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Role of PT PINDAD in Supporting the Defense Industry of the Ministry of Defense

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***Abstract*: The national defense industry is an integrated part of strategic planning for the management of national resources for national defense and security. The ability of the defense industry to contribute to the macro economy in providing employment and providing foreign exchange. In addition, optimizing the ability of PT PINDAD is to meet the needs of the army defense equipment in order to achieve the MEF in 2024, and the second goal is to achieve independence in the procurement of TNI defense equipment in 2029. This research will discuss how role of PT PINDAD in supporting the defense industry of the Ministry of Defense. This research will use a case study qualitative research method. The results showed that the government has carried out various optimizations of industrial capacity by mastery of technology obtained from internal and external sources. In addition, policies to optimize the capability of the defense industry must be directed towards realizing a strong, independent and competitive defense industry that can support national defense and defense, as well as support the development of national economic growth.**

***Keywords*: army defense security services, defense industry, optimization.**

1. Introduction

According to the Regulation of the Minister of Defense of the Republic of Indonesia Number 19 of 2012 concerning the Policy for Alignment of the Minimum Essential Force (MEF) of the Main Components, MEF is a strategy for developing the strength of the Main Component towards the ideal and is not directed at the concept of an arms race or as a development strategy. MEF program is also not only focused on developing defense equipment through procurement, but also through empowering the national defense industry in order to build the independence of the defense industry.

MEF is divided into 3 stages, namely MEF I in 2010-2014 which was achieved cumulatively by 54.80%, MEF II 2015-2019 which was achieved cumulatively by 62.58%, MEF III in 2020-2024 is still ongoing, and MEF IV 2025-2029 (defense force development). Indonesian National Armed Forces Commander General Andika Perkasa conveyed that the Indonesian National Armed Forces' MEF achievements during 2021, namely Indonesian Army at 76.23 percent, Indonesian Navy 59.69 percent, and Indonesian Air Force 51.01 percent. Overall, the TNI's MEF in 2021 is 62.31 percent [1].

In MEF III, the defense industry has focused on developing and enhancing international cooperation. Meanwhile, in MEF IV, the independence of the defense industry must be achieved. The purpose of strengthening the defense industry is to meet the needs of the Indonesian National Armed Forces' defense equipment in order to achieve the MEF in 2024, and the second goal is to achieve independence in the procurement of the Indonesian National Armed Forces' defense equipment and the development of defense forces in 2029.

According to Law Number 16 of 2012 concerning the Defense Industry, the defense industry is defined as a national industry consisting of state-owned enterprises and privately-owned enterprises, either independently or in groups determined by the government in part or in whole. produce defense equipment, maintenance services to fulfill strategic interests in the field of defense and security in the territory of the Republic of Indonesia.

The national defense industry is an integrated part of strategic planning for the management of national resources for the benefit of national defense and security. The effectiveness of national defense is also determined by the ability of the national industry to meet the needs for the procurement and maintenance of defense equipment independently. The domestic defense industry must be developed so that the state is able to produce its own defense equipment without relying on or even being controlled by other countries.

Countries that have an established defense industry are considered to have a strategic advantage in the global order. Technological capabilities and the defense industry are subject to political control that affects relations with foreign parties through the export and transfer of weapons technology for defense purposes [2]. Therefore, the defense industry is one of the benchmarks for developing a defense system independently, to meet the quality and quantity of defense equipment in accordance with regional characteristics and potential threats faced, as well as to build a deterrence effect on other countries. However, the development of the defense industry to support the achievement of MEF is faced with several obstacles, namely the lack of funding, procurement cooperation with other countries that is not profitable for the Government of Indonesia,

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and the problem of transparency in the procurement of defense equipment.

Optimization of the defense industry is urgently needed to support the achievement of MEF, so the commitment of the Government of Indonesia is very much needed. The government's commitment has been seen in addition to the formation of the Defense Industry Policy Committee with the support of roles as designers, supporters, investors, regulators, and at the same time as customers. Currently, the defense industry is still more focused on developing tangible defense technology for land, sea and air defense equipment, but in the future it is necessary to develop other capabilities such as software engineering for software-oriented system requirements.

According to the Defense Industry Policy Committee, at this time the optimization of the national defense industry itself is still below 75% so that achievements in MEF development must continue to be optimized. The current capability of the defense industry is not yet optimal in fulfilling the Indonesian National Armed Forces' defense equipment. Thus, this study will discuss "how to optimize the equipment and security of the Indonesian Army?"

2. Theoretical Framework

To answer the research questions above, the author uses optimization theory, defense industry concepts, independence theory, and defense theory.

A. Optimization Theory

Optimization is also interpreted as a measure where all needs can be met from the activities carried out. There are 3 elements of optimization problems that must be identified [3], namely: a) Goals that can be in the form of maximization or minimization; b) Alternative decisions which are activities or activities carried out to achieve goals; c) Limited resources are sacrifices that must be made to achieve the stated goals.

B. The Defense Industry Concept

The development of the strategic defense industry cannot be separated from the provisions, principles, and general principles that apply in the business sector. The concept of the Defense Industry has principles including, high profit potential, high added value, intensive research and development, utilization of high technology, and substantial dependence [4].

C. The Theory of Independence

In the theory of independence, the Autarky Model is an ideal model for obtaining defense independence. To be able to implement this model, Indonesia must implement four strategies [5], namely as follows: a) Formulate a long-term defense strategic plan; b) Establish a long-term budgetary political commitment to ensure the sustainability of the defense industry development program; c) Consolidating the national defense industry by establishing two strategic consortiums; and d) Initiating defense industry alliances at regional and global levels.

D. Defense Theory

Defense science is broader than the art and science of war or the science of war and strategy, but defense science is a science that studies how a country manages its national resources and power in times of peace, war, and after war [6]. This is done to deal with threats from outside and within the country, in the form of military and non-military threats to territorial integrity, state sovereignty, and national safety in the context of realizing national defense and security.

3. Research Methods

This research will use case study qualitative research method. Qualitative research is research that focuses on exploring and understanding data in depth [7]. This study will describe more deeply about optimizing the ability of PT PINDAD in supporting the development of the Indonesian Army defense force with data obtained through several data collection techniques. The data collection techniques used in this study were divided into three, namely observation, interviews, and documentation studies [8]. Data collection is a series of interrelated activities to collect information that will later be used in answering research questions [9]. Furthermore, the data analysis technique used in this study uses the Miles, Hubberman, and Saldana technique [10], which consists of data collection, data condensation, data presentation, and conclusion drawing.

4. Result and Discussion

Indonesian National Armed Forces has several strategies in preparing defense and security equipment, namely as follows:

- Rematerialization, namely compliance towards 100% Organizational Table and Equipment or List of Personnel and Equipment Composition of Indonesian National Armed Forces units through gradual development.
- Revitalization, namely increasing unit strata /thickening units or material levels above it, which is adjusted to the development of threats in the area.
- Procurement, namely the development/development of the Indonesian National Armed Forces organization as well as the implementation of procurement carried out in order to meet the needs for the development of new units, organizations, personnel and defense equipment through a priority and urgent system in border areas and vulnerable areas, in order to support development.
- Implementation of maintenance of strategic defense equipment based on Life Cycle Cost (LCC).
- Elimination of the Indonesian National Armed Forces' equipment which can no longer be operationalized and modernized.

Optimizing the capabilities of the national defense industry, one of which is PT PINDAD is one of the strategies in planning the development of the Indonesian Army's strength. The determination of defense and security equipment from within the country is related to the needs of the Indonesian Army as an

end user and the maintenance that must be carried out. Selection of PT PINDAD as the main defense industry supplier of defense and security equipment for the Indonesian Army is not only based on supporting the independence of the defense industry. However, by using the products produced by PT PINDAD is considered more in line with what is needed and desired by the Indonesian Army.

The strategic target for the independence of the Defense Industry is set to continue to increase in each period with the final target of achieving a level of independence of 80% in the period 2040-2045. The increase is determined in line with the increase in the ability of the domestic defense industry to conduct research and development, increase the competence of human resources and transfer technology, as well as fulfill funding. PT PINDAD as one of the lead integrators also continues to conduct research and development, increase human resource capacity and transfer technology, as well as fulfill funding.

According to Sidik (2001), there are 3 elements of optimization problems that must be identified, namely:

- Goal: the goal is in the form of maximizing the ability of PT PINDAD because it relates to profits and the achievement of MEF target in 2024. Optimizing the ability of PT PINDAD also aims to build the independence of the defense industry to build defense and security equipment in accordance with the needs of the Indonesian National Armed Forces.
- Alternative Decision: Optimizing the ability of PT PINDAD is faced with limited human resources and technology. The strategy adopted is to link and match the needs of the defense industry; aligning the focus of higher education studies and research for the needs of the defense industry; human resources recruitment incentives; sending human resources to attend education and training abroad; and awards for superior human resources and defense industry products. Meanwhile, strategies to overcome technological limitations are through joint development, joint production, joint ventures, and offset mechanisms.
- Limited Resources: An intervention is needed, namely the optimization of the defense industry to support this target. Internal intervention can be done through training and collaboration or technology transfer. Meanwhile, external intervention has been carried out by establishing the Defense Industry Policy Committee and distributing lead integrators as an effort to increase the ability of PT PINDAD. Optimizing the ability of PT PINDAD is carried out for the procurement of defense and security equipment. Procurement of defense and security equipment is the development, establishment, or development of the Indonesian National Armed Forces organization as well as the implementation of procurement carried out in order to meet the needs for the development of new units, organizations, personnel and defense equipment through a priority and urgent system in border areas and vulnerable areas, in order to support the development of the Indonesian National Armed Forces' Minimum Basic Strengths so that they are able to realize high deterrent effect.

The development of the strategic defense industry cannot be separated from the provisions and general principles that apply in the business sector. The concept of the Defense Industry has the previously mentioned principles. From the aspect of high profit potential, like a defense industry, PT PINDAD also has resources that will not only be used for defense purposes, but also for commercial purposes to fulfill community needs (dual use). In its journey as a defense industry, PT PINDAD has developed a non-military business and is currently expanding its line of business to various general industrial sectors to participate in supporting the manufacture and supply of industrial equipment in the form of heavy equipment and machinery, transportation, electricity, and agricultural machinery services.

The second principle is high added value, in which the strategic defense industry must carry out business innovations that are able to expand the market which includes the global weapons market. This can be done through the development of modern strategic equipment and equipment that has a competitive advantage. This is supported by a strategic production policy focused on efforts to encourage PT PINDAD in order to have sufficient competence, capacity and capability, achieve high efficiency, high level of production security, increase production capacity according to the target of increasing export realization, and good product quality to be used in order to meet the needs of the domestic defense and security agency and be empowered global competitiveness.

The government also makes regulations to strengthen the component, supporting and raw material industries to support the production of defense and security equipment carried out by PT PINDAD. In the 2020-2024 period, policies are directed at strengthening the raw material (tier-4), supporting (tier-3), and supporting (tier-2) industries. Strength in these industries is directed at increasing global competitiveness and local content in order to obtain a high domestic component level. The strengthening of tier-2, tier-3, and tier-4 aims to increase global competitiveness so that they can be involved in the global supply chain and are able to support the main tool industry or lead integrator (tier-1) in producing products with global competitiveness. High added value is also influenced by investment opportunities while still taking into account aspects of state sovereignty. With the investment, it is hoped that PT PINDAD will be more efficient and able to compete globally. In addition, another advantage is the opportunity to carry out greater research and development on defense equipment. Investment funds will also affect the absorption of labor which will provide a multiplier effect for the national economy.

The third principle is intensive research and development, where the mastery of increasingly sophisticated technology will be directly proportional to the modernity of the defense equipment owned by a country. The moderation of this defense equipment will determine the comparative advantage of a country's military. Therefore, the implications of the

technological revolution on the defense industry require continuous research and development of weapons technology. Mastery of technology is carried out through various schemes including technology research and development, technology transfer, offset, joint development, and joint production. Mastery of technology can be obtained from internal sources (domestic) through research and development and external sources (overseas). On internal sources, R & D is carried out by synergizing national research resources, such as R & D institutions, universities, research and development institutions, both government and private institutions, Defense Industry players, as well as Indonesian National Armed Forces, Indonesian Police, and government institutions related as users.

The fourth principle is the use of high technology, where the progress of a defense industry will depend heavily on mastery of technology. With the use of information technology to automate the production process in each industry player, the integration of all defense industry players through the digitization process towards the industrial 4.0 concept becomes easier. Through the concept of clustering and industry 4.0, higher efficiency is obtained on an industrial scale, so as to create the competitiveness of defense industry products. Mastery of technology through technology transfer or offset mechanism has been regulated by the government by setting criteria for countries that are allowed to cooperate. However, in this principle the ability of the defense industry itself is still constrained by the quality of technology which is still low and less applicable. In addition, it is still difficult to obtain core technology, there is no technology transfer plan that is integrated with the direction of the need for mastery of defense and security equipment. In addition, the cost of offset has not yet been regulated.

The fifth principle is to have substantial dependability. The defense strategic industry is a subsystem of the entire national strategic industrial system, therefore the defense industry has vertical linkages with other strategic industries. Thus, PT PINDAD as a defense industry will have a maximum capacity if its basic industrial base is well managed. If the basic industry cannot meet the production needs of the strategic defense industry, then goods will be imported and this will result in high costs. Related to this, there is the concept of industrial grouping or industrial clusters, where this approach can increase the strength of the national industry in the form of interdependence, linkages, and mutual support between upstream industries, downstream industries, supporting industries, and related industries in one industrial group.

This can assist in reducing the dependence of the strategic defense industry sector on imports of capital goods, raw materials, components and spare parts. It has been done by the government by grouping the defense industry and government capital ownership in which PT PINDAD was appointed as the lead integrator of the main equipment industry of defense and security equipment which as a whole covers the land dimension where the government's capital ownership in the lead integrator is 100%. The defense industry clustering is to provide a direction of development that must be carried out by the industry in order to realize the planned level of industrial capability.

According to Syambada (2012), of the three existing models, the Autarky Model is the ideal model for optimizing defense independence. To be able to apply the model, Indonesia must implement four strategies, namely as follows:

- Formulate a long-term defense strategic plan. This strategic plan must be able to describe three main plans, namely the evolution of Indonesia's military strength which not only describes the target of fulfilling a Minimum Defense Force of 2029, but also a plan to develop a defense posture until 2050, the Blueprint for Revitalizing the Defense Industry which contains the General Policy for the Development of the Defense Industry, Revitalization Strategy Defense Industry 2024, and Defense Industry Independence Work Program 2050.
- Establish a long-term budgetary political commitment to ensure the sustainable development of the defense industry. In 2022, the Ministry of Defense will receive a APBN budget allocation of Rp. 133.9 trillion.
- Consolidating the national defense industry. PT PINDAD itself has developed a consortium for technology and defense development in collaboration with the National Research Council supported by the Directorate General of Strengthening Innovation, Ministry of Research, Technology and Higher Education. In addition, PT PINDAD is also a member of the National Rocket Consortium, participating in the implementation of the dynamic test of 2 R-Han 122B rockets that have been improved.
- Pioneering defense industry alliances at regional and global levels. In 2016, PT LEN, PT PAL, PT DI, PT PINDAD, and PT Dahana participated in the 14th Balt Military Expo in Poland. However, at the time this research was conducted, Indonesia did not yet have a defense industry alliance with other countries.

Optimizing the ability of PT PINDAD will support the achievement of strength development in national defense efforts. This is done to deal with threats from outside and within the country, in the form of military and non-military threats to territorial integrity, state sovereignty, and national safety in the context of realizing national defense and security. Optimizing the capability of the defense industry to support the development of defense forces is one of the efforts of the Indonesian government to manage its national resources and strength. The ability of the defense industry in 2024 to be able to provide the need for defense equipment to support defense capabilities that have deterrence against all neighboring countries' powers is a target that must be achieved. This is because national defense is structured in a universal defense system in order to achieve national goals. Universal defense is essentially a defense that involves all citizens according to their roles and functions, including the defense industry.

5. Conclusion

Optimization of PT PINDAD is carried out not only for

financial gain, but also to support the independence of the defense industry so that it does not depend on foreign defense industries. The government also conducts a clustering of defense industries to provide development directions that must be carried out by the industry in order to realize the planned level of industrial capability, including PT PINDAD. The policy of optimizing the ability of PT PINDAD must be directed to create a strong, independent and competitive defense industry that can support national defense and security, as well as support the development of national economic growth.

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