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A REVIEW OF INDONESIA'S NICKEL INDUSTRY FROM STRATEGIC MANAGEMENT PERSPECTIVE

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ABSTRACT

Indonesia is a country rich in natural resources, one of which is nickel. Downstreaming is a strategic step by the Indonesian government to add value and increase the value of nickel. Downstreaming practices provide a source of competitive advantage from a strategic management perspective. The study's results show that the Indonesian government is unprepared to implement nickel downstreaming practices, which are characterized by foreign countries dominance in smelter ownership. The study's findings also reveal that the Indonesian government's managerial ability to manage the nickel industry is not yet optimal, which has an impact on nickel oversupply and declining nickel prices due to environmental damage.

KEYWORDS: downstreaming, value addition, nickel.

INTRODUCTION

Indonesia is a country rich in natural resources, one of which is nickel. According to the United States Geological Survey (USGS) 2023), Indonesia's total nickel reserves are 55 million metric tons equivalent to 42.3% of the total global nickel reserves. According to the Indonesian Central Statistics Agency (2023), Indonesia's total nickel ore production volume reached 1.6 million metric tons contributing 48.49% of the world's total nickel production. These data explain Indonesia's strategic position in the world's nickel industry. Before the ban on nickel ore exports with a nickel content of 1.7% was issued, based on the Regulation of the Minister of Energy and Mineral Resources No. 11. In 2019, Indonesia was recorded as a nickel ore supplier with the highest total export volume reaching 64.8 million tons or equivalent to 1.6 billion US dollars and 90% of which was exported to China.

The International Energy Agency (2023) predicts that demand for nickel will increase 6-fold by 2040 due to the increasing use of renewable energy sources globally. As the largest nickel supplier in the world, this trend opens up opportunities for Indonesia to become a key player in the nickel industry. To increase the value of nickel, the Indonesian government encourages mining companies to expand into the downstream industry to produce semi-finished and finished nickel products (Magno &

Guzman, 2021). According to data from the United States Geological Survey (USGS) and the Geological Agency of the Ministry of Economy and Mineral Resources (ESDM), with downstreaming, the value of nickel exports has increased significantly from IDR 15 trillion to IDR 360 trillion.

Downstream strategy is a strategy commonly implemented by corporations whose business activities focus on the mining industry (Wheeler et al., 2019). It is a part of a vertical integration strategy that directs corporate development to business units concentrated in downstream activities. Downstream is the choice because lack of integration may result in poor performance of the supply chain (Azizah et al., 2023; Marinina et al., 2022). Several previous studies on downstream explain that there is an influence of downstream on company performance (Oloda & Felix, 2017; Rosenzweig et al., 2003). Conversely, downstream also has the potential to cause negative effects (Magno & Guzman., 2021) such as environmental damage (Agussalim et al., 2023; Naryono, 2023) and social conflict (Hudayana et al., 2020).

Several previous studies explain that the downstream nickel industry provides benefits to corporations. Other studies explain that downstream poses risks that need to be of concern to the government. This difference indicates a research gap, which is the topic of this study. This study seeks to explain the benefits and negative impacts of downstream activities in Indonesia.

LITERATURE REVIEW

Corporations grow vertically when multi-corporate businesses grow upstream (backward) and/or downstream. By expanding into upstream industries and expanding into downstream industries, corporations control every stage of activities in the supply chain and reduce their dependence on third parties. Every stage of activities in the supply chain from upstream and downstream is a source of value creation that adds to the final value of a product. According to several previous studies, vertical integration strategies, both backward and forward, have been shown to have a positive effect on corporate performance (Oloda & Felix, 2017; Rosenzweig et al., 2003).

Downstream nickel industry

When a company makes a decision to expand into downstream industries, the main factor that is taken into consideration is the economic benefits that the company will obtain. Previous research results suggest that many benefits are gained from downstream practices. For mining companies, downstream is a crucial strategy because it has the potential to increase value from extractive industry, particularly in countries with abundant natural resources, where processing minerals into intermediate or semi-finished goods locally is encouraged (Bam & De Bruyne, 2017; Rosenzweig et al., 2003; Wheeler et al., 2019). Expansion into downstream becomes a strategic choice because there is an influence of

downstream on corporate performance (Oloda & Felix, 2017; Rosenzweig et al., 2003; Wheeler et al., 2019) adding that downstream strategy becomes a corporate choice when the need for derivative products produced in the upstream industry shows a significant increase.

With the expansion into production activities, corporations carry out upstream activities (extractive activities) and downstream activities (production activities), meaning that corporations control activities in the supply chain (Frohlich & Westbrook, 2001; Nogueira et al., 2023). Company activities that were initially concentrated in extractive activities are increased to production activities, namely the transformation of raw materials into semi-finished products and/or finished products (Lazuardi et al., 2024; Magno & Guzman, 2021). From a strategic management perspective, controlling operations in the supply chain is a key to strategic growth, because it helps companies create efficiency in supply chain activities (Rosenzweig et al., 2003; Wheelen & Hunger, 2010).

Previous research results explain that it is the source of value that creates competitive advantage (Rosenzweig et al., 2003). By controlling the transformation activities of raw materials into semi-finished and finished materials, the corporation's dependence on external parties is reduced. By controlling activities in the supply chain, corporations reduce their dependence on third parties and increase the company's competitiveness (Guan & Rehme, 2012; Nogueira et al., 2023; Peyrefitte et al., 2002), improve the company's bargaining positioning (Ursino, 2015), and increase revenue (Guan & Rehme, 2012). Research by Nicovich & Dibrell (2007) in Guan & Rehme (2012) states that a company's position in the supply chain is the driving force to downstream strategy because position in the supply chain influences the company's functions and roles, required resources, added value, and competitive advantage. The various benefits obtained from downstream activities will have an impact on the increasingly strong position of the corporation in the supply chain. The further downstream a corporation's production activities are, the higher the added value obtained.

Research by Azizah et al (2023) states that downstreaming is important in creating an industrial improvement, including in terms of investment, strong production, and high added value. Research conducted by Agung & Waluyo Adi (2022) states that downstream will have a good impact on nickel prices, thereby attracting foreign investors. Furthermore, Adewuyi & Ademola Oyejide (2012) in Magno & Guzman (2021) explain that by expanding into the downstream industry, countries producing mining products provide extensive employment opportunities for the community. Activities in the smelter industry that process raw materials into semi-finished materials require a large number of workers who have the potential to improve the welfare of the community around mining activities. The research of Ramadhan & Muchtar (2023) explains that downstream can increase productivity, create jobs and improve product quality.

Countries rich in mineral natural resources need to ensure the feasibility of downstream activities and identify possible risks Magno & Guzman (2021), environmental damage (Agussalim et al., 2023; Naryono, 2023) and social conflict (Hudayana et al., 2020). For example, in Indonesia, downstream practices have resulted in environmental damage (Bidul & Widowaty, 2024; Peribadi et al., 2020; Syarifuddin, 2022). The large number of smelter processes in the downstream industry risks causing serious environmental problems such as the emergence of sludge and waste. oily waste that results in increased environmental pollution (Agussalim et al., 2023; Naryono, 2023). In addition, downstreaming has also caused social conflicts involving social communities in mining areas (Hudayana et al., 2020). In Indonesia, social conflicts also occur between large-scale miners and small-scale miners (Camba, 2021; Vance, 2006).

Downstream typical

Consideration towards downstream, its depth and breadth are important issues that are considered by corporations in downstreaming. According to Maleki & Cruz-Machado (2013), some of the advantages obtained by countries that control natural resources from downstream practices are factors that drive corporations to expand into downstream industries. There are several downstream typicals that need to be considered by corporations, (1) requires high investment. Investment in downstream industries will increase state revenues and reduce unemployment. The effectiveness of the downstream process is the key to strong investment so that a country is resilient in facing the dynamics of the trade economy and global conditions (Marpi, 2021); (2) using high technology. Downstreaming requires a country to be able to develop manufacturing and technology industries to maximize the potential of its natural resources through appropriate policies. This is intended so that a country does not experience a resource curse or a condition of failure for countries that have natural resource wealth to obtain benefits or utilize their natural resources optimally to meet the various needs of the nation and its people (Ciptaswara & Sulistiowati, 2022); (3) high risk. Upstream mining activities and downstream products risk increasing pollution levels and ecological contamination from toxic elements in the Danshui River, Changyang, West Hubei, Central China (Liu et al., 2021). Downstream activities in the mining industry also risk facing human rights issues (Islam et al., 2017). Another risk posed by downstream activities is the emergence of lawsuits from foreign countries. For example, Indonesia received a lawsuit from the European Union because of its decision to ban the export of raw nickel ore (Syafira et al., 2023); (4) high environmental problems - downstream coal mining activities in the Central Appalachian Mountains produce mining waste that damages aquatic life in many streams (Pond et al., 2008). Burial of upstream rivers by valley fills causes permanent loss of ecosystems that play an important role in ecological processes such as nutrient recycling and production of organic matter for downstream food webs. High levels of chemicals in domestic well water caused by mining activities have an impact on human health (Palmer et al., 2010).

RESEARCH METHOD

This research is a qualitative descriptive study that aims to find knowledge about the research subject at a certain time. The qualitative descriptive method attempts to describe all existing symptoms or conditions, namely the condition of symptoms according to what they are at the time the research was conducted. Through this method, researchers attempt to reveal downstream practices in the Indonesian nickel industry. The data collection method is carried out by data triangulation, namely a data collection technique that combines various existing data and sources (Sugiyono, 2016). Primary data was obtained by interview techniques with participants who have competence in the nickel industry.

ANALYSIS AND DISCUSSION

From several previous research results that have been presented in the background and literature review that have been presented in this study, it is that downstreaming is an effort to add value to nickel. To support these value adding activities, the government has issued a ban on nickel ore exports and encouraged domestic mining companies to process nickel ore into semi-finished materials or finished goods (Ika, 2017). After 40 years, Indonesia was known as the exported of raw material specialist, Indonesia decided to process its own nickel ore into semi-finished materials and derivative products. Expansion towards downstreaming is a strategic step by the Indonesian government in responding to the nickel industry market whose cycle is entering a growth phase marked by increasing demand for nickel ore and its derivatives. According to the projection of the Ministry of Industry (2022) as stated in the Regulation of the Minister of Industry No. 6 of 2022, the need for nickel for electric vehicle batteries in Indonesia in 2035 will reach 59,506 tons.

As the owner of the largest nickel ore reserves in the world, the increasing demand for nickel ore and its derivative products is an opportunity to increase Indonesia's bargaining position in the nickel industry (Guan & Rehme, 2012).

In accordance with the Nickel-Cobalt Mineral and Coal Master Plan (2021), the hierarchization of the nickel industry to increase value adding activities can be described as follows:

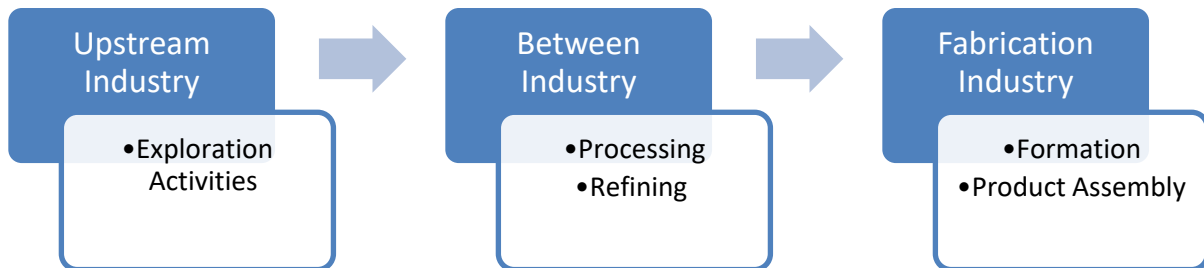


Figure 1. Downstreaming of Indonesia's Nickel Industry

Source: Nickel-Cobalt Mineral and Coal Master Plan, Draft Academic Manuscript (2017)

Figure 1. explains that by downstreaming the nickel industry, Indonesia increases its activities to the smelter or intermediate industry and continues to the fabrication industry, meaning that Indonesia takes over all activities in the nickel industry.

From a strategic management perspective, this step explains the corporate strategy of building vertically integrated corporate growth to dominate activities in the competitive supply chain (Guan & Rehme, 2012; Nogueira et al., 2023; Peyrefitte et al., 2002). By mastering activities in the supply chain, Indonesia is a corporation whose business units are diversified into nickel supplier business units and distributor business units, meaning that Indonesia has a strategic position in the nickel industry supply chain. In addition, entering the downstream industry will increase a country's capability in processing natural resources (Azizah et al., 2023).

The results of previous studies explain that downstreaming is a key factor in improving company performance (Magno & Guzman, 2021; Maleki & Cruz-Machado, 2013; Wheeler et al., 2019). By mastering the manufacturing industry, Indonesia guarantees the availability of buyers for processed nickel ore products produced by pyrometallurgical smelters such as Nickel Pig Iron, Ferronickel, Nickel Matte and buyers for processed nickel ore products produced by Hydrometallurgical smelters such as Mixed hydroxide precipitate which is then processed into Sulfate and Cobalt. Furthermore, by expanding into the manufacturing industry, the nickel industry in Indonesia can guarantee the availability of buyers (manufacturers) who process nickel ore derivatives Nickel Pig Iron, Ferronickel, Nickel Matte into stainless steel and the availability of buyers (manufacturers) who process nickel ore derivatives Sulfate and Cobalt into electric car batteries. This strategic position explains the guarantee of ensuring the availability of nickel ore (suppliers) to the smelter industry, namely 130 million tons per year for pyrometallurgical smelters and 54 million tons per year for hydrometallurgy. The guarantee of nickel ore availability is a strategic factor for investors considering the large investment

that has been invested to build pyrometallurgical and hydrometallurgical smelters so that there is a guarantee of the sustainability of activities in the smelter. This guarantee is a strategic factor that attracts investors to build nickel smelters in Indonesia.

From a strategic management perspective, each additional activity in the supply chain by a company explains the additional value of the product obtained by the corporation (Barney & Hesterly, 2014; Lazuardi et al., 2024; Wheelen & Hunger, 2010). Added by Frohlich & Westbrook (2001) that the higher the level of integration with suppliers and buyers in the supply chain, the higher the financial benefits obtained by the company. In addition, downstreaming is a way for companies to control product quality and increase nickel prices (Agung & Waluyo Adi, 2022; Nogueira et al., 2023). In addition. The increasing number of smelters in operation explains the large number of workers that will be absorbed which has the potential to increase the economy of the surrounding community (Ramadhan & Muchtar, 2023). In 2024, 116 nickel smelters have been operating with the potential to absorb workers.

Industrial readiness is a key factor in enabling the emergence of advantages from nickel downstream practices. The Indonesian government's unpreparedness in building a smelter is one example that forced Indonesia to involve China. As expressed by the Special Staff of the Minister of Energy and Mineral Resources for the Acceleration of Mineral and Coal Governance, Irwandy (2023) Participant 1 (P1) as follows:

"No half measures, even 90% of nickel downstream factories in Indonesia collaborate with China. If we look at nickel downstream, it is almost 100% RKEF (Rotary Kiln-Electric Furnace) which is a pure metallurgical process that produces Nickel Pig Iron and ferronickel, right? Well, what enters the smelters in cooperation is 90% from China,"

Dependence on China explains the government's unpreparedness to create a downstream program plan scheme, thereby reducing the strategic role of domestic mining actors so that the benefits obtained are received more by foreign countries. This explains that efforts to reduce Indonesia's dependence on other countries have not yet succeeded. In addition, the goal of downstreaming to increase the value of processed nickel ore products is still not fully under control. In 2023, the price of nickel showed a downward trend from 27,563 US dollars per tons to 16,366 US dollars.

The General Chairperson of the Indonesian Mining Experts Association (Perhapi) (Participant 2, said that:

"There is no long-term plan related to nickel products in Indonesia, for example pursuing investment, but not looking at future supply-demand conditions". "In addition, there is also the balance of nickel

with the number of industries built. The more smelters built, the greater the need for nickel ore. Meanwhile, nickel reserves are also limited"

The construction of the number of smelters in Indonesia which has reached 116 nickel smelters from the 30 planned smelters has resulted in an oversupply of nickel products derived from nickel ore which has an impact on decreasing nickel prices. This shows that managerial capabilities in managing the nickel industry are not yet optimal. From several previous research results, it is explained that downstreaming practices in addition, downstreaming has also caused social conflicts involving social communities in mining areas (Hudayana et al., 2020). In Indonesia, social conflicts also occur between large-scale miners and small-scale miners (Camba, 2021; Vance, 2006). According to the research results of Naryono (2023), the large number of smelter constructions has resulted in very serious environmental problems such as the emergence of oil and mud waste which causes environmental pollution, the seizure of areas managed by indigenous and local communities, and the use of coal as processing fuel.

CONCLUSION

Nickel downstreaming is an effort to add value to nickel which is expected to increase the value of nickel. Expansion towards downstreaming is a strategic step by the Indonesian government in responding to the nickel industry market whose cycle is entering a growth phase marked by increasing demand for nickel ore and its derivatives. From a strategic management perspective, each additional activity in the supply chain by a company explains the addition of product value obtained by the corporation. The results of the analysis explain the unpreparedness of the Indonesian government to enter the downstream industry, namely the intermediate industry and the fabrication industry. Immature smelter development planning has resulted in an increase in the number of smelters which has an impact on the soaring supply of processed nickel ore products which has resulted in declining nickel prices. The results of the study also explain that the Indonesian government's managerial ability to manage the nickel industry is not yet optimal, which has an impact on nickel oversupply and declining nickel prices. Several previous studies have explained that downstreaming practices also cause environmental damage and social conflict. This explains that downstreaming practices not only have a positive impact but also have a negative impact on the Indonesian economy.

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