

Integrated Structure in the Defense Industry Sector

Hanri Jan Piter¹ Yudi Sutrasna² Guntur Eko Saputro³

¹Defence Economics Indonesia, Defenese University Indonesia

²Defence Economics Indonesia, Defenese University Indonesia

³Defence Economics Indonesia, Defenese University Indonesia

Abstract: Currently, Indonesia is at the lowest position compared to other ASEAN member countries, but Indonesia's defense forces are in a condition of "insufficient capacity". The low ability to implement new defense technology means that most of the military equipment is outdated and is on average over 20 years old. The author argues that it is important to design scientific research as an integrated structure in the defense industry sector. The author uses a qualitative descriptive method with a literature study approach. The dynamics of the defense industry market, the dynamics of the defense equipment trade between countries continues to change, from one that only focuses on the interests of security and the strength of the state itself to become one of the sectors that generate increased economic benefits. Globalization is filled with neoliberal agendas with pillars such as privatization, free market fundamentalism, and national roles that have minimal impact on various strategic industries in various countries, including the defense industry. Efforts to make Indonesia developed and independent in terms of industrialization and technology are carried out in several stages: Skill acquisition level, Technology integration level, Technology development phase, Basic research implementation phase and technology acquisition.

Keywords: Defense Industry, Defense Industry Independence

I. INTRODUCTION

National defense is an effort to realize a unified national defense in order to achieve national goals, that is, to protect the entire Indonesian nation and homeland, advance the public interest, educate the nation's life, and participate in implementing independence, eternal peace, and world order based on social justice. The National Defense System is a universal defense system that includes the resources of all citizens, territories, and other nations, and is fully prepared and integrated by the government from an early age to maintain the sovereignty and territorial integrity of the country. implemented continuously, and national security from all threats. As a defense measure for the unitary state of the Republic of Indonesia, the TNI carries out state defense policies to maintain state sovereignty, maintain territorial integrity, protect national security and carry out military operations. For war and non-war military operations, as well as active participation in regional peacekeeping operations. In other words, the TNI is also a means of defending the country and the nation and supporting Indonesia's international diplomacy. Therefore, the development of the TNI's strength is a must and a necessity. The TNI is the main component of national defense in dealing with threats and disturbances of a military nature, both from abroad and within the country. As the main component of national defense, the TNI is supported by reserve components and components that support national defense. At this time, Indonesia's defense forces are in a condition of "under capacity", even if compared to fellow ASEAN member countries, Indonesia is in the lowest position. The low ability to apply new technology in the field of defense causes most of the military equipment owned is outdated and outdated with an average age of more than 20 years. Data for 2005 shows that the ground forces, various types of combat vehicles totaling 1,766 units, only 1,077 units (60.99 percent) are ready for operation; motor vehicles of various types, which totaled 47,097 units, which were ready to operate as many as 40,063 units (85.04 percent); and aircraft of various types, which amounted to 61

units, only 31 units (50.82 percent) were ready to be operated. While the strength of the marine dimension, warships (KRI) which numbered 114 units, only 61 units (53.51 percent) were ready to be operated; Marine combat vehicles of various types totaling 435 units, which are ready to operate only 157 units (36.09 percent); and aircraft, which totaled 54 units, only 17 units (31.48 percent) were ready to be operated. As for the strength of the air dimension, there are 259 aircraft of various types, only 126 units (48.65 percent) are ready to be operated and 16 units of radar equipment, only 3 units (18.75 percent) are ready to be operated. Due to the vast territory of land, sea and air, it is impossible to maintain the territorial integrity optimally with the quantity, quality and readiness of defense equipment (defense equipment). On the other hand, the defense budget only reached 1.1% of GDP, or 5.7% of the state budget of revenues and expenditures. On the other hand, as an archipelagic country, Singapore has allocated a defense budget of 5.2% of GDP, or 21% of the national budget for revenues and expenditures. The ideal requirement for the next five years is that the defense development budget reaches 3-4 percent of GDP. This small defense budget made it very difficult to carry out efforts to increase the Wehrmacht's capabilities. Diplomacy, on the other hand, requires adequate defense support to a considerable degree in the struggle for national interests. Unfortunately, between 1999 and 2005, Indonesia returned, following mass talks in August 1999, in the form of an embargo of US troops against accusations and perceptions that Indonesian troops committed human rights violations in East Timor, I was sanctioned. In this regard, the implementation of Indonesia's defense forces, especially the TNI-Alusista, faces obstacles considering that Indonesia still relies heavily on military power with foreign countries, especially the United States. Based on the situation above, the challenge of national development going forward is to meet the needs of defense equipment in order to increase the defense force to a minimum of the army. The next challenge is defense equipment that is ready to use minimal force to reduce various defense threats that arise from the state, both in the form of traditional and non-traditional threats, namely increasing their number and status. In this context, it is time for the development of the defense industry in the context of defense equipment to be discussed and practiced to achieve national independence without relying on foreign parties. Problem Formulation Departing from the objective reality of the problem, this paper wants to highlight the defense industry in relation to structure and integration in the context of the national defense system. The important questions that will be answered in this paper are: (1). What is the defense industry? (2). The market concept in the Defense Industry structure requires the support and participation of the national strategic industry? (3). How can strategic industries be utilized for the integration of the defense industry in the context of the national defense system? (4). What steps should be taken in developing the defense industry?

II. THEORY BASIS

1. Defense Industry Definition

In accordance with Law No. 16 of 2012 article 1 paragraph 1 Defense Industry is a national industry consisting of state-owned enterprises and private-owned enterprises either individually or in groups determined by the government to partially or wholly produce defense and security equipment, maintenance services to fulfill strategic interests in the field of defense and security located in the territory of the Unitary State of the Republic of Indonesia. The Indonesian defense industry is now a defense industry (national and private), and products including maintenance and repair services that the government considers can be used individually or in groups for defense purposes. The defense industry, also known as the military industry, consists of government and commercial industries involved in the research, development, production, and maintenance of military equipment and facilities. The essence of the defense industry is part of the national industrial order, with the ability or potential to be developed or developed to produce products, especially in the form of defense equipment, equipment and supplies, management/support or logistics services. Profit. Determine the implementation of national defense.

2. Market Concepts in the Defense Industry

Building a master plan for the defense industry and a roadmap for the defense industry is an issue that must be resolved in the coming years in line with the increasing importance of the role of the defense industry in

realizing national security. The dynamics of the defense industry market, the dynamics of the defense equipment trade between countries are constantly changing, from one that only focuses on the interests of security and the strength of the state itself to become one of the sectors that gain increasing economic benefits. Globalization is filled with a neoliberal agenda with its pillars, including privatization, free market fundamentalism, and the role of the state in minimizing its impact on various strategic industries in various countries, including the defense industry. Poor control, efficiency, and attention to corrupt behavior in SOEs are increasingly pressing the position of the defense industry to meet the demands of the neoliberal agenda. These agendas will lead to better development of the defense industry in terms of economic opportunities and political freedom. However, not all problems in the arms industry can be solved simply by subjecting to market mechanisms for further privatization as a limitation on the role of the state. It should be understood that the defense industry is not an industry that can only be seen from an economic aspect, but also a strategic industry with a special character related to state security and sovereignty. In accordance with the Regulation of the President of the Republic of Indonesia Number 59 of 2013 in article 4 regarding the duties and authorities of KKIP point: (c). coordinate the implementation and control of the national policy of the Defense Industry; (e). coordinate foreign cooperation in the context of advancing and developing the Defense Industry; (f). synchronize the determination of the need for Defense and Security Equipment Tools between Users and the Defense Industry; (i). formulate a mechanism for the sale and purchase of Defense and Security Equipment Tools resulting from the Defense Industry to and from abroad.

III. DISCUSSION

1. Defense Industry Status

Contextually, the defense industry is the process of producing and developing various goods/equipment related to defense aspects, particularly the military, such as defense equipment (Tank, Helicopter, Aircraft, Warship, Submarine, etc.) and other supporting equipment. The purpose of building the weapons industry is to meet the country's defense needs in such a way that if the country concerned is subject to international sanctions in the form of military sanctions, it does not have to depend on supplies from other countries. The prerequisite for building a defense industry is the ability to have reliable human resources, potential natural resources, and strong artificial resources. Basic knowledge of science and technology is absolutely necessary for the success of the defense industry. If you want to further develop the weapons industry, a large budget is essential to fund the weapons industry. The benefit of developing the defense industry is the flexibility to manufacture defense equipment according to the needs, capabilities, local conditions, and the nature of threats that threaten state sovereignty. Affected countries do not have to bother buying military equipment from other countries. This is a time-consuming and expensive process and often involves certain political conditions.

2. Strategic Industry as Support

In accordance with the Government's policy as outlined in the Presidential Decree No. 59/1983 and No. 50/1986, strategic industries are grouped in the Strategic Industry Management Agency (BPIS), which is a government agency in the field of capacity building and mastery of science and technology by implementing a strategy of mastering technology in their respective fields in the context of industrializing Indonesia. Indonesia's industrialization strategy is implemented by implementing the transformation of the TNI's main tools in order to make the Indonesian nation strong and independent in efforts to implement state defense and security, in transforming the Indonesian nation into an advanced and independent nation in the aspect of industrialization and technology, carried out through four stages/ namely: (a). Technology Mastery Stage. (b). Technology Integration Stage. (c). Technology Development Phase. (d). Basic Research Implementation Phase and Technology Mastery. In addition, the Presidential Decree of the Republic of Indonesia No. 40 of 1999 concerning the Industrial Board of Trustees. The Executive Order needs to improve the function and composition of the Board of Auditors of Strategic Industry Companies (hereinafter referred to as the Executive Order Board) in order to establish a strategy for the promotion and long-term development of the strategic

industry. It states. The role of the board is to support the development of strategic industries by creating a favorable business environment and coordinating guidelines between the technical sector and other government agencies for the long-term development of strategic industries, and to assist the President in setting guidelines for development. In carrying out its mission, the Council determines the fields and types of industries that are classified as strategic industries and monitors the development of the role of these strategic industries in national development. The existence of the existing domestic strategic industry is not enough to produce sufficient defense equipment to meet defense and security needs, but the TNI's defense equipment needs are very large. The strategic industry which is one of the components of the defense system must be organized with the aim of making maximum efforts to realize defense. Some of the existing strategic industries that have taken advantage of advances in science and technology and have the potential to be developed towards the defense industry, among others:

1. PT. DI (Dirgantara Indonesia), The airborne vehicle industry and weapon systems (rockets and torpedoes) produced by PT.DI are carried out through a development license, having a mission as a center of excellence in aerospace technology. In stage 1, mastery of technology begins with producing on the basis of (NC-212 and NBO-105 licenses, then expanded with NBELL 421, NAS-332. In stage II, technology integration is carried out in collaboration with a business partner from Spain, CASA, in making CN-235. All of them can be used for both civil/commercial and military purposes. In the context of development, cooperation has been carried out, among others with: (a) MBB and BOEING in the context of making ATRA 90 (Advanced Technology Regional Air-craft) aircraft, namely aircraft passenger technology of the 21st century. (b) With MBB for the design and development of the BN-109 Helicopter for the civilian military version. (c) With General Dynamic for "offset" the manufacture of certain components of the F-16 Fighting Falcon aircraft. (d) For the sub contact components Boeing-737, 767. PT.DI has also succeeded in penetrating the international market by exporting aircraft to Thailand, Guam and Malaysia. technology) has been developed N-250, a commuter aircraft with a capacity of 50-60 passengers and a range of 300-400 Km which has entered the domestic and world markets in 1999 (20 years of the establishment of PT. IN). In addition to the above, PT. DI has the ability to manufacture equipment: (a) Rocket from air to ground, from air to air and from ground to air caliber 700 mm FFAR. (b) Missile launcher chassis and Rapier missile farelage. (c) Producing Electronic Merriam and Radar Spare Parts.
2. PT. PINDAD, Is a small arms and ammunition industry as well as machine tools with a mission as a center of excellence in weapons and ammunition technology. Currently making 5.56 caliber light rifles with a Belgian FNC-FN Herstal license which is modified to suit the TNI's posture with the code SS-1, with a production capacity of 20,000 pieces per year. Ammunition production is carried out in Turen, East Java, covering various calibers, namely 5.56 mm (M 193 and SS-109), 9 mm 30 inch Polri, 7.62 mm and 12.7 mm with a total capacity of more than 50 million rounds per year. , per shift and manufacture of hand grenades, mortar grenades (60 mm, 81 mm and 120 mm) and explosives. Has an explosives filling facility with a capacity of 600 tons per year per shift. In order to support the independence of state defense efforts, PT. PINDAD will produce various other defense equipment, such as tactical motor vehicles (Rantis) and light combat vehicles (Ranpur) and MKB (Large Caliber Munitions). On the other hand, PT PINDAD has produced non-military goods, including brake systems for trains (Knorr license), Rail Fasteners (Holandia Kloos license), Electric Generators (Siemens license) and machine tools with a license from Taiwan. PT. PINDAD has been able to meet the needs of providing TNI combat equipment and exporting ammunition of various calibers to various countries. Other capabilities possessed are designing and building TNI's main tools, starting with designing the Dakhura ammunition in 1990 and having been produced in 1992, the Polri Revolver which was started to be produced and handed over to the Polri in 1994 in collaboration with BPIS, BBPT, Dislitbang Forces/ Police and other relevant agencies.
3. PT. DAHANA, In accordance with the Government's policy, Perum DAHANA has been assigned to be developed into an explosives and propellant industry. Currently, DAHANA has produced industrial explosives and in the near future it will be developed to be able to produce single/double base propellants

for ammunition, double bases and composites for rocketry as well as emulsion type industrial explosives. To date, DAHANA is the sole industry that has the authority based on a presidential decree to procure, sell and distribute explosives in Indonesia.

4. PT. KRAKATAU STEEL, As an integrated steel industry that manages iron ore into sponge ore to be used as billets and slabs as well as other steel raw materials. In addition, products such as iron concrete, sheet steel and professional steel are also produced, which can be used for ship raw materials (PT. PAL), train cars (PT. INKA), machine tools (PT. PINDAD), and equipment materials. national defense in general. As the backbone of the national steel industry, PT. Krakatau Steel has a mission to become a center of excellence in steel technology.
5. PT. LEN INDUSTRI, In accordance with government policy, the production unit of LEN-LIPI was changed to LEN-BPIS and in 1991 it was transferred to PT. LEN Industry, the next stage will be developed as a professional electronic equipment industry and components that can support the independence of the domestic electronics industry. Currently, PT. LEN Industri has produced its own electronic equipment such as SBK, Teleprinter (Siemens license), PCM, Radio/TV Broadcast. In the field of electronics for defense and security, the capability to manufacture/repair radar, control systems, K3I and avionics assembly will be developed, in addition, currently being able to export various electronic components, including to the Netherlands.
6. PT. INTI, Is a telecommunications and informatics industry that produces telecommunications equipment for various needs including for defense and security. PT INTI has a mission to become a center of excellence in communication and information technology and has produced Microwave Telecommunication Line Systems, Digital Telephone Systems, SBK, STBK. Packsat System technology (Packed Satellite Network) has been developed that can meet the needs of national data exchange by utilizing the Palapa Satellite. PT. INTI has also succeeded in exporting SBK products to Malaysia. Products for the benefit of the TNI include Field Military Phones.
7. PT. BARATA INDONESIA, In mastering production technology for steel/plate and vessel construction, PT. BARATA INDONESIA has been able to make full assembly, while in other products heavy equipment, foundries and machinery are still in the partial assembly stage and have the potential to make various types of heavy equipment for construction. PT. BARATA INDONESIA has a mission to become a center of excellence in heavy equipment, foundry and machinery technology.
8. PT. BBI (Boma Bisma Indra). Is a company engaged in the machinery industry (diesel), construction equipment PT NIK and industrial engineering. As an industry for manufacturing diesel motors for various applications including power generation, automotive, marine and diesel motors up to 500 HP in collaboration with KHD (Khobhner Humboldt Deutz) Germany. PT. BBI has a mission to become a center of technological excellence for the combustion engine (diesel) industry and industrial equipment.

3. Contribution To Defense System

Cooperation with strategic industries for military purposes in the context of defense is very important to be realized immediately. Cooperation between the Ministry of Defense, TNI and other agencies is an important part of the Strategic Defense Policy. According to Law no. 3 of 2002, this collaboration relates to the development of technology and defense industry needed by the TNI and other defense components. This cooperation has strategic value because it can facilitate the acceleration of defense independence, including creating space for other sectors to be involved in defense administration. Through this collaboration, the Pentagon and the TNI aim to encourage the development of national industry so that the Pentagon can develop not only the ability to produce key products, but also the ability to manufacture equipment needed for defense purposes. In the context of managing national resources for national defense, it is important to cooperate with other ministries. Such cooperation is needed in preparing and implementing strategic planning in accordance with their respective functions and authorities. The tangible forms of cooperation that must be carried out are:

- 1) PT. DI (Dirgantara Indonesia). Generally, the participation of PT. In the development of the national defense force, it will be more dominant in favor of the air defense system. Judging from several products

such as helicopters and weapons, they can be used as needed in peacetime and wartime operations on the ground side of defense systems. However, the ground defense aspect depends not only on products that can be managed as part of the defense, but also on workers that can be used as backup and support components when mobilized..

- 2) PT. Pindad with a very large defense system in both peacetime and wartime. In overcoming various separatist problems that are currently emerging, PT Pindad is responsible for providing military equipment in the form of weapons and ammunition for both combat and training purposes..
- 3) PT. Dahana with a state defense system, DAHANA is an existing product that can be used to develop the functionality of the current defense system. On the other hand, facilitating the organization of existing personnel and equipment capabilities as backup and support units in the defense system.
- 4) The involvement of PT Krakatau Steel in the defense system is very large, especially in terms of development for the benefit of the Indonesian nation that can support the development of the country. When used for military purposes, PT Krakatau Steel can supply raw materials for bridge construction, spare parts for heavy equipment, and technical raw materials for heavy equipment into Tank Mounted Track Width Plows and raw materials for the manufacture of various types of barbed wire barriers, barriers made of steel.
- 5) PT. LEN INDUSTRY with the strength of national defense is the need for electronics that are used to help carry out tasks both in peace and war times.
- 6) PT. INTI (Industri Telekomunikasi dan Informatika). It is hoped that it will be able to produce telecommunications equipment that can be used for the benefit of the TNI and compete with the current advances in commercial telecommunications.
- 7) PT. BARATA INDONESIA with many national defense systems, especially heavy equipment used in both heavy equipment design, construction and remodeling, as well as combat and weapons.
- 8) PT. BBI (Boma Bisma Indra). Armed with the power of national defense, PT. BBI can support the development of the country's automotive industry and aims to support the development of vehicles that can be used to carry out military tasks, especially the TNI.

4. Development steps in the defense industry

One form of cooperation that can be done to develop the defense industry is to synergize the development of strategic industries, through a partnership model of three science and technology actors, namely: industry, universities and defense institutions as users. The steps developed through this collaboration are: (1) Cooperation in the fields of aerospace, marine, civil engineering, heavy machinery, automotive, electronics, information technology, and other domestic industries. (2) Improving the quality of human resources in the field of design, including expertise and skills in the field of military transportation, special mission aircraft, high speed patrol boats, warships, military fighter aircraft, weapons systems, communication network systems, command design and manufacturing. information Systems. (3) Strengthening the domestic industry in the context of realizing independence and reducing dependence on other countries in the defense sector. (4) Cooperation in meeting the needs of other defense equipment. (5) Defense R&D cooperation is being developed to produce research on defense concepts related to technology, management, and human resources. (6) Development of strategic industry participation in the repair, maintenance and replacement of defense equipment and the use of defense equipment products in the domestic defense industry. (7) Cooperation between the government and universities, strategic industrial institutions and the public to develop cooperation in the fields of aerospace, shipping, construction, heavy equipment, automotive, electronics, and other domestic industries. (8) Organizing cooperation in education and training related to improving the quality of human resources in the field of design and engineering in the field of defense equipment. (9) Develop an active role in the development of communication forums for research and development of the defense industry, development of defense facilities and infrastructure, especially prototype defense equipment to reduce dependence on defense equipment from other countries. (10) Improving the quality of human resources in the field of design and

engineering, including the expertise and ability to develop and manufacture military transport aircraft, special mission aircraft, fast patrol boats, warships, military combat vehicles, weapons systems, communication network systems, command centers and control and information systems. 11) Empowerment and increasing the participation of national industry in the context of the development and development of national defense forces as well as creating independence, as well as reducing dependence in the field of defense against other countries.

IV. CONCLUSION

The defense industry really needs an integrated and structured structure for the long term. It is hoped that the national defense equipment system can be independent to meet domestic needs, that in the long term, our defense equipment can be exported and traded abroad so that it becomes an economic source both from reducing unemployment, state income and being respected by other countries. One form of cooperation that can be done to develop the defense industry is to synergize the development of strategic industries, through the example of a partnership of 3 science and technology actors, namely: industry, universities and defense institutions as users. Indonesia's industrialization strategy is carried out using the application of the transformation of the primary senses of the Indonesian National Armed Forces in order to make the Indonesian nation strong and independent in efforts to carry out state defense and security, to transform the Indonesian nation as an advanced and independent nation in the aspects of industrialization and technology, carried out through four stages/ namely: (a). Technology Mastery Stage. (b). Technology Integration Stage. (c). Technology Development Phase. (d). Basic Research & Technology Mastery Execution Stage.

REFERENCES

- [1.] Ron Matthews & Annie Maddison (ed.), *International Defence Management Studies 2002*, (London: Cranfield University Press)
- [2.] Dennis M. Drew & Donald M. Snow, *Menyusun Strategi*, terjemahan, (Jakarta: Pusdiklat Bahasa Dephan, 2005).
- [3.] Wee Chow, Lee Khai Sheang & Bambang Wlujo Hidayat, Sun Tzu: *Perang dan Manajemen*, (Jakarta: Gramedia, 1992).
- [4.] Edward N. Luttwak, *Strategy: The Logic of War and Peace*, (Harvard: Harvard University Press, 1987).
- [5.] Barry Buzan, *People, State and Fear: An Agenda for International Security Studies in the Post cold war Era*, (New york: harvester Wheatsheaf, 1991).
- [6.] William R. Polk, *Neighbors and Stranger: The Fundamentals of Roreign Affairs*, (Chicago: Chicago University Press, 1997).
- [7.] Colin S. Gray, *Policy, Strategy & Military Technology: Weapons Don't Make War*, (Kansas: University Press of Kansas, 1993).
- [8.] Barry Buzan, *An Introduction to Strategies Studies*, (London : Macmillan Press, 1990).
- [9.] Wan Usman, *Modul Manajemen Strategik*, (Jakarta : Program Ketahanan Nasional Pascasarjana UI, 2002).
- [10.] UU Nomor 3 Tahun 2002 Tentang Pertahanan Negara
- [11.] UU Nomor 34 Tahun 2004 Tentang TNI
- [12.] Keppres RI No. 59/1983 dan No. 50/1986 Tentang Industri Strategis
- [13.] Kepres RI No. 40 Tahun 1999 Tentang Dewan Pembina Industri.
- [14.] UU Nomor 12 Tahun 2012 Tentang Industri Pertahanan