Air Power Development Strategy to Maintain Indonesian National Security as the World Maritime Axis

A Study on the Air Territory of the National Air Defense Command Sector I

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Abstract

World maritime axis policy declared by the Indonesian government today is an opportunity as well as a challenge that must be faced with the right steps by the Indonesian Armed Forces (TNI), especially in terms of defense and security. Moreover, as an archipelagic state, Indonesia must provide a crossing route for both shipping and aviation called Indonesia's Archipelagic Sea Lanes (ASL). The existence of ASLs as the main shipping and foreign aviation routes creates vulnerability and potential threats to national security. One potential threat is the frequent flight or shipping violations of the national territorial area. Violation of airspace can be interpreted as a condition in which there are aircraft of a particular state, whether civilian or military aircraft, entering the airspace of another state without obtaining prior clearance from the state it enters. The National Air Defense Command Sector I, notes that in the ASLs I area alone, in 2015 until early 2018, there were 216 cases of violations by aircraft foreign, both military and civil. Whereas in the ASLs I water themselves, the Indonesian Navy reported that 250 cases

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of violations had occurred in 2017. In anticipation of this, it was necessary to improve Indonesia's defense capabilities, including air defense. This paper focuses on the development of air power equipment such as aircraft, guided missile, and radar which is expected to be a hard power and deterrent effect and create reluctance for other countries so as to prevent violations of national airspace and support Indonesia's aspiration to become the world maritime axis.

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Introduction

World maritime axis policy declared by the Indonesian government at this time is an opportunity as well as a challenge that must be faced with careful and precise steps by the TNI (Indonesian National Army). Therefore, an in-depth understanding of the world maritime axis in the perspective of defense and security is required. Conceptually, the TNI views the world maritime axis as a reaffirmation of the importance of the geopolitics and geo-economics of the Indonesian nation which lies in the cross-position of the world with the geographical form of the island nation. It shows that Indonesia has the potential to play an important role in the game of world politics and trade. According to Marsetio[1], this concept is an actual form of the concept of the Archipelago's Insights which had been confined to a frame of rhetoric. There are two meanings contained in the Archipelago Insight, i.e., the integrative form of the Indonesian territory that cannot be separated among the land, sea, and air above it and its strategic position as the world's axis. It will be the initial capital to make Indonesia the world maritime axis.

Based on these opportunities, there are many challenges that must be faced to realize Indonesia's vision as the world maritime axis. One of the challenges that must be answered is the issue of regional security. For that matter, it is necessary to manage natural resources, border areas, and reliable defense. The existence of Indonesia's Archipelagic Sea Lanes (ASLs), which is a cross route that must be provided by the Indonesian state as a consequence of ratifying UNCLOS 1982, seems to make Indonesia an "open" state. The existence of ASLs which are the main shipping and foreign aviation routes creates vulnerability and potential threats to national security.

On the other hand, there are still countries that do not ratify the agreement (such as the United States and Australia). Therefore, it

can lead to differences in perspectives regarding the boundaries of a state's territories. This is also one of the causes of the frequent violations of Indonesian territorial boundaries.

According to the 1944 Chicago Convention, the territorial area of a state includes the airspace above it. Thus, a violation of a state's airspace means a violation of the state's sovereignty. Airspace violations can be interpreted as a condition where an aircraft from a particular state, whether civilian or military aircraft, enters the airspace of another state without obtaining prior clearance from the state it enters. The National Air Defense Command Sector I noted that in its airspace, in the period of 2015 to early 2018, there were 216 cases of violations by foreign aircraft, both military and civilian (The National Air Defense Command Sector I, 2015- 2018). Meanwhile, in the ASLs I waters themselves, the Indonesian Navy reported that there were 250 cases of violations in 2017 (Headquarters of the Indonesian Navy, 2017).

This phenomenon shows that the level of vulnerability and potential threats in the airspace of The National Air Defense Command Sector I is still high. In anticipation of this, an increase in Indonesia's defense capabilities is indispensable, especially in terms of developing military equipment as a security guard in the airspace, especially to support Indonesia's desire to become the world maritime axis. Therefore, research on the strategy of developing air power to safeguard Indonesia's national security as the world's maritime axis needs to be carried out, with studies in the airspace.

Literature Review

National Security

Security and defense are two concepts that are closely related and not easily separated. Helga Haftendorn[2] defines security in the realism approach, namely "the absence of a military threat or with the protection of the nation from external over or attack"[3,4,5].

Barry Buzan[6], in his book entitled People, States, and Fear, discusses the issue of national security in international relations. According to Buzan[6], there are three bases in national security, ideational basis, institutional foundation, and physical foundation. The ideational foundation includes various things including "national insight". The institutional foundation covers all state mechanisms, including the legislative, executive, legal, procedures, and state norms[7]. In addition, the physical foundation, according to Buzan[6], covers the population,

territory and all resources located within the scope of its territorial authority. Buzan[6] also cites Walter Lippmann's opinion that "A nation has security when it does not have to sacrifice its legitimate ínterests to avoid war, and is able, if challenged, to maintain them by war."

Airspace Boundaries

Arrangements regarding airspace began at the 1944 Chicago Convention which stated that each country has complete and exclusive sovereignty over airspace over its territorial area. Even though up to now, the regulation of airspace boundaries continues to cause debate, but if it is guided by the results of the Chicago Convention, Indonesian airspace is all airspace above the state's territory which is limited by the Indonesian territorial sea, which is as far as 12 NM from Indonesia's outermost line. The convention also stated in article 3 (a) and (b) that shipping and international flights from an unscheduled country are not allowed to cross the territorial boundaries of other states without having a flight clearance, because this is a violation of the boundary of a country. Violation of the Indonesian airspace, in addition to being considered as a threat to national security, can also affect regional sovereignty if it is viewed from the aspect of national defense.

Deterrence

Deterrence is the most fundamental substance of a defense strategy. A modern defense strategy is not just an effort of national defense to destroy the enemy, but how to create conditions that affect the potential opponents so that they discourage themselves from attack Pimchana Sriboonyaponrat[7], in The Globalization of World Politics: An Introduction to International Relations, defining deterrence as "the threat of using force to prevent actors from doing something they would otherwise do". According to Morgan[8] in Prasojo[9], at the state level, deterrence is defined at three levels, i.e., as a tactic, a national security strategy, and an important component of international security construction[10]. Thus, deterrence is a way and strategy to achieve national security.

Air Power

There are many definitions and concepts that explain air power. Agus Supriyatna[11] took the concept of the definition of air power based on doctrines from the Government of England and the United States.

British Air Power Doctrine defines the concept of air power as "the ability to project military force in water or space by or from a platform or missile operating above the surface of the earth and air platforms are defined as any aircraft, helicopter or unmanned air vehicle". Meanwhile, the United States, in the National Security Act of 1947, placed the concept of water power as an ability to send a military force to the entire world quickly[11,12].

Stefan T. Possony[13], in his book Strategic Air Power: The Pattern of Dynamic Security stated that air power in a country consists of elements that must exist and cannot be separated. These elements are:

1. Raw material and fuel.
2. Industrial potential, tool reserves, and high rate of technological progress.
3. Bases and protective forces.
4. Communication and electronics.
5. Logistics and supplies.
6. Auxiliary services.
7. Airborne forces.
8. Guided missiles and atomic weapon.
9. Aircraft.
10. Manpower.
11. Training.
12. Morale.
13. Intelligence.
14. Research and inventiveness.
15. Tactics-strategy-planning.

Although not all of the above elements are used as a measure of a country's air strength, the more complete and fulfilled these elements are, the stronger the air power is to secure the airspace of a country.

Strategy

For the military, one of the most frequently used strategy definitions is the definition put forward by Carl von Clausewitz[14] that "strategy is the use of engagement for the purpose of the war". Meanwhile John A. Warden III, a retired colonel of the United States Air Force, known as "the leading air power theorist in the US Air Force in the second half of the twentieth century", stated that the strategy is "the art and science of translating national security objectives into practical military plans and operations"[15,16].

Moreover, according to Thomas S. Fisher[3], a retired American Army, in the book entitled "The Planner Handbook", defined strategy as "a prudent idea or set of ideas for employing the instruments of national power in a synchronized and integrated fashion to achieve theater, national, and multinational objectives. An effective strategy should encompass ends, ways, and means (the end state, the objectives, and the ways and means of attaining them); it should achieve long-run continuing advantage, and it should integrate and synchronize all instruments of power and all efforts of the joint force".

In line with Fisher[3], Col (Ret) Arthur Lykke, a teacher at U.S. Army War College, also stated that "the strategy at any level consists of ends or objectives, ways or concepts, and means or resource.

Research Method

The method used in this research is a qualitative method. In addition, the data used consist of primary data and secondary data. Primary data are in the form of information and description obtained directly by the author from the results of interviews and observations on the object of the research. Meanwhile, secondary data come from library materials.

The source of research data comes from informants through the interviews, observations, and documents related to the research regarding the strategy of developing air power. The informants who will be used as sources of research include:

a. Commander of the National Air Defense Command.
b. Assistant for Operations of the National Air Defense Command.
c. Communication and Electronics Assistant of the National Air Defense Command.
d. Head of the Radar Sub Department of the Communication and Electronics Service of the Indonesian Air Force.
e. Head of the Radar Sub Department of the Communication and Electronics Service of the Indonesian Air Force.
f. Head of the National Air Defense Operations Center.
g. Head of the National Air Defense Sector Operations Center I.

The validity test of the research findings is conducted by using triangulation techniques, i.e., by comparing the results of observations, interviews, and review of documents obtained during the data collection process.

Research Findings and Discussion

The strategic importance of national defense can be achieved through efforts to build and foster the deterrence of the state and the nation and the ability to overcome any threats, directly or indirectly. One manifestation of the strategic importance is implemented in the effort to develop air power based on the strategy of deploying military power. Strategy, in this case, is an implementation of government policy that synergizes the goals (ends) that are going to be achieved, how (ways), and what means are used to achieve it in meeting strategic interests.

National Air Defense Command

The National Air Defense Command is the main operational command of the TNI which has the task of organizing an integrated security defense effort on national airspace independently or in collaboration with other Operational Main Commands in order to realize sovereignty and integrity as well as other interests of the Unitary Republic of Indonesia and organize administrative guidance and readiness for the operation of the elements of air defense of the Indonesian National Air Force and carry out standby operations for elements of air defense in order to support the main tasks of the TNI. To carry out its duties, the National Air Defense Command divides Indonesia's vast airspace into four sections i.e. the National Air Defense Command Sector I in Jakarta, the National Air Defense Command Sector II in Makassar, the National Air Defense Command Sector III in Medan, and the National Air Defense Command Sector IV in Biak.

The National Air Defense Command Sector I

The National Air Defense Command Sector I is the executive command of air defense operations around the capital city of Indonesia, as well as parts of Sumatra and Kalimantan, including the territory of Indonesia's Archipelagic Sea Lanes (ASLs) I which has the task of organizing and controlling Air Defense Operations in its territory in accordance with the division of geographical responsibility for the national air defense area to support the main task of the National Air Defense Command. The National Air Defense Command Sector I is located in Jakarta and is directly under the control of the National Air Defense Command. In carrying out air observation tasks, The National Air Defense Command Sector I is assisted by six radar units.

Air Defense Operations

As an independent, sovereign and dignified country, the strategic importance of self-defense must always be prepared and implemented without concern about the existence or absence of a real threat. In carrying out the national defense, Indonesia holds the principle of being a nation that loves peace but loves its independence and sovereignty more. The use of defense forces for war purposes is the last alternative after diplomatic efforts have not yielded results. Therefore, Indonesia chooses an active defensive pattern in its defense efforts.

Similarly, in terms of air defense, Operations Assistant National Air Defense Command mentioned that the pattern of air defense operations adopted by National Air Defense Command is the in-depth defense pattern, which in practice is divided into three layers of air defense, called point air defense, terminal air defense, and area air defense.

a. Point Air Defense. It is the last defense pattern that serves to defend vital national objects from the enemy's air attacks. Point air defense is carried out by using short-range tactical missiles as a destroyer.
b. Terminal Air Defense. It is a pattern of air defense carried out by medium-range missiles as a destroyer, with a distance of approximately 100 kilometers.
c. Area Air Defense. It is a pattern of air defense carried out by combat aircraft as well as long-range missiles as action and destroyers. The dimensions of area air defense depend on the effective range of the missile or the Radius of Action (ROA) of the fighter aircraft.

It has been explained earlier that the implementation of air defense operations in Indonesia is currently carried out by the National Air Defense Command Sector and is assisted by the National Air Defense Command Sector in four air defense areas. The capabilities and authority of the National Air Defense Command Sector in air defense operations are as follows:

a. Detection Capability. Observation and detection of airspace are carried out by military radar equipment from the ranks of the National Air Defense Command that has been formed previously.
b. Identification Capability. Identification is a process carried out to determine the classification of each air target; whether it belongs to the category of friend or foe.

c. Enforcement Capability. The pattern of air defense operations organized by the National Air Defense Command is a defense in depth with elements of military equipment. The supporting element other than the radar unit is the action elements such as elements of combat aircraft as an enforcement in the area of terminal air defense or area air defense, the unit of medium-range missile as an enforcement on the area of terminal air defense, and the element of short-range missiles and air defense cannons on the area of point air defense.

Air Defense Identification Zone (ADIZ)

The Air Defense Identification Zone (ADIZ) is an air space that is related to national air defense which requires every aircraft both civilian and military aircraft to pass through the area to report their flight plans. ADIZ is formed on the basis of security considerations, especially for the purposes of identifying aircraft that are expected to enter the airspace of the ADIZ founding country. The legal basis for the establishment of ADIZ is an international practice which has become a customary international law (Air Force Headquarters, 2000: 8). Indonesia sets its ADIZ above the Territory of Java Island, Bali Island, and part of West Nusa Tenggara region, in the form of a rectangle with the width from North to South of 180 NM and length from West to East 390 of NM.

Indonesia's Archipelagic Sea Lanes

In 1996, the Government of Indonesia proposed to the International Maritime Organization (IMO) the establishment of Indonesia's Archipelagic Sea Lanes (ASLs) and its branches in Indonesian waters. In Article 1 paragraph 8 of Law No. 6 of 1996 concerning Indonesian Waters, it is stated that archipelagic sea lanes are sea lanes passed by foreign ships or aircraft over the channel to carry out shipping and flight in the normal way solely for continuous, direct, and fast transit and not obstructed through or over archipelagic waters and adjoining territorial seas between one part of the high seas or the Exclusive Economic Zone (EEZ) of Indonesia and in the high seas or other Indonesian EEZs.

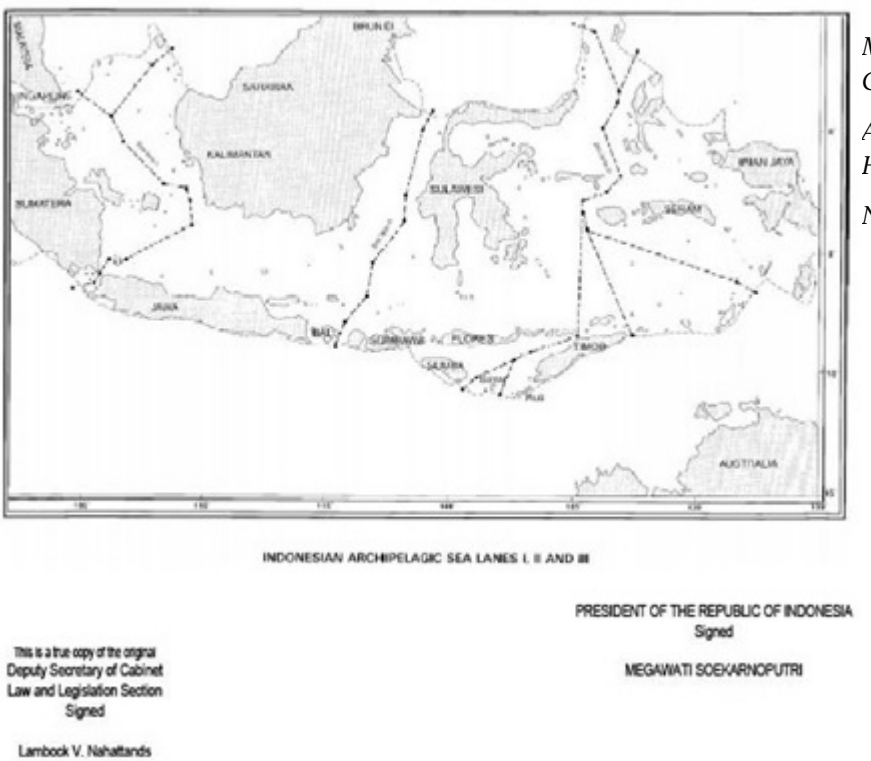

Figure 4.1 – ASLs that have been authorized by the Indonesian government

The vision of being a global maritime axis continues to be a top priority in the current work of the Indonesian government. ASLs are one of the influential parts in fighting for these ideals. Each ASL has a different potential threat. In ASLs I, the potential threat is related to the implications of the conflict in the South China Sea, especially the claims of the Spratly and Paracel islands. The impact of the conflict includes the use of the ASLs I area for the activities of maneuvering the armed forces of the countries involved. In addition, it also affects the traffic congestion in the Malacca Strait, such as the use of ASLs I area by pirates to avoid the pursuit of Indonesian security forces and joint security forces (Indonesia, Malaysia, and Singapore) or to conduct smuggling.

Airspace Violations

The National Air Defense Command and the National Air Defense Command Sector I have the ability to detect and identify each target or air vehicle that enters national airspace through 20 military equipment radars throughout Indonesia. The radar detection results which contain information in the form of distance, azimuth, direction, speed and target height data are then sent to the National Air Defense Sector Operations Center and the National Air Defense Operations Center to be further identified.

Identification is carried out by comparing the Lasa with flight data in the flight plan to determine whether the flight is performing according to the schedule and Flight Clearance Information System (FCIS) which is an unscheduled flight system that is integrated between the Ministry of Foreign Affairs, Ministry of Transportation and the Headquarters of the TNI. The result of this identification determines whether or not a flight has committed a violation.

In the period 2015 to 2018, the National Air Defense Command Sector I noted that violations still occur frequently in airspace which are carried out by foreign aircraft; both civilian and military aircraft. In fact, in 2015 alone there were 179 Lasa who committed violations and were monitored by the air observation system owned by The National Air Defense Command Sector I. From the data obtained in the research, the majority of violations occurred in 2015 around the ASLs I and the border areas of Malaysia and Singapore. Out of the 179 Lasa that were recorded as having committed violations, 38 of them were Lasa X. In addition, in 2016, there was a very significant decline, in which there were only 23 Lasa violations, in which the two were Lasa X. The downward trend also occurred in 2017, in which only 13 violations were dominated by flights from or to the Philippines which consisted of only one Lasa X. Similarly, in 2018 until June 2018, one flight violation in the National Air Defense Command Sector I was detected which one in the form of unscheduled flights that do not have Flight Clearance (FC).

Air Force Development Strategy against the Minimum Essential Force (MEF) Policy

During the reign of President Joko Widodo, the development of defense forces focused on Indonesia's policies and vision as the World Maritime Axis. The policy is realized in the Nawacita Program which

is carried out by reforming the system and law enforcement, strengthening maritime defense and building democratic governance and protecting the entire Indonesian people.

The TNI themselves, addressing this policy by making a Strategic Plan stage in order to meet the needs of the Minimum Essential Force as one of the solutions to overcome the limited availability of the defense budget, but still oriented towards achieving the target so that it can be realized consistently. MEF itself is a minimum requirement that must be met, especially in the case of procurement of military equipment that is used to protect the integrity and sovereignty of the territory of Indonesia.

The Commander of the National Air Defense Command stated that what is needed by the National Air Defense Command in maintaining the security of the airspace currently is the addition of minimal military equipment strength as planned in the MEF. Moreover, for the radar that functions as early detection, action forces are also required. In addition to being able to foster a deterrent effect, it also shows that Indonesia's territorial sovereignty is an absolute matter and cannot be negotiated by any party. Quoting the article from Syafrie Sjamsoedin[17], the Commander of the National Air Defense Command mentioned that the inability to fulfill MEF needs would increase several possible risks, as follows:

a. The first is the decline in national deterrence. Deterrence is the most fundamental substance of a defense strategy. It is often mentioned in a Latin adage; civis pacem parabellum, which means that "if you want peace, then be prepared for a war".
b. The second is the disruption of the sovereignty of the nation and state. The inability of the government in the development of military strength and capability will lead to the inability of the state to defend itself against any attack. This inability will have an impact on the survival of the nation, thus disrupting the sovereignty of the nation and state.
c. The third is the decline in military equipment capabilities. Some military equipment owned by the Indonesian National Air Force has reached its maximum age. This results in a low level of reliability. Military equipment helplessness will cause vulnerability to Indonesian defense and security because Indonesia will not have deterrence and bargaining power against other countries. So that, it can threaten the existence of the nation.

From the above discussion, it can be seen that air military equipment development must be carried out at a minimum as planned by the TNI in the MEF which is proclaimed until 2024. The inability to meet the needs of military equipment development for air defense does not only mean the failure of the Indonesian National Army only, but also a failure to maintain national security and the sovereignty of the nation and state.

Development Strategy of Air Power against the National Security Perspective

A state is considered to be safe if the nation is not in a dangerous condition to avoid war. However, when a threat is approaching, the state is still able to overcome and maintain the sovereignty of its territory. Based on the national security theory of Lippmann, it can be concluded that the development of military power is an absolute thing that must be carried out by a state that wants to maintain its existence.

In realizing full sovereignty in the airspace over its territorial area, the Indonesian state has the right to fully control its national airspace. Thus, foreign and civilian military aircraft that will pass through Indonesia's national airspace must obtain clearance in accordance with the applicable regulations. Foreign aircraft that has no clearance and violates the sovereignty of the Unitary State of the Republic of Indonesia will be evicted or forced down at certain airports in the territory of the Republic of Indonesia, as stated in Law Number 1 of 2009 concerning Aviation and Decree of the Director General of Civil Aviation. In other regulation, i.e., in accordance with Presidential Decree Number 4 of 1972 concerning Aviation Agreements in and over Indonesian territory, every foreign aircraft must obtain security clearance issued by the Headquarters of the Indonesian National Armed Force. In addition, to the security clearance issued by the Headquarters of the TNI, the foreign aircraft must also get clearance in the form of flight clearance or flight approval from the Director General of Civil Aviation. Therefore, without the presence of security clearance, flight clearance or flight approval, an aircraft flying in Indonesian territory (other than regularly scheduled flights) will be identified as Lasa X (black flight) by the National Air Defense Command.

What about ASLs? In accordance with the United Nations Convention on the Law of the Sea (UNCLOS 1982), Article 53 paragraph 9 states that in the airspace above an archipelagic sea, a foreign country

has the right to fly by air for its aircraft in accordance with the specified conditions. Therefore, as a consequence of the archipelagic state, Indonesia anticipates the potential vulnerability caused by the crossing rights. Moreover, there are still some countries that do not recognize or ratify the provisions of UNCLOS 82, such as the United States. It is possible that these countries will act carelessly when passing through the Indonesian territory.

From the above research findings and review, it can be concluded that cases of violations that occurred in the area of the National Air Defense Command Sector I are dominated by several problems, as follows:

a. Entry of foreign aircraft into Indonesian territory without clearance. It happens when a foreign aircraft flies across Indonesian airspace without complete licensing documents.
b. Being out of the permitted airways or from the ASLs I. Foreign planes that pass through the ASLs route do not require permits as mentioned above, but the aircraft must follow the ASLs route set by the Indonesian government. In this case, the Indonesian government has given a 25 NM from the designated flight path to anticipate weather factors and errors in navigation.
c. Licensing documents are late or obsolete. Another problem that often occurs is that there is a delay in the processing of licensing documents and the licensing documents are no longer valid (obsolete).

In dealing with cases of violations of airspace boundaries, the TNI has a permanent procedure of prosecution. The procedure is stated in the Decree of Commander of the National Air Defense Command Number Kep/79/XII/2017 dated December 14, 2017, concerning the Permanent Procedure for National Air Defense Operations. In the permanent procedure, the procedure for prosecution must be described in handling foreign aircraft entering Indonesian airspace without clearance, as follows:

a. Shadowing. Shadowing procedures are carried out if there are foreign aircraft trying to enter the territory of Indonesian sovereignty or will deviate from the designated flight path.
b. Intervention. Clearing/intervention procedures are carried out if the foreign aircraft forces to enter Indonesian territorial airspace without clearance, including violations of flight conditions in the ASLs route.

c. Force Down. Foreign aircraft are forced to land if they enter the territorial airspace illegally, but it can be ascertained that the aircraft concerned will not threaten the safety of vital objects beneath it. After the aircraft landed, it is followed by a preliminary investigation process conducted by the TNI and is processed according to applicable law.
d. Destroying. Is the last procedure taken if the previous three procedures failed or not heeded by unauthorized foreign aircraft? In peacetime, this action can only be carried out through direct orders from the President of the Republic of Indonesia because there is a real threat to Indonesia's sovereignty.

The inability of the National Air Defense Command in maintaining national airspace means opening up opportunities for other countries to act carelessly, including violating national airspace. Referring to Air Power theory of Stefan T. Possony[13], there are at least 15 elements that must be developed to realize air power which can be the deterrence for other countries, as well as the deterrence concept proposed by Morgan[8] in which deterrence is one way and strategy to achieve national security, so the development of air power must continue.

Development Strategy for Military Equipment of the Indonesian Air Force in the Territory of National Air Defense Command Sector I

The military strength of a country will indirectly affect the strength of the country's diplomacy. In fact, with its military strength, a country can force its will on other countries without going through diplomatic efforts. According to Thomas G. Mahken and Joseph A. Maiolo[18], this way of acting is often referred to as diplomacy of violence. This kind of thing is usually used by developed countries that have large and strong military power. Therefore, the development of military power, especially air power in the territory of The National Air Defense Command Sector I, is an absolute thing to do.

According to the Commander of the National Air Defense Command, at present, the strength and capability of our national air defense still do not meet the standards, if it is compared to the air power that is owned by several countries that are directly adjacent to our country. It is still necessary to develop military equipment as a supporter of the tasks carried out by the National Air Defense Command. In addition to radar, the National Air Defense Command also still needs the strength of combat aircraft and air defense missiles in order to increase the bar-

gaining value and deterrence of Indonesia for other countries. This is in accordance with 3 of the 15 Air Power components proposed by Stefan T. Possony[13].

a. Aircraft. Air power is identical to aircraft; as the main component in controlling airspace. In order to maintain the security of Indonesia's vast national territory, the readiness of fighter aircraft that has a function to carry out visual identification and repression to a threat in national airspace is urgently needed. According to the Operational Assistant of the National Air Defense Command, the strength of the fighter aircraft owned by the Indonesian Air Force is still insufficient compared to the vast area of Indonesia. The existing combat squadron has only been implemented in five cities in Indonesia. If it is viewed from the location, only the 1st Air Squadron in Pontianak Supadio with a Hawk 100/200 aircraft that entered the territory of The National Air Defense Command Sector I. From this side, it is clear that the combat strength we have still needed to be developed. Based on the research findings, both through analysis of various literature, as well as the results of interviews with the informants, the fighter aircraft required by the Indonesian Air Force in order to deal with Indonesian policies as the world maritime axis must at least have the following capabilities:
    1. Agility. It is the ability of the aircraft to fly quickly and agile so that it is easy to get the height and direction.
    2. Maneuverability. It is the ability to maneuver aircraft at high or low speeds.
    3. Lethality. That is the ability of aircraft to be armed in order to defend themselves from enemy attacks and can support allies in carrying out an operation mission.
    4. Survivability. It is a must-have ability to defend the aircraft from enemy attacks.
    5. Stealth. The ability to avoid radar detection is currently one of the specifications not owned by the Indonesian Air Force's fighter aircraft.

    The term aircraft is currently not limited to aircraft that must be manned by personnel. There is also a UAV (Unmanned Aerial Vehicle) which is an unmanned aircraft and can be controlled remotely. The use of UAVs is considered effective to replace some of the functions and tasks normally carried out by aircraft. In ad-

dition to the much lower operating costs, the small size of the UAV is also a distinct advantage in the use of certain missions such as surveillance and aerial photography.

The Indonesian National Air Force itself currently has only one squadron of UAVs located in the Squadron 51 of Supadio Pontianak Military Air Base. From the research findings, linked to the world maritime axis vision, the criteria or specifications for UAV/UCAV (Unmanned Combat Aerial Vehicle) required by the TNI are as follows:

1. Low cost. It requires cheap costs in procurement and operations.
2. High sortie rate. It has a high sortie rate.
3. Long loiter time. It can fly for a long time.
4. Rough field operating capability. It can be operated in various fields.
5. Low-speed maneuverability. It can maneuver at low speeds.
6. Survivability. It has the ability to survive in various situations and conditions.
7. Lethality. To be able to carry out air operations, UAVs must be able to be armed.
8. Agility. Able to fly stably in the air such as pitching, rolling, and yawing, and can change direction and position quickly as desired.
9. Stealth. It is not detected by the radar.

From the above analysis, the development of military aircraft equipment is divided into two parts, namely Unmanned Aerial Vehicle and Unmanned Combat Aerial Vehicle. Both are included in the category of combat squadrons, in which the developments are carried out The National Air Defense Command Sector I airspace. The development of the combat squadron was carried out considering several aspects including potential threats, location, infrastructure and realistic (defense budget policy, strategic plan of the TNI, and MEF).

b. Guided Missiles and Atomic Weapon. The bombing of Hiroshima and Nagasaki has opened the eyes of the world how atomic weapons (nuclear) have the very powerful power that is categorized as mass destruction weapons. Seeing its dire impact, Indonesia, Brunei Darussalam, Cambodia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam signed the

Bangkok Treaty containing agreements to make ASEAN a nuclear-free territory, or well-known for Southeast Asia Nuclear Weapon Free Zone (SEANWFZ).

With the establishment of the agreement, the development of atomic weapons is not an option for the Indonesian state. Missiles are things that must be developed as one of the elements of our air defense, as said by the Commander of the National Air Defense Command. Currently, the Indonesian Air Force still does not have long-range missiles capable of blocking enemies before entering Indonesia's sovereign territory. The Indonesian Air Force has short-range missiles that function as point air defense. In an interview with the Head of the Radar Sub Department of the Communication and Electronics Service of the Indonesian Air Force's, it was explained that currently, the Indonesian Air Force has begun planning the development of missile strength as one of the elements of air power, especially in order to succeed the government program to make Indonesia the world maritime axis. Furthermore, the Head of the Radar Sub Department mentioned that one of the weak points of our air defense at this time is the absence of missiles that have the ability to reach medium distances; also long distances. So that the terminal and area air defense depend only on the ability of the fighter we have.

This shows that Indonesia does not fully have deterrence power in facing the strength of other countries. The result of the weakness of the air defense system is the frequent violation of the sovereignty territory by foreign aircraft which can harm the national interests of the Indonesian people. Therefore, it requires the development of missile strength in stages and continues while taking into account the government's ability to support the budget, and determining the priority scale in the achievement of various activity targets until it reaches the MEF to face various challenges and threats.

c. Communication and Electronics. Communication and electronic systems at the National Air Defense Command function as command and control of elements of air defense. Communication and electronics itself play a vital role in the implementation of an operation. According to the Communication and Electronics Assistant of the National Air Defense Command, currently, the National Air Defense Command is in an effort to integrate

all communications and electronic equipment owned by the National Air Defense Command, to be used as a means of command and control by the Commander of the Air Defense Command National. With the integration of all communication and electronic systems, the Commander of the National Air Defense Command can monitor at any time the situation of the national airspace and can give direct orders when necessary.

However, these efforts do have obstacles. For example, up to now, there are 20 air defense radars operated by the National Air Defense Command, still unable to cover all national airspace. In the ranks of The National Air Defense Command Sector I itself, there are still blank spots or blank areas in West Kalimantan and South Sumatra. This is due to the shadow contour or shape of the earth's surface, such as mountains or plains that are higher than the radar deployment location, which obstructs the radar beam.

The Head of the Radar Sub Department of Communication and Electronics Service of the Indonesian Air Force stated that in fact according to the strategic plan that had been made, from 2015 until 2019, the Indonesian Air Force had planned to add four new radar units to add 20 radars that had been deployed at this time. However, to date, none of the procurement of radars has been realized, due to various obstacles. The temporary lack of radar numbers can be overcome by integrating the capture of military radar with civil radar owned by several airports in Indonesia.

The Head of the Radar Sub Department also stated that there is one more weakness of our air defense, namely the absence of a type of passive radar to supplement the existing active radar. It is to anticipate aircraft that have stealth capabilities or UAVs that cannot be caught by active radar. This passive radar does not emit electromagnetic waves, so it is relatively safer from interference (jamming) carried out by the enemy. The way it works is by receiving all electromagnetic frequencies emitted by planes or UAVs. In addition passive radar also has advantages in terms of range that can reach twice the range of the active radar.

Airforce development carried out in the territory of the National Air Defense Command Sector I does not necessarily make national security guaranteed. However, a defense strategy based on the concept of smart power is a combination of hard power with soft power.

Conclusions

Currently, the world maritime axis policy issued by the Indonesian government is both an opportunity and a challenge that must be followed up with careful and precise steps by the Indonesian Armed Force; by understanding the world maritime axis deeply in the perspective of defense and security. The number of cases of violations of airspace in the territory of the National Air Defense Command Sector I in recent years and the existence of illegal flights around the waters of ASLs I indicate the potential for vulnerability in the area.

To maintain national security, especially in the area of the National Air Defense Command Sector I where the capital city of the Republic of Indonesia lies and the border with several neighboring countries, the development of air power that can be a deterrent effect for other countries is highly required. Moreover, to succeed the government policy in realizing Indonesia as the world maritime axis, the development of air power is one of the main steps that must be carried out in addition to increasing maritime power itself.

According to the research findings, the development of air power in the National Air Defense Command Sector I is focused on the three main components of air defense military equipment, i.e., the development of combat squadrons (combat aircraft and UAV/UCAV), the development of missile strength, and air defense radar. It is in accordance with the theory of 15 elements of water power proposed by Stefan T. Possony[13]. Nevertheless, the development of other air power components must still be carried out in order to support the development of the three major military equipment components in the air power. Without an increase of all components of air power, the desire to realize Indonesia's national security as the world maritime axis will be difficult to materialize.

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