

**BUSINESS ANALYSIS of ANTIMONY BETWEEN PT TIMAH – MITSUBISHI –
YAMANAKA**

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Abstract – PT Timah (Persero) Tbk is the State Owned Enterprises that do tin mining business integrated starting from exploration, mining, smelting and marketing. The company set a target revenue growth of at least 15% per year by the company's business development strategy year (Albar, Alwin, personal interview, 10/9/2012). Inorganic Chemical Unit is a business unit of Mitsubishi Corporation that provides services and products, ethanol, methanol, ammonia, sulfuric acid, fertilizers, mining products and other. Yamanaka & Co Ltd has a copper smelting business, metallic materials, electronic materials, chemical industry, and experienced more than 20 years to produce antimony trioxide. Since the 2009 China as the supplier of the world's largest antimony metal (82%) regulate antimony industry in the country, one of which implements the antimony metal export quota and prevent illegal mining or smuggling activities. This brings Chinese policies impact antimony metal supply deficit in global market and lead to a price increase from USD 5,500/ton in 2007 reached peak USD 17,200/ton in 2011 and USD 13,400/ton in June 2012. According to projections made by Mitsubishi Corporation, world consumption antimony in 2016 for 241,650 tonnes with supply of 206,460 tons so that there will be a supply shortage 35,190 tons. Antimony smelting plant requires a total project cost of \$ 16,851,655 and financial analysis of the business of appealing to run because of the calculation of the financial projections all provide good indicators, namely: IRR 110.02%, NPV of USD 30,641,727; ROI 55.8%; PBP 1.1 years and PI 7.5. This situation is captured as a business opportunity by PT Timah (Persero) Tbk, Mitsubishi Corporation and Yamanaka Co Ltd is planning to form a strategic alliance Joint Venture Company (JV Co) with antimony smelting plant established in Indonesia with a capacity of 5,000 tons / year. The sales target for the Japanese market as much as 3,000 tons / year, South Korea targeted 1,000 tons / year and the rest for the Indian market, Thailand, Hong Kong, Europe and the Americas allocated a maximum of 1,000 tons / year.

Keywords : antimony business, strategic alliance, business analysis of antimony, antimony metal, antimony smelting project.

1. Introduction

In 2011, China is the largest producer of antimony in the Asian (83%) and in the world (69%) with a production of 95,000 tons. The production data does not include the number of unofficial production were not reported (smuggling) estimated 28,690 tons. The Asian production for all types of antimony products including metal products as much as 113,790 tons with a total consumption of 119,650 tons or shortage of supply of 5,860 tons and for world production of 203,559 tons with a consumption of 206,600 tons or shortage of supply 3,041 tons (ancoa.com.au, 2013). According to projections made by Mitsubishi Corporation through market research, world consumption antimony in 2016 for 241,650 tonnes with supply of 206,460 tons so that there will be a supply shortage 35,190 tons. There is not matching of supply-demand cause fluctuations price increases are not rational from USD 5,500/ton in 2007, 12,200 USD/ton in 2010 culminating USD 17,200/ton in 2011 and USD 13,400/ton

in June 2012 (metallbulletin.com, 2012). On the other hand, the prices of raw materials antimony concentrated currently under USD 5,000/ton and cost of production of antimony metal not more than USD 4,000/ton. Seen the high profit margin of about USD 4,500/ton enjoyed by manufacturers of antimony metal.

2. Literature Review

Antimony is a Specific Product

Emin Ey M (Eng) DIC, ARSM, FGS in a journal entitled "Antimony Uses, Production & Prices", stating ".....Note the higher antimony prices for the more abundant minor metals in the list including molybdenum (Mo), tungsten (W) and tin (Sn), equally important elements for the modern industrial world..." (2012: 12).

In an unpublished document entitled "Antimony Business", stating "As respective Antimony Mines in the World are not big reserve...." (Hiroyuki B Suzuki 2011: 3)

Both researchers said that antimony product it is important for modern industry and its existence in nature very few that are included in the product-specific.

Antimony used to flame retardant 52%, lead acid batteries (accu) and lead alloys 38%, plastic catalyst and heat stabilizer to 7%, the rest for glass, ceramic, and others 3%. Based on the type of product, the portion for antimony trioxide 60%, antimony metals 19%, secondary antimonial lead 18%, the remaining 2% sodium antimonate.

Market Review

Rank 5 in the world of the importers and users of antimony metal in 2011 as is Belgium (9,452 tons), France (7,413 tons), Japan (6,968 tons), South Korea (6,916 tons) and the United States (5,058 tons). Views based on user region, the highest concentration of markets are in Asia 58%, Europe 19%, North America 15%, South America 4%, Middle East and Africa 4%, the remaining 0.3% Oceania.

Exporters and manufacturers of antimony metal in the world dominated by China, Vietnam and India. In 2011 the third market share of 90% or 47,885 tons from 52,985 tons of total world trade, with details of China 82% (43,280 tons), Vietnam 7% (3,594 tons), India 2% (1,011 tons) and the rest in other countries 10% (5,100 tons) with exports of each country under 700/year.

To the level of the company, the largest manufacturer of metal antimony dominated by companies from China, such as Hunan Hsikwangshan Antimony Import & Export Co Ltd (32,000 tons/year), Hunan Chenzhou Mineral Co Ltd (20,000 ton/year), Taojiang Jutong Antimony Co Ltd (20,000 tons/year), Guangxi China Tin Group Co Ltd (10,000 tons/year), Hechi Nanfang Nonferrous Smelting Co Ltd (10,000 tons/year) and Yiyang Huachang Antimony Co Ltd (5,000 tons/year). Although the production of the companies it's large, most of which is used internally as a raw material for downstream products such as antimony trioxide, partly for domestic consumption in China so that only a small percentage for export.

The domestic market for the antimony metals is monopolistic market because until now there has been no competitor manufacturers in Indonesia, there has only antimony mining activities by PT Indonesia Tiran and CV Empos Tiran in Bombana, South East Sulawesi in relatively small amounts.

Production

Refers to the data in 2011 that in Asian regional supply shortage of antimony 5.860 tons, so the production plan of antimony smelting factory built of 5,000 tons/year. Raw materials antimony concentrated required 9,000 tons of ore/year imported from Australia, Myanmar and Vietnam. Antimony metal specification to be produced according to MMTA (Minor Metal Trade Association) grade I since most market, which has required specifications 99.65% Sb; 0.15% Cu; 0.02% Pb; 0.005% Se; 0.01% Bi and 0.02% Fe and is sold in the form of ingots 9 kg to 23 kg with steel strapping packaging.

Target export to Japan as much as 3,000 tons/year or approximately 50% of the total market in Japan. South Korea market targeted to 1,000 tonnes/ year out of a total market of South Korea 7,000 tons/year and the rest to market India, Thailand, Hong Kong, Europe and the Americas allocated a maximum of 1000 tons/year (Suzuki, Hiroyuki B, personal interview, 3/ 8/ 2012).

3. Methodology

The methodology used in the writing of the business plan of antimony follows the following process flow:

literature study data collection market and industry analysis financial analysis conclusion

Data collection is the most crucial thing, obtained in the following way:

- primary data, obtained directly from source first by way of the interview or directly to the data retrieval Company.
- secondary data, obtained from the internet in the form of a web site, journal or market research, published.

4. Data Collection and Analysis

Source data obtained from the TIMAH is the primary data directly from the Business Development Department, data from the MC is the primary data directly from Mitsubishi Chemical Indonesia Group and the secondary data through the web site and the secondary data from YAMANAKA's web site. Other data as supporting a secondary data from the market research or research published over the internet. These data are combined to determine the situation of the industry and the market then used to calculate the financial projection.

Income Statement Projection

Income projection for 5 years from the first year of Rp 64.5 billion to Rp 219 billion in the fifth year of everything positive. From the income of antimony business is interesting to do, with the PV average per year Rp 88.4 billion and ROI 55.8%.

Cash Flow Projection

Cash flow projection for 5 years starting in the early Rp 50.3 billion to Rp 205 billion in the fifth year of everything positive. In the early year of cash position obtained Rp 50.3 billion although no sales because obtained working capital credit and equity while new production starting as early as the first year. In the cash flow antimony business is interesting to do because it gives positive cash flow every year..

Balance Sheet Projection

Based on the projected balance sheet for 5 years, the total value of the assets in the initial investment worth a total project cost of Rp 158.4 billion (USD 16.85 million) after 5 years the value of total assets to Rp 738.3 billion to asset growth 366% over the last 5 years or 73% on average each year. In the fifth year all debts have been paid off, the balance sheet on the total liabilities and equities are the largest portion of the total retained earning at the end of the fifth year of accumulated reached Rp 690.6 billion. Projected balance sheet is relatively healthy so that antimony business exciting to run.

Financial Analysis

Antimony smelting factory requires fixed capital investment USD 11,496,655 plus a working capital of USD 5,355,000 resulting in a total project cost of USD 16,851,655.

In performing projection calculations were taken the following assumptions :

exchange rate USD 1	=	Rp 9,400
interest rate	=	14%
source of fund (equity:loan)	=	30% : 70%
antimony price	=	USD 13,100/ ton
antimony ore price	=	USD 5,000/ ton
inflation	=	6%
discount rate	=	25%

Economies of operation 5 years yields to the time :

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|----|-------------------------------|---|----------------|
| 1. | Internal Rate of Return (IRR) | = | 110.02% |
| 2. | Net Present Value (NPV) | = | USD 30,641,727 |
| 3. | Return on Investment (ROI) | = | 55.8% |
| 4. | Pay Back Period (PBP) | = | 1.1 years |
| 5. | Profitability Index (PI) | = | 7,5 |

If the unknown cost of capital of 25% (e.g. cost of equity), then the project is acceptable because the $IRR > \text{cost of capital}$ (Gitman, Lawrence J and Zutter, Chad J, 2012:402).

NPV > 0, or positive, acceptable (Gitman, Lawrence J and Zutte, Chad J 2012:397) because the project rate of return from the project is higher than the discount rate. The Discount rate can use the cost of capital or an expected rate of return (Slamet Afandi, 2011:86), in this case used assumptions discount rate 25%.

ROI 55.8% is greater than the specified target of the Ministry of State Owned Enterprises by 15% so that the project is acceptable because each rupiah invested will give income Rp 0.558.

The Pay Back Period is 1.1 years of the time span needed to get back the amount of invested capital. The faster the recoverable capital means less risk to be faced, in this time of 1.1 years is very fast so that the project is acceptable.

PI > 1, the project is acceptable (Gitman, Lawrence J. and Zutte, Chad J, 2012:399) because each rupiah invested will return earned Rp 7.5.

To calculate the Weighted Average Cost of Capital (WACC) defined the assumption the marginal tax rate is 35%, cost of equity of 25% and the pretax cost of debt of 14%. If the total investment of Rp 158,405,559,278 funding 70% of debt and 30% of the equity, the WACC can be calculated as follows:

[illegible]

Sensitivity Analysis

The six factors that are considered the most influential of the antimony business economies is taken to perform sensitivity analysis, i.e. the selling price of metal products, raw material antimony concentrated prices, exchange rates, total project cost, bank interest rates and fuel oil. From the six factors of metal products selling price and raw materials antimony concentrated price is a high sensitive factors, the exchange rate is moderate, while the total project cost, bank interest and fuel oil price is low sensitive. If the selling price of the antimony metal USD 9,170/tonne (70% of the assumed price of USD 13,100/ton, refers price June 2012 between USD 13,400/ton to USD 13,900/ton and fore price trend is predicted around USD 13,100/ton) and or the price of raw materials antimony concentrated USD 7,500/ton (150% of the price of USD 5,000/ton assumptions) this unattractive antimony business to run.

5. Conclusion and Suggestion

Conclusion

- For all groups of antimony used in 2011 on the level of world supply deficit occurred as 3,041 tons, and projections 2016 there will be a deficit of supply as much as 35,190 tons. This actionable business opportunities by PT Timah (Persero) Tbk, Mitsubishi Corporation and Yamanaka Co Ltd by carrying out strategic alliances formed the joint venture company (JV Co) and built a antimony smelting factory in Cilegon with a capacity of 5,000 tons/ year, with a target of 3,000 tons/ year of exports to Japan; 1,000 tons/year to South Korea; 1,000 tons/year to Thailand, India, Hong Kong and Europe.
- Antimony smelting plant business is attractive to be run because of the magnitude of financial calculations all projections give a good indicator, namely: IRR 110.02%; NPV USD 30,641,727; ROI 55.8%; PBP 1.1 years and PI of 7.5. The selling price of the product and the price of raw materials are both very influential (high sensitive) against economies this business. This business is not interesting if the selling price of the antimony metal under USD 9.170/ton or the price of raw materials antimony concentrated over USD 7,500/ton.

Suggestion

1. To ensure the continuity of supply of raw materials antimony concentrated JV Co should strive to do its own exploration and mining.
2. In conducting the strategic alliance with Mitsubishi Corporation and Yamanaka Co Ltd, PT Timah (Persero) Tbk must be to negotiate the following :
 - JV Co doesn't have to pay royalty of antimony smelting technology to the Yamanaka Co Ltd because the smelting technology already public property is not protected by patent.
 - PT Timah (Persero) Tbk or JV Co must request option may conduct the procurement of raw materials and product sales, don't entirely handed over to Mitsubishi Corporation.
 - PT Timah (Persero) Tbk should immediately develop employee skills especially in the field of process technology and marketing by way of training or knowledge transfer from Yamanaka Co Ltd (technology) and Mitsubishi Corporation (marketing).

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