10,462,410)	(12,082,598)	(14,066,385)
Other Cash/Non-cash Adjustments	IDR '000s	-	-	-	-	-	-	-	-	-	-	16,112,289
Cash Flow from Operating Activities	IDR '000s	-	25,339,229	28,279,607	29,134,176	29,824,235	31,609,340	34,096,211	37,385,173	41,375,567	46,236,129	68,299,781
Cash Flow from Investing Activities												
Uses of Funds During Construction	IDR '000s	(116,043,056)	-	-	-	-	-	-	-	-	-	-
Cash Flow from Investing Activities	IDR '000s	(116,043,056)	-	-	-	-	-	-	-	-	-	-
Cash Flow from Financing Activities												
Equity Infusion	IDR '000s	44,304,473	-	-	-	-	-	-	-	-	-	-
Debt Drawdown	IDR '000s	71,738,583	-	-	-	-	-	-	-	-	-	-
Debt Principal Payment	IDR '000s	-	(14,347,717)	(14,347,717)	(14,347,717)	(14,347,717)	(14,347,717)	-	-	-	-	-
Debt Interest Payment	IDR '000s	-	(8,296,567)	(6,452,886)	(4,609,204)	(2,765,522)	(921,841)	-	-	-	-	-
Cash Flow from Financing Activities	IDR '000s	116,043,056	(22,644,284)	(20,800,602)	(18,956,921)	(17,113,239)	(15,269,557)	-	-	-	-	-
Net Cash Flow	IDR '000s	-	2,694,945	7,479,004	10,177,255	12,710,995	16,339,783	34,096,211	37,385,173	41,375,567	46,236,129	68,299,781
Net Cash Flow During the Year	IDR '000s	-	2,694,945	7,479,004	10,177,255	12,710,995	16,339,783	34,096,211	37,385,173	41,375,567	46,236,129	68,299,781
Cash, Beginning Balance	IDR '000s	-	-	2,694,945	10,173,949	20,351,205	33,062,200	49,401,983	83,498,194	120,883,367	162,258,934	208,495,063
Cash Balance before Distributions	IDR '000s	-	2,694,945	10,173,949	20,351,205	33,062,200	49,401,983	83,498,194	120,883,367	162,258,934	208,495,063	276,794,844
Cash Distribution to Shareholders	IDR '000s											
Return of Capital to Shareholders	IDR '000s											
Cash, Ending Balance	IDR '000s	-	2,694,945	10,173,949	20,351,205	33,062,200	49,401,983	83,498,194	120,883,367	162,258,934	208,495,063	276,794,844
Dividends Payment to Shareholders		-	3,527,163	5,919,193	7,268,318	8,535,188	10,349,582	12,053,938	13,698,419	15,693,616	18,123,897	21,099,578
NET CASHFLOW AFTER DIVIDED		-	(832,218)	1,559,812	2,908,937	4,175,807	5,990,201	22,042,274	23,686,754	25,681,951	28,112,232	47,200,203

The P / L projections for the whole concession period is shown below:

YEAR		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
FROM		01-Jul-19	01-Jan-20	01-Jan-21	01-Jan-22	01-Jan-23	01-Jan-24	01-Jan-25	01-Jan-26	01-Jan-27	01-Jan-28	01-Jan-29
TO		31-Dec-19	31-Dec-20	31-Dec-21	31-Dec-22	31-Dec-23	31-Dec-24	31-Dec-25	31-Dec-26	31-Dec-27	31-Dec-28	31-Dec-29
INCREMENTAL INCOME STATEMENT												
Incremental Cost Saving												
Incremental Saving: SIW	IDR '000s	-	23,365,655	27,543,957	28,907,049	29,996,654	32,522,688	35,636,562	39,468,451	44,187,505	50,014,429	57,238,735
Incremental Saving: TSS	IDR '000s	-	4,325,015	4,681,778	5,072,672	5,517,706	5,986,373	6,495,607	7,049,001	7,650,473	8,304,298	9,015,143
Total Incremental Cost Saving	IDR '000s	-	27,690,671	32,225,735	33,979,721	35,514,360	38,509,061	42,132,170	46,517,452	51,837,978	58,318,726	66,253,878
Incremental Expenses												
Corporate Salaries & Wages	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Plant Salaries & Wages	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Preventive Maintenance Costs	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Overhaul Expenses	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Insurance Expense	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Management Fee	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Lease of Land	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Gross Receipts Tax on Interest	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Local Permits and Fees	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Total Incremental Operating Expenses	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
EBITDA	IDR '000s	-	27,690,671	32,225,735	33,979,721	35,514,360	38,509,061	42,132,170	46,517,452	51,837,978	58,318,726	66,253,878
Incremental Depreciation	IDR '000s	-	(9,988,336)	(9,988,336)	(9,988,336)	(9,988,336)	(9,988,336)	(9,988,336)	(9,988,336)	(9,988,336)	(9,988,336)	(9,988,336)
EBIT	IDR '000s	-	17,702,335	22,237,399	23,991,386	25,526,024	28,520,725	32,143,834	36,529,116	41,849,642	48,330,391	56,265,542
Incremental Interest Expense	IDR '000s	-	(8,296,567)	(6,452,886)	(4,609,204)	(2,765,522)	(921,841)	-	-	-	-	-
EBT	IDR '000s	-	9,405,768	15,784,514	19,382,182	22,760,502	27,598,885	32,143,834	36,529,116	41,849,642	48,330,391	56,265,542
Corporate Income Tax	IDR '000s	-	(2,351,442)	(3,946,128)	(4,845,545)	(5,690,125)	(6,899,721)	(8,035,959)	(9,132,279)	(10,462,410)	(12,082,598)	(14,066,385)
INCREMENTAL NET PROFIT/LOSS AFTER TAX	IDR '000s	-	7,054,326	11,838,385	14,536,636	17,070,376	20,699,163	24,107,876	27,396,837	31,387,231	36,247,793	42,199,156

The detailed balance sheet projections are shown in the table below:

	YEAR	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
	FROM	01-Jul-19	01-Jan-20	01-Jan-21	01-Jan-22	01-Jan-23	01-Jan-24	01-Jan-25	01-Jan-26	01-Jan-27	01-Jan-28	01-Jan-29
	TO	31-Dec-19	31-Dec-20	31-Dec-21	31-Dec-22	31-Dec-23	31-Dec-24	31-Dec-25	31-Dec-26	31-Dec-27	31-Dec-28	31-Dec-29
Assets												
Current Assets												
Cash	IDR '000s	-	2,694,945	10,173,949	20,351,205	33,062,200	49,401,983	83,498,194	120,883,367	162,258,934	208,495,063	276,794,844
Accounts Receivables	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Other Current Assets	IDR '000s	16,112,289	16,112,289	16,112,289	16,112,289	16,112,289	16,112,289	16,112,289	16,112,289	16,112,289	16,112,289	-
Total Current Assets	IDR '000s	16,112,289	18,807,234	26,286,238	36,463,493	49,174,489	65,514,271	99,610,483	136,995,656	178,371,223	224,607,352	276,794,844
Property, Plant & Equipment												
Land	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Civil Works	IDR '000s	24,283,465	24,283,465	24,283,465	24,283,465	24,283,465	24,283,465	24,283,465	24,283,465	24,283,465	24,283,465	24,283,465
Mechanical Works	IDR '000s	15,171,818	15,171,818	15,171,818	15,171,818	15,171,818	15,171,818	15,171,818	15,171,818	15,171,818	15,171,818	15,171,818
Machine & Equipment	IDR '000s	60,428,074	60,428,074	60,428,074	60,428,074	60,428,074	60,428,074	60,428,074	60,428,074	60,428,074	60,428,074	60,428,074
Total PP&E Costs	IDR '000s	99,883,357	99,883,357	99,883,357	99,883,357	99,883,357	99,883,357	99,883,357	99,883,357	99,883,357	99,883,357	99,883,357
Accumulated Depreciation	IDR '000s	-	(9,988,336)	(19,976,671)	(29,965,007)	(39,953,343)	(49,941,679)	(59,930,014)	(69,918,350)	(79,906,686)	(89,895,022)	(99,883,357)
Total Net PP&E	IDR '000s	**99,883,357**	**89,895,022**	**79,906,686**	**69,918,350**	**59,930,014**	**49,941,679**	**39,953,343**	**29,965,007**	**19,976,671**	**9,988,336**	-
Other Long-term Assets												
Other Assets	IDR '000s	47,410	47,410	47,410	47,410	47,410	47,410	47,410	47,410	47,410	47,410	47,410
Total Other Long-term Assets	IDR '000s	47,410	47,410	47,410	47,410	47,410	47,410	47,410	47,410	47,410	47,410	47,410
Total Assets	IDR '000s	**116,043,056**	**108,749,665**	**106,240,334**	**106,429,253**	**109,151,913**	**115,503,360**	**139,611,236**	**167,008,073**	**198,395,304**	**234,643,097**	**276,842,254**
Liabilities and Shareholder's Equity												
Current Liabilities												
Accounts Payable	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Short Term Portion of Long Term Loan	IDR '000s	14,347,717	14,347,717	14,347,717	14,347,717	14,347,717	-	-	-	-	-	-
Total Current Liabilities	IDR '000s	14,347,717	14,347,717	14,347,717	14,347,717	14,347,717	-	-	-	-	-	-
Long-term Debt												
Loans, Long Term Portion	IDR '000s	57,390,867	43,043,150	28,695,433	14,347,717	-	-	-	-	-	-	-
Total Long-term Debt	IDR '000s	57,390,867	43,043,150	28,695,433	14,347,717	-	-	-	-	-	-	-
Total Liabilities	IDR '000s	**71,738,583**	**57,390,867**	**43,043,150**	**28,695,433**	**14,347,717**	-	-	-	-	-	-
Shareholder's Equity												
Capital Contributions	IDR '000s	44,304,473	44,304,473	44,304,473	44,304,473	44,304,473	44,304,473	44,304,473	44,304,473	44,304,473	44,304,473	44,304,473
Accumulated Retained Earnings	IDR '000s	-	7,054,326	18,892,711	33,429,347	50,499,724	71,198,887	95,306,763	122,703,600	154,090,832	190,338,625	232,537,781
Accumulated Dividend Distributions	IDR '000s	-	-	-	-	-	-	-	-	-	-	-
Accumulated R/E After Dividends	IDR '000s	-	7,054,326	18,892,711	33,429,347	50,499,724	71,198,887	95,306,763	122,703,600	154,090,832	190,338,625	232,537,781
Total Shareholder's Equity	IDR '000s	**44,304,473**	**51,358,798**	**63,197,184**	**77,733,820**	**94,804,196**	**115,503,360**	**139,611,236**	**167,008,073**	**198,395,304**	**234,643,097**	**276,842,254**
Total Liabilities and Shareholder's Equity	IDR '000s	**116,043,056**	**108,749,665**	**106,240,334**	**106,429,253**	**109,151,913**	**115,503,360**	**139,611,236**	**167,008,073**	**198,395,304**	**234,643,097**	**276,842,254**

10. Investment Decision

The investment decision will be based on the required return criteria that have been stated on investment policy. The investment should profitable and gain a return since the decision has been made with the selected criteria. The project investment analysis result as follows:

PROJECT INVESTMENT RESULT		
Project NPV (WACC = 14.5%)	IDR '000s	48,180,353
Project Internal Rate of Return	%	24%
Payback Period of Project	Years	4.1

While the equity investment analysis result:

EQUITY INVESTMENT RESULT		
Equity NPV (using Cost of Equity Ke =20.86%)	IDR '000s	24,584,676
Equity Internal Rate of Return	%	31.5%
Payback Period of Shareholder's Capital	Years	4.69

Conclusion

The lacking supply of raw material impacted the company's financial performance. The low efficiency and productivity for limestone crusher was the major issue in the production process. The impact of these problems was the loss time production of cement and high operational cost because of high overtime cost, purchase clinker and bulk cement from competitors, high power consumption and others.

To solve this problem, the company intends to purchase the new crushing plant to increase limestone production. According to the result of data analysis in the previous chapter, the conclusion is the crushing plant investment project is the potential project to solve the company's problem. The investment performance shows the positive NPV and high rate return. The total investment is around 116 Billion IDR with the capital structure 62% for debt portion and 38% for the equity portion, the project 24% with the payback period four years one month, while the investment performance to the equity shows a higher rate return with IRR 31.5%, with a payback period four years six months.

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