

Optimization Of Steel And Its Derivatives Industry To Realize Independence Of Manufacturing Economy In The Framework Of National Security

Rizerius Eko Hadisancoko

Republic Indonesia Defense University

rizerius87@gmail.com



Abstract – The industrial sector as one of the drivers of the national economy has a strategic role in building economic independence, especially in the steel industry. The purpose of this study is to find out the problems in strategic industry management, namely the lack of capacity and utilization of production capacity in the upstream steel sector which causes the need for new investments with large values to build the Basic Steel industry, not yet optimal policies that support the entry of investment to build the basic steel industry and not yet optimal synergy between Ministries/Institutions in attracting investment in the national steel industry.

Keywords – irregular warfare, fourth generation warfare, hybrid warfare, defense, unconventional warfare

I. INTRODUCTION

As stated in the Preamble of the 1945 Constitution, Indonesia's national goal is to protect the entire Indonesian nation and all of Indonesia's bloodshed, promote public welfare, educate the nation's life, participate in carrying out world order based on freedom, eternal peace and social justice, which is our national interest. the essentials. So the strengthening and improvement of the national economy in various sectors is crucial to realizing the achievement of the National Goals to guarantee National Security which is very broad in nature.



Figure 1.1 Distribution of Iron Sand Reserves by Province in 2020

Indonesia, with its strategic position and abundant natural resources, in the midst of global dynamics which are full of competition, the possibility of economic expansion into Indonesia's territory for the sake of its national interests is open.

Therefore, Indonesia needs a reliable economic capability to face various threats in order to strengthen national security. Economic independence and its supporting elements need to be built to create sustainable national resilience. The industrial sector as one of the drivers of the national economy has a strategic role in building this economic independence. Dependence on imports to meet domestic demand for both raw materials, semi-finished materials and consumer goods on a large and massive scale is one of the threats in the economic sector that can disrupt national security.

The steel industry as the mother industry is an industry that has a strategic role in building national economic independence. The development of the steel industry is a benchmark in industrial development in a country. The steel industry is one of a number of local industries which until now have not been able to win the competition with imported products in the domestic market. Imports in the steel and petrochemical sectors, which dominate Indonesia's imports of auxiliary raw materials, show a high dependence on these products.

Currently, domestic producers only have basic steel (slab and billet) production capacity of 11.7 million tonnes out of the total domestic demand of 16.8 million tonnes.



Figure 1.2 Location Distribution of Ferrous Metal and Iron Alloy Metal Resources and Reserves

Domestic steel consumption is generally for the construction sector (60%), automotive (10%), machinery, etc. The national steel consumption will continue to increase as the national economy grows. In 2050, Indonesia will become the top 5 world economies and steel consumption in 2050 is estimated to be 100-150 million tons (from 16.8 million tons in 2020). Shortage of supply and increase in consumption of steel in the future need to be anticipated at this time. To anticipate the increase in steel consumption, new investment is needed to increase national steel capacity in order to meet domestic demand as well as increase the utility of the existing steel industry. Based on the Mineral and Coal Commodity (GSKM) Minerba Grand Strategy study, Apparent Steel Consumption in 2020 is around 15 million tons with production of 13 million tons (stainless steel + carbon steel). In a study by The Indonesian Iron & Steel Industry Association (IISIA) presented at the Focuss Group Discussion (FGD) of the Metal Industry Protection Program on 25 February 2021, in 2019 the national steel production capacity is actually greater than domestic consumption. However, production capacity utilization is only 32-66%, so production is not sufficient for domestic consumption. Meanwhile, in 2050 the national demand for steel will increase rapidly to 125 million tonnes (base case). In order to maintain the balance of supply and demand for national steel from the threat of imports, a strategic policy from the government is needed to realize the stability of the steel industry in the framework of manufacturing independence.

The government has provided several policies to develop the national steel industry, including providing investment incentives, subsidizing industrial gas prices, and controlling imports. Regarding the increase in the utilization of the domestic steel industry, the government has a policy of controlling steel imports and trade remedies for several types of steel. In addition, the Domestic Production Increase Program (P3DN) policy was also implemented to optimize domestic steel consumption. To increase the competitiveness of the domestic steel industry, the government has a policy of subsidizing industrial gas prices to reduce production costs. This policy began to have a positive impact on the development of the national steel industry. In the

midst of the Covid-19 pandemic, when the national economy was gradually recovering, the steel industry was able to grow by 18.03% in the first semester of 2021. In addition, the steel industry also recorded a surplus trade balance of USD 2.62 billion, or an increase of 1,383% from the previous semester. I 2020 (USD 0.177 Billion).

Based on the above matters, an in-depth study is needed to formulate strategic steps to optimize the potential of the Steel Industry and its Derivatives to Realize Manufacturing Economic Independence in the Context of National Security.

II. MAIN ISSUES

From the background mentioned above, in order to formulate important policy substances that can be used as recommendations to the government, by analyzing the substance of the problems in the management of national strategic industries which still face various obstacles as follows:

- a. The lack of capacity and utilization of production capacity in the upstream steel sector causes the need for new investments with large values to build the Basic Steel industry.
- b. Not yet optimal Policy that supports the entry of investment to build the basic steel industry.
- c. Not optimal synergy between Ministries/Institutions (K/L) in attracting steel industry investment.

III. PRE ASSUMPTION

- a. Indonesia has potential sources of raw materials for the steel industry in the form of iron, coal, nickel and other metal elements, but they have not been utilized optimally. Indonesia has proven reserves of 268 million tonnes of iron ore and an estimated 1.4 billion tonnes recorded in the 2020 Balance Sheet for Mineral, Coal and Geothermal Resources (PSDMBP). However, primary iron ore reserves that can be further processed commercially are difficult to find compared to sand. iron with relatively less reserves (0.8 billion tons). Coal in Indonesia is generally used as a fuel or energy source, in the steel production process coking coal is needed, which is currently still mostly obtained from imports. The steel industry is a capital-intensive sector. In order to make investment in the steel sector attractive to investors, it is necessary to have: More competitive incentives from competing countries, especially around ASEAN; Availability of demand data (market potential) of steel types (type of industry); Source of raw materials; and Investment location.



Figure 2.1 Iron Reserve Resources by Province in 2020

- b. The national steel industry has existed for a long time but until now it has not been able to meet national needs as a whole. Several policies, such as managing steel slag, are still unattractive to investors, considering that steel slag is a large amount of residual production. The new investment coming in at this time has not fully met the product specifications required by its users, especially in the automotive and machinery sectors. Most of the incoming new investment supports the construction sector.
- c. Government policy in developing the national steel industry has not been effective in achieving its goals because of differences in understanding between institutions (the steel industry as the mother of industry) regarding the goals of steel industry

development. Domestic market certainty is one of the attractions for investors. One of the strategies in market creation is the implementation of the Domestic Product Improvement Program (P3DN). Implementation of the program synergy of all ministries/institutions is needed. Intensive promotions can be carried out through Indonesian Representatives Abroad to attract investment from potential countries or carried out by Teams from the Center with very comprehensive Presentation material.

IV. RESEARCH RESULTS AND DISCUSSION

- a. The lack of capacity and utilization of production capacity in the upstream steel sector has led to the need for new investments with large values to develop the Basic Steel Industry. Industri baja menggunakan pasir besi dan bijih besi sebagai bahan baku. Baja terdiri dari 95% besi dan mangan, karbon, silikon, dan mineral lainnya (5%).
 - 1) Indonesia has many iron sand and iron ore resources, but they are spread out. Further exploration is often constrained by licensing and social issues. The resources of iron ore and iron sand are not yet economical to meet domestic needs, so the upstream steel industry which produces slabs and billets still uses imported iron ore or scrap.
 - 2) The largest potential primary iron resources are in Aceh, South Sulawesi, Central Sulawesi, North Sulawesi, North Maluku. However, the current status of these potential resources is that they are not proven reserves, so government support is still needed for further exploration activities. The national primary iron potential is still in the status of inferred, indicated and measured so it still needs further exploration to make it a proven reserve. Meanwhile, the biggest potential for iron sand is currently in Java with the accompanying minerals Titanium and Vanadium. The obstacle faced in processing the iron sand is the construction of a smelter which requires a large amount of energy and a large investment. In addition, the process for separating iron from associated materials in the form of titanium and vanadium is more expensive.
 - 3) In addition to iron ore and iron sand as the main raw materials in the production of steel, additional materials such as manganese, chrome and other alloy metals are also needed. Currently Manganese resources in Indonesia are quite large, but spread out. The biggest potential for Manganese resources in Indonesia is currently in East Nusa Tenggara with an amount of around 70% of the total manganese reserves in Indonesia. The manganese resource has good quality. In addition, Indonesia also has reserves of iron alloys scattered in several regions, for example ferronickel resources are currently widely spread in Sulawesi and Maluku. To process iron sand and iron ore resources, appropriate and economical technology is needed. Several technologies such as the Rotary Kiln-Submerged Arc Furnace (RKSAF) need to be investigated whether the technology is appropriate for processing the types of iron ore and iron sand in Indonesia. Apart from that, to deal with the Zero Carbon issue, it is also necessary to study the potential use of Hydrogen in the iron and steel production process.
 - 4) Reserves of primary iron are around 1.69 billion tons and iron sands of 941 million tons which are recorded in the 2020 PSDMBP Balance. When viewed from the development of needs, in 2035 it is estimated that there will be a shortage, to overcome this long term supply requires finding sources by utilizing iron sand reserves in Java Island needs to be explored.
 - 5) Currently, new investments in the intermediate and downstream steel sector are mostly construction steel. So that the demand for raw materials in the automotive, electronics, machinery, defense and security equipment sectors cannot be met by the domestic industry, so they must be met from imports.
 - 6) Imports are still quite high, on the other hand the utilization of the national steel industry is still low, except for plate and wire rod (carbon steel). The utilization is distorted by imported products.
 - b. Not yet optimal Policy that supports the entry of investment to build the basic steel industry.
 - 1) For stainless steel products, the competitiveness is quite strong. However, the raw materials of stainless steel, NPI and FeNi are widely exported. On the other hand, Indonesia is an exporter and importer of stainless steel. For example, based on a study by GSKM Minerba, the production of CRC SS is 600 thousand tons with details of 500 thousand tons for export, 100 thousand tons for domestic. Domestic consumption is 300 thousand tons, so that the 200 thousand ton shortfall actually comes from imports.
 - 2) Nationally, it is not sufficient for domestic needs. The national capacity is 11.7 million tonnes, out of a requirement of 16.8 million tonnes. New investment is needed to increase national steel capacity.

- 3) Domestic steel consumption is generally for the construction sector (60%), automotive (10%), machinery. National steel consumption will increase as the national economy grows. In 2050, Indonesia will become the top 5 world economies and steel consumption in 2050 is estimated to be 100-150 million tons in 2050 (from 16 million tons in 2020).
- 4) The automotive sector is one of the industries that increases the added value of steel products, and carries out a stage of local development to increase absorption of local components, including steel. Currently the automotive industry absorbs around 500 thousand tons of steel.
- 5) Policies related to the handling of production residues such as slag are still considered burdensome by potential investors and the existing steel industry.
- 6) Most of the new investments that have come in to support the construction sector have not been into special steel products that have a higher added value so that they have not been able to meet the needs of the industrial users.
 - c. Not optimal synergy between Ministries/Agencies in attracting steel industry investment.
- 1) Government policy in developing the national steel industry has not been effective in achieving its goals due to differences in understanding between institutions (the steel industry as the mother of industry) regarding the goals of steel industry development.
- 2) Government policy has not been able to link supply and demand.
- 3) There is no integrated policy to encourage capacity building and utilization of national production, development and utilization of technology, and development of human resources in the steel industry.

V. ANALYSIS

The steel industry is an industry that has a strategic role in building national economic independence. The raw material potential for iron ore and iron sand is spread all over Indonesia, but currently this potential is not yet feasible to be developed as a raw material for the steel industry.

- a. The national steel industry has existed for a long time but until now it has not been able to meet national needs as a whole.
 - a. The national steel industry has existed for a long time but until now it has not been able to meet national needs as a whole.
 - 1) Indonesia has pioneered the steel industry for more than 50 years but progress has not been as expected.
 - 2) Indonesia is only capable of producing carbon steel types and has not been able to produce alloy steel, except for alloy steel from the rolling process which uses imported alloy slab/billet raw materials.
 - 3) In the upstream sector there are 3 steel producers that produce slab raw materials for the downstream industry, namely PT. Krakatau Posco, PT. Gunung Raja Paksi and PT. Dexin Steel Indonesia with a total production capacity of 6 million tons per year.
 - 4) The need for national steel raw materials by looking at projected steel consumption in 2021 is around 16.8 million tons.
 - 5) A large investment is needed to meet the national demand for steel considering that the steel industry is a capital-intensive industry, so to attract investors, incentives and market certainty are needed in the country. In addition, the steel industry is an industry that requires a lot of energy, so a competitive supply of energy is needed so that the steel industry can be more competitive.
 - b. There are several rules related to the steel industry and its development that are still not in sync with the rules related to the development of the steel industry, including:
 - 1) Industrial laws and their derivative regulations; Environmental Law and its derivative regulations; Garbage Act and its derivative regulations; Trade law and its derivative regulations; Labor law and its derivative regulations; Minerba Law and its derivative regulations; Derivatives of the Omnibus Law in the form of Government Regulations and regulations under it for

each Ministry/Institution are not yet synchronized, so it is necessary to increase coordination between Ministries/Institutions. Provisions for steel imports must be evaluated so that supply-demand balance is maintained. Import control is expected to increase the utilization rate of the domestic steel industry while also guaranteeing the raw needs of the industrial users.

- 2) The government already has fiscal incentives to attract domestic and foreign investors, such as tax holidays and tax allowances. There is also a policy regarding mineral benchmark prices and other policies to attract investment. It has been proven that many NPI and FeNi factory investments have entered Indonesia. In the future, the government needs to be more selective in accepting/granting investment permits for this downstream steel. Investments built must be in accordance with the needs of the domestic industry and can support other industrial chains.

VI. CONCLUSION

- a. At present the steel industry has received income tax facilities (tax allowance), through 2 Indonesian Business Field Standard Classifications (KBLI), including the basic steel industry and steel mills and there are 6 (KBLI) which have received a tax holiday.
- b. In terms of import protection, the Government has a policy to control steel imports and trade remedies for several types of steel. The application of trade remedies must consider the availability of domestic raw materials and the competitiveness of the industrial users. In addition, the P3DN policy is also implemented to optimize domestic steel consumption.
- c. Policies for the development of the steel industry require inter-ministerial synergy. The government must have a roadmap that takes into account the latest developments, and targets capacity building and utilization so that the national steel industry has economic and financial feasibility and can develop to support the development of other sectors in Indonesia.
- d. New investment in the steel sector must consider the production capacity of the existing steel industry in each type of product from upstream to downstream, so that the new investment does not cause over supply and reduce the utility level of the industry that has been built.
- e. A harmonized policy is needed in the investment sector so that it can become an attraction for potential investors. For example, the problem of steel slag requires a policy that can be a solution in handling it, considering that the amount produced in the production stage is quite large.
- f. There is no policy on the development of steel products for the defense and security sector. To develop towards Alpal and defense and security defense equipment, political will is needed from the government.

RECOMMENDATION

The need for government support for new industries for the steel industry, in the form of incentives and market security.

- a. The synergy of all Ministries/Institutions is needed in implementing P3DN, so that its application can be optimal and can increase the utilization rate of the domestic steel industry.
- b. The government needs to draw up a Road Map for capacity development and utilization of the steel industry.
- c. The need for government policies to improve the industrial climate and stability of production capacity so as not to over supply and damage industrial utilization that has been built and the need for government policies on steel products for the defense and security sector.

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