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BUSINESS STRATEGY OF LIMESTONE PROJECT DEVELOPMENT CASE STUDY OF CV USAHA ALAM MANDIRI AND PT KRAKATAU POSCO

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Abstract - This Final Project is trying to calculate the income of the project and is it feasible to be initialized or not. The calculation is begin from developing an operational process, choosing a distribution process, income statement projection, and a feasibility study of the chosen alternative.The research provides the operational process design of the project, yearly income statement projection, and developing feasibility study analysis of the project. With the right calculation, the company can generate continuous income in order to support the company growth in years to come.

Key Words: Distribution Process, Income Statement, Feasibility Study

1. Introduction

Natural resources have a strong relationship with the economics in a country. Theoretically, the more the natural resources, the better the economics. But in many cases, countries with great natural resources have a low economics level. This is happen because most of these countries don't have the technology to process the natural resources, corruption, social discrepancy, civil war, weak government, etc.

Base on this fact, local people need to start processing the natural resources by their own. When the local can control the natural resources, a country economic can be developed through the materials that are resulted from the process. One of the natural resources that important and have an economic value is limestone. Limestone is a sedimentary rock composed largely of the minerals calcite and aragonite, which are different crystal forms of calcium carbonate ($CaCO_3$) (Wikipedia, n.d.).

Located between Asia and Pacific Slab, also among active volcano, Indonesia has a high number of natural resources, including limestone. Indonesia has high potential for producing limestone. Almost all of the islands, from Sumatra, Java, Borneo, Sulawesi, and West Papua content limestone. If this potential material is well managed, it can be increase the country prosperity.

By considering this opportunities, CV. Usaha AlamMandiri is built to produce the limestone. At the beginning of its existence, CV. Usaha AlamMandiri can only sell the limestone to the retail local market. So there is no assurance of income for the company. The limestone that needed by the local market is the unprocessed limestone (raw material), this particular limestone has a low economic value, so the company growth was very slow.

To overcome this problem, the company is starting to find another market, which is more stable, to assure the income. In the year 2012, CV. Usaha AlamMandiri sees the opportunity from an established company, PT. Krakatau Steel, the biggest steel producers in Indonesia. PT. Krakatau Steel

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has a new project, cooperate with a Korean company to built a new steel production firm (Krakatau Posco). This new firm needs limestone as one of the raw material. The firm needs a large number of processed limestone (processed limestone has a higher economic value) each day. This was a great opportunity for CV. Usaha AlamMandiri. So they start to prepare the feasibility study, because a new investment will be needed to increase the daily production and process the raw limestone. If the project works later, CV. Usaha AlamMandiri will have assurance in consumers, beside the retail local market. The company growth will be faster, so it can contribute to the development of the society among the company.

A. Company Profile

Before analyzing the project, each company that involved in the project will be elaborated in this section.

1. CV. Usaha AlamMandiri

CV. Usaha AlamMandiri start its business in June 2010. It is built by considering the potential of limestone in Indonesia, specially at Central Java. The office and the mine located at DesaCandirenggo, Kecamatan Ayah, Kebumen, Central Java, Indonesia. The area was in the village, far from a big city. The miners and the management also came from the village around. Some miners are daily workers, which can be added according to the number of production.

The business of CV. Usaha AlamMandiri was producing limestone. The transportation for the limestone until now was the responsibility of the consumers. The local retail consumers go to the mine to take the limestone. This is happen because, the market demand the unprocessed limestone as a building material. The unprocessed limestone was very cheap, so CV. Usaha AlamMandiri doesn't provide the trasportation.

2. PT. Krakatau Steel

PT. Krakatau Steel is the largest steel maker in Indonesia, headquartered in Cilegon, Banten. The location is on the western end of Banten and adjacent to the Sunda Strait, and where the Krakatau volcano and island from which the company takes its name are located.

Krakatau Steel, the company engaging in the steel industry, has shown its significant development. In less than ten years, the company has added its production facilities such as Sponge Iron Plant, Steel Billet Plant, and Wire Rod Plant, as well as infrastructure facilities of electricity power and Water Treatment Plant, Cigading Special Port and telecommunication system. This development leads PT Krakatau Steel to become the only integrated steel company in Indonesia.

Since early years, Krakatau Steel's technical expertise has acknowledged pursuant to international standards. In fact, the company obtained the ASTM A252 and AWWA C200 in 1973, as well as API 5L for the production of spiral pipes in 1977. In 1993, PT Krakatau Steel was awarded the ISO 9001 certification, which had been upgraded to the ISO 9001:2000 in 2003. In 1997, SGS International awarded another ISO certification (the ISO 14001) for company's commitment to environmental awareness and safety occupation.

Krakatau Steel has 6 (six) production plants making the company as the only integrated steel plant in the country. These plants produce many kinds of downstream products from upstream raw materials.

3. Krakatau Posco

PT. Krakatau Steel (KS) and Pohang Steel and Iron Coorporation (Posco) from South Korea were officially built PT. Krakatau Posco. It was an integrated joint venture company for producing steel, with investment not less than US$ 6 million. The company capacity is 6 million tons a year, which is divided into 2 phase, each phase will have 3 million tons capacity a year. The first phase construction will be held by the second semester of 2013. The construction site is beside PT. Krakatau Steel at the harbor city of Cilegon, Banten.

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Pohang Steel and Iron Coorporation (Posco) was built in 1968, nowadays was one of the biggest player in Steel Industries worldwide. It produce 28 million tons of steel each year, and have been used in more than 60 countries. Located at the harbor city of Pohang and Gwangyang in South Korea. Posco produce many kinds of steel product such as, *hot rolled coil and cold rolled sheet, plate, wire rod, electrical steel, and stainless steel*.

The comparison of ownership between the two companies initially started with 70% for Posco and 30% for PT. Krakatau Steel. After the *Final Acceptance Certificate* (FAC), the ownership of PT. Krakatau Steel will increase to 45% from buying the 15% shares from Posco.

B. Business Issue

CV. Usaha AlamMandiri and PT Krakatau Steel have a vertical relationship. It means that CV. Usaha AlamMandiri will act as one of the supplier of PT. Krakatau Steel, both companies have mutual beneficial relationship to each other. To smoothen their business, is a great idea for them to cooperate immediately. So this final project will discuss on how CV. Usaha AlamMandiri can provide the limestone that needed by PT. Krakatau Steel, what investment needed, what kind of distribution will be used, and how many options they have in investment and distribution, which one should be choosen?

CV. Usaha AlamMandiri has some options when providing the limestone to PT. Krakatau Steel. For example: in the matter of investment, should they buy or lease new machine for processing the raw limestone? In the matter of transportation, several options of transportation can be choose such as, train, truck, or ship, which one is the best option? So the feasibility study will show the combination of several options, which combination will provide the most efficient result for both companies.

2. Business Issues Exploration

A. Business Situation Analysis

Before finding the business issues, it is better if we start from the limestone industry itself, so we know how important this material in real life.

1. Limestone Industry

Limestone was most popular in the late 19th and early 20th centuries. Train stations, banks and other structures from that era are normally made of limestone. It is used as a facade on some skyscrapers, but only in thin plates for covering, rather than solid blocks. In the United States, Indiana, most notably the Bloomington area, has long been a source of high quality quarried limestone, called Indiana limestone. Many famous buildings in London are built from Portland limestone.

Limestone was also a very popular building block in the Middle Ages in the areas where it occurred, since it is hard, durable, and commonly occurs in easily accessible surface exposures. Many medieval churches and castles in Europe are made of limestone. Beer stone was a popular kind of limestone for medieval buildings in southern England.

Other uses include:

- It is the raw material for the manufacture of quicklime (calcium oxide), slaked lime (calcium hydroxide), cement and mortar.
- Pulverized limestone is used as a soil conditioner to neutralize acidic soils.
- It is crushed for use as aggregate—the solid base for many roads.
- Geological formations of limestone are among the best petroleum reservoirs;
- As a reagent in flue-gas desulfurization, it reacts with sulfur dioxide for air pollution control.
- Glass making, in some circumstances, uses limestone.
- It is added to toothpaste, paper, plastics, paint, tiles, and other materials as both white pigment and a cheap filler.
- It can suppress methane explosions in underground coal mines.
- Purified, it is added to bread and cereals as a source of calcium.
- Calcium levels in livestock feed are supplemented with it, such as for poultry (when ground up).

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- It can be used for remineralizing and increasing the alkalinity of purified water to prevent pipe corrosion and to restore essential nutrient level.
- Used in blast furnaces, limestone extracts iron from its ore.
- It is often found in medicines and cosmetics.
- It is used in sculptures because of its suitability for carving.

The demand of limestone in the market can be refer to the usage of its finished product such as: cement product. Year by year, cement consumption is likely to going up. So it is affected the limestone usage that indirectly the usage will be increase.

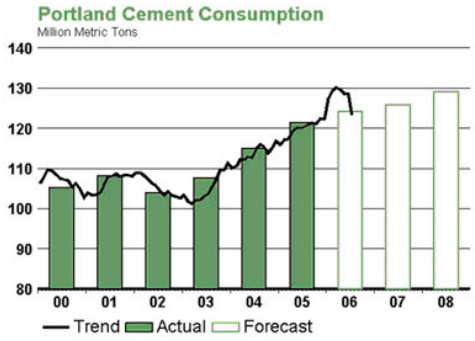

Figure 1. US Cement Consumption 2000 - 2008
(Portland Cement Association, 2006)

By looking at its usefulness and the market, limestone was very important mineral, so it is certain that limestone has a high economic value. Fortunately, limestone is very potential material in Indonesia. The limestone reserve in Indonesia is about 28,678 billion tons (DirektoratJendral Mineral dan Batubara). The numbers maybe increase because of new invention of the limestone source. The reserves of limestone are spread around Indonesia.

Figure 2. Indonesian Limestone Reserve Area
(Blogdetik.com, n.d.)

2. Limestone Mining

To produce limestone is quite simple, just separate the limestone from the quarry. Separating the limestone from its mountain needs heavy machinery. Below was the process of limestone mining:

From the first process at the limestone quarry, the miner can produce a limestone but in the form as a raw material (big chunks). This form is called the unprocessed limestone that already stated before. This form has a lower economic value at the market. The next stage was processing the limestone into a smaller and softer limestone, this form that often used by another industry such as: cement and steel. This form has a higher economic value but required higher cost for investment and operation.

3. CV. Usaha AlamMandiri

In 2013 CV. Usaha AlamMandiri will have a project in selling the limestone continuously. The buyer will be PT. Krakatau Steel, which is the biggest steel maker in Indonesia. PT. Krakatau Steel will build a new blast furnace facity, so they will need limestone as one of the material. This is a very good opportunities for CV. Usaha AlamMandiri, because PT. Krakatau Steel will order continuously to fulfill their quota.

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But before the deal, CV. Usaha AlamMandiri should know that this project is financially profitable to the company. As every project does, this project also needs feasibility study and how the company will provide the material, what is have to be prepared, how to produce and deliver, because the requirement of the material is very high.

4. PT. Krakatau Steel

Krakatau Steel PerseroTbk PT is the iron and steel producer in Indonesia. The Company is a state-owned enterprise and located in Cilegon, Indonesia. Krakatau Steel consists of production plants that produce hot rolled coils, plates and sheets. The Company has also diversified into supporting business, which generate various high-added-value steel production (such as spiral and ERW pipes, steel bar and steel section), provides utility industry (water and electricity), infrastructure industry (port and industrial estate), EPC (Engineering Procurement and Construction) services, information technology and medical services (hospital).

To achieve the vision and mission, PT. Krakatau Steel has to maintain the production to fulfill the market needs for steel. So to keeping up with the increasing market demand, the company needs to increase the production, but maintain the good quality.

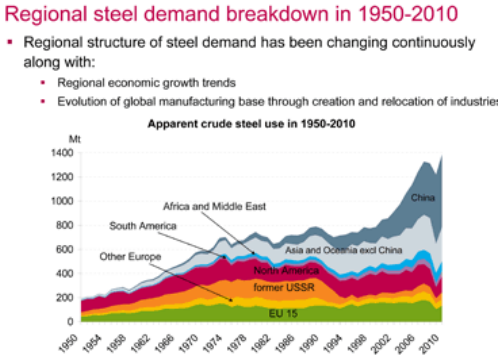

Figure 3. Regional Steel Demand 1950-2010
(World Steel Organization, 2013)

Figure 4. Global Steel Demand Growth 2001-2011
(World Steel Organization, 2013)

So the company builds a joint venture company with Posco (South Korea), to increase the production. The cooperation of both of them is believe to achieve a great synergy, because:

- Krakatau Steel

No.1 Integrated Steelmaker in South East Asia
Integrated Up & Down stream Production Facilities
Cooperate with Government & local community

- Posco

No.3 Steelmaker in the World
No.1 most competitive global steelmaker
World-class technology
Top 200 Global Companies, at rank 153rd (Forbes 2008, 2009)

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One of the material needed to produce steel is Limestone / Flux. It is needed to extracts iron from its ore. To maintain the production, PT. Krakatau Steel needs a regular supply for limestone. That's why PT. Krakatau Steel considers deal with CV. Usaha AlamMandiri, so the limestone supply can be fulfill. The deal will give advantages to both of the company, PT. Krakatau Steel will get a regular supply of limestone, and CV. Usaha AlamMandiri will get certain income from the consumption, and the value also quite high, because the limestone needed is very high because the production and demand of steel was also very high.

C. Business Scheme

There are some alternative to deliver a good deal for both company, so each alternative have to be considered carefully.

1. The Operational of The Deal

CV. Usaha AlamMandiri and PT. Krakatau Steel was located separately and the distance is quite far. So there will be an issue on how the delivery of the material, should CV. Usaha AlamMandiri delivers the material or PT. Krakatau Steel has to take by themselves. What transportation will be chosen? There are several options to initiate the operational from production until delivery to PT. Krakatau Steel:

- From the limestone quarry, no more process was needed.
- After number (1), the consumer will directly take the limestone without any other processes.
- From the limestone quarry, the producer will continue to process the raw limestone to a ready to use form for the customer.
- After number (3), the producer will need a new machinery to process the limestone into a ready to use form.
- The machinery at number (4) can be provide by buy or lease process.
- When the decision has made at number (5), the producer will initiate the delivery by several alternative.
- From number (6) the delivery will initiate by truck directly to the consumers.
- Another alternative from number (6) the delivery will initiate by truck to the train station and continue to the customer by using train.
- The last alternative from number (6) the delivery will initiate by truck to the harbor and continue to the customer by using ship.

3. **Business Solutions**#

A. Business Solutions Alternative

As stated on chapter 2, CV. Usaha AlamMandiri has several alternatives how to execute the deal. There are 7 alternatives that have to be chosen by the company to get the most efficient and profitable one. So each of the alternatives should be considered carefully, what are the advantages and disadvantages of each alternative. Below was the alternatives of the operational process:

Table 1. The Alternatives

Unprocessed	Processed and Buy New Machinery	Processed and Rent New Machinery
No Delivery	Delivered by Truck	Delivered by Truck
	Delivered by Ship	Delivered by Ship
	Delivered by Train	Delivered by Train

B. Business Solutions Analysis

By considering each alternative carefully, the company can reach to a decision, which alternative that should have been taken. The consideration is based on the calculation of yearly income statement. The alternative, which is generating the most income, is likely to be chosen as the optimum alternative.

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In the production process, the company not always reaches the maximum capacity of the process. The requirement of Krakatau Steel to the company was 500 tons. By the equipment that available now at the quarry, the staff said that the company has a chance to produce 40 – 60 tons per hour. Each day has 8 working hours minus 1-hour break. So the company can produce 280 – 420 tons a day. The probability of the production was said as follow:

Table 2. Probability of The Production

Category	Probability	Value
Pessimistic	20%	280 tons / day
Most Likely	55%	350 tons / day
Optimistic	25%	420 tons / day

The data will be analyze by developing the yearly income statement projection for each alternatives and decide by developing the decision tree analysis to finalize the decision.

1. Income Statement Projection

All the data from the interview are used to calculate the income statement projection. The best result from the data was:

Table 3. Yearly Income Statement for Processed Alternatives with Buying Option Delivered by Train

	Pessimistic	Most Likely	Optimistic
Revenue	43,820,000,000	54,775,000,000	65,730,000,000
Expenses			
Cost of Goods Sold			
Breaker Rent	328,650,000	328,650,000	328,650,000
Bucket Rent	175,280,000	175,280,000	175,280,000
Gasoline	406,900,000	406,900,000	406,900,000
Landlord Royalty	109,550,000	136,937,500	164,325,000
Transportation	36,370,600,000	45,463,250,000	54,555,900,000
Depreciation	120,000,000	120,000,000	120,000,000
Administration and General			
Employee	156,500,000	156,500,000	156,500,000
Duty Meal	78,250,000	78,250,000	78,250,000
Total Expenses	37,745,730,000	46,865,767,500	55,985,805,000
EBIT	6,074,270,000	7,909,232,500	9,744,195,000
Tax	1,700,795,600	2,214,585,100	2,728,374,600
Net Income	4,373,474,400	5,694,647,400	7,015,820,400

From the data above, the company can analyze which way is the best way for the company when taking this project to their business. Choosing train as the mean of transport, and buy a new machine for crushing the limestone was the most profitable way. .

2. Feasibility Study

From the income statement above, the company can develop a feasibility study for the project. Feasibility study has some objectives to be found, which are:

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Table 4. Feasibility Study Objectives

Objective	Description	Requirement
Payback Period	The amount of time required for a firm to recover its initial investment in a project, as calculated from cash inflows	The payback period is less than the maximum acceptable payback period (the company required maximum 3 years pbp)
Net Present Value (NPV)	A sophisticated capital budgeting technique; found 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	The NPV is greater than 0
Internal Rate of Return (IRR)	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 return that the firm will earn if it invests in the project and receives the given cash inflows	The IRR is greater than the cost of capital

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To achieve those objectives, some data are required in the feasibility study, which are:

1. Capital Expenditure
2. Cost of Capital
3. Cash Inflows (Free Cash Flow / FCF)

Capital Expenditure is funds used by a company to acquire or upgrade physical assets such as property, industrial buildings or equipment. This type of outlay is made by companies to maintain or increase the scope of their operations. These expenditures can include everything from repairing a roof to building a brand new factory. CV. Usaha AlamMandiri reserve profit for capital expenditure in the amount of 80% from the net income, because the project is new, so in order to develop the operational of the project the percentage is quite high.

Cost of capital represents the firm's cost of financing and is the minimum rate of return that a project must earn to increase firm value (Lawrence J. Gitman& Chad J. Zutter, 2012: 358). So it means that the cost of capital is the combination of cost of debt and cost of equity from a company to finance a project. In the project of CV. Usaha AlamMandiri and PT. Krakatau Posco, the financing was made for the new limestone crusher machine. The owner of CV. Usaha AlamMandiri who initiate the project will use his private equity to finance the investment and none from the debt (cost of capital = cost of equity).

To calculate the cost of equity in this project, the writer will use the capital asset pricing model (CAPM) method. CAPM describes the relationship between the required return , and the nondiversifiable risk of the firm as measured by the beta coefficient (Lawrence J. Gitman& Chad J. Zutter, 2012: 366):

$$r = R_f + (\beta \times R_p)$$

r = Cost of equity

R_f = Risk-free rate of return

R_p = Risk premium

β = Beta coefficient

The risk-free rate is an instrument of investment that the company or the owner can invest with almost no risk. So logically the return of the project should be bigger than the risk-free rate, because the risk of the project is higher. Risk-free rate sometimes was assumed as BI Rate, deposit rate, or government bond rate. In this case, the writer assume that the risk-free rate of CV. Usaha Alam Mandiri is the deposit rate, because as a small-medium enterprise, the easiest way to invest for the owner is the deposit. The average deposit rate from several banks in Indonesia was 6%, so assume that the risk-free rate for them is 6%, because it is the highest rate that the company can get if choosing deposit rather than the project.

Risk premiums are a central component of every risk and return model in finance and are a key input into estimating costs of equity and capital in both corporate finance and valuation (Aswath Damodaran, 2012). To get the risk premiums for the company, the writer use Indonesia risk premiums that stated in the table below:

Table 5. Several Risk Premiums for Various Country (Aswath Damodaran)

Country	***Total Risk Premium***
Australia	6.00%
China	7.05%
Hong Kong	6.38%
India	9.00%

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Indonesia	9.00%
Japan	7.05%
United Kingdom	6.00%
United States of America	6.00%

From the table above, the company risk premiums will assume the same with Indonesia risk premiums. So the risk premiums is 9%

Finally, to complete the data for calculating cost of equity, the writer must find the beta. To calculate beta for a non-listing company is harder than a listing company, because the completeness of the data and the validity of the data were not trusted by public. So to find the beta for CV. Usaha Alam Mandiri, the writer use average industry beta as follow:

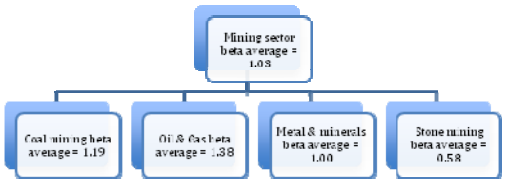

Figure 1. Beta Average

The beta average for the entire sub sector is 1.03 and the beta of metal & minerals sub sector, which the limestone industry was a part of it, is 1.00. Beta of 1.03 will be chosen, because it is riskier than 1.00, so it is better to prepare for worse scenario.

After completing all the data, cost of equity now can be calculated as follow:

$$r_e = R_f + (\beta \times R_p)$$

$$r_e = 6\% + (1.03 \times 9\%)$$

$$r_e = 15.27\%$$

r_e = Cost of equity

R_f = 6%

R_p = 9%

β = 1.03

Natural resources, often called wasting assets, specially for mineral resources such as oil, gas, and mineral mining. Unlike plant and equipment, mineral resources are consumed physically over the period of use and do not maintain their physical characteristics. The formula of depletion cost will be:

Depletion Cost = Number of Units Produced x Depletion Cost per Unit

$$\text{Depletion Cost per Unit} = \frac{\text{Total Cost} - \text{Residual Value}}{\text{Number of Estimated Units Available}}$$

Total limestone reserve in CV. Usaha AlamMandiri is 45 hectare, which is equal of approximately 3 million tons. The residual value in this project is assume as 0. So the depletion cost will be:

$$\text{Depl. Cost/Unit} = \frac{37{,}745{,}730{,}000}{3{,}000{,}000} = 12{,}581.91$$

Depl. Cost/year = 87,640 tons x 12,581.91 = 1,102,678,592

There are some scenario for the depletion cost, depends on the pessimistic, most likely, or optimistic scenario. The depletion cost also varied each year (see appendix 5), depends on the growth of the total cost.

The last data to calculate feasibility study is the free cash flow (FCF). Free cash flow represents the cash that a company is able to generate after laying out the money required to maintain or expand

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its asset base. Free cash flow is important because it allows a company to pursue opportunities that enhance shareholder value. Without cash, it's tough to develop new products, make acquisitions, pay dividends and reduce debt (investopedia.com, 2013). FCF is calculated as:

Net Income + Depreciation & Amortization - Change in Net Working Capital - Capital Expenditure

In this project the change in net working capital is assume as 0 because there is no change in asset and liabilities in the project in 5 years ahead. A feasibility study projects how a project will perform in the future, so an income statement projection for at least 5 years is necessary to be made, because the contract for the project is also for 5 years ahead.

To predict the 5 years income statement, the company has to predict the growth of the project each year until the fifth year. Because the project is new to the company, so they don't have a prediction for the project growth. So the writer assumes that the project will grow as much as the customer company growth. The customer was PT. Krakatau Posco, because it is a new joint company, so the growth will base on PT. Krakatau Steel Growth, which is:

Table 3.24. PT. Krakatau Steel Growth

GROWTH FOR KRAKATAU STEEL (PERSERO) PT TBK			
	1 Year	3 Years	5 Years
Sales %	11.75	11.68	7.08
EPS %	-117.51	--	--
Dividend %	-100.00	--	--

Because the contract and the feasibility study will take place for 5 years, so the 5 years growth will be used to calculate the growth of the project each year. From the data above the free cash flow will be:

Table 3.25. Free Cash Flow

Year	Net Income	Capex	Depreciation	FCF
0	(1,200,000,000)	-	-	(1,200,000,000)
1	3,579,545,813	2,863,636,651	120,000,000	835,909,163
2	3,807,394,914	3,045,915,931	120,000,000	881,478,983
3	4,047,864,615	3,238,291,692	120,000,000	929,572,923
4	4,301,304,672	3,441,043,738	120,000,000	980,260,934
5	4,567,993,052	3,654,394,441	120,000,000	1,033,598,610

Now all the data is complete to calculate the feasibility study. As the calculation in the appendix shows that the result of the feasibility study will be:

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Table 3.26. NPV, IRR, & PBP

NPV	1,858,630,825
IRR	68.41%
Payback Period	2 year 8 months 18 days

The result of the feasibility study shows that the alternative that has been chosen for operate the project is feasible to be taken by the company. Because the entire requirement in feasibility study has been fulfilled by the project.

4. Conclusion and Implementation Plan

A. Review and Conclusion

The problem was not the material for CV. Usaha Alam Mandiri, because limestone was very important for people. As a new established company, CV. Usaha Alam Mandiri has a problem in marketing their product. Because it is located in a remote area and can't use a very aggressive marketing strategy, the consumers were limited, so the sales were very poor.

To solve the problem the company is starting to find a captive market with high demand of limestone, so the company has an assurance for production and sales. Later on, they find PT. Krakatau Posco a joint venture company of PT Krakatau Steel and Pohang Steel and Iron Company (Posco) as a big opportunity. This Indonesian-Korean company was a major player in the world steel industries. In producing steel PT. Krakatau Posco needs limestone to extract iron from its ore. PT. Krakatau Posco will need great amount of limestone each day and will continuously using limestone. Thecalculationfor project will be:

Table 1. Yearly Income Statement for Processed Alternatives with Buying Option Delivered by Train (selected)

	Pessimistic	**Most Likely**	**Optimistic**
Revenue	43,820,000,000	54,775,000,000	65,730,000,000
Expenses			
Cost of Goods Sold			
Breaker Rent	328,650,000	328,650,000	328,650,000
Bucket Rent	175,280,000	175,280,000	175,280,000
Gasoline	406,900,000	406,900,000	406,900,000
Landlord Royalty	109,550,000	136,937,500	164,325,000
Transportation	36,370,600,000	45,463,250,000	54,555,900,000
Depreciation	120,000,000	120,000,000	120,000,000
Administration and General			
Employee	156,500,000	156,500,000	156,500,000
Duty Meal	78,250,000	78,250,000	78,250,000
Total Expenses	37,745,730,000	46,865,767,500	55,985,805,000
EBIT	6,074,270,000	7,909,232,500	9,744,195,000
Tax	1,700,795,600	2,214,585,100	2,728,374,600
Net Income	4,373,474,400	5,694,647,400	7,015,820,400

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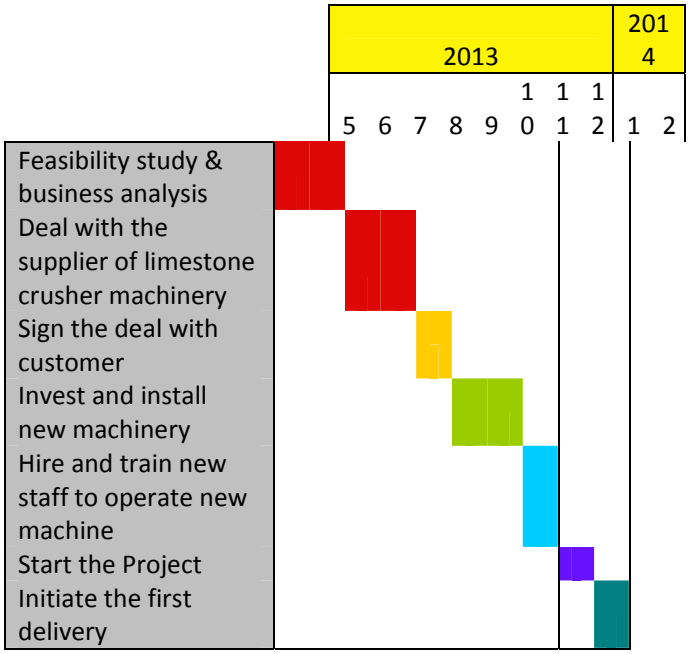
Table 2. Feasibility study of the selected alternative

NPV=	2,491,631,103
IRR=	83.80%
Payback Period=	1 year 2 months 27 days
ROI=ROE=	274.33%

B. Implementation Plan

To execute the project, there are several steps that have to be taken by the company to start the operational process, the steps will be:

Table 3.Timeline of the project



To complete the implementation plan, there are some requirements as the consequences of the new process.

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