

Review of Indonesian government policy in procurement plan of Dassault Rafale fighter aircraft

A. Wardana¹, T. B. Cahyana², H. Tahdi³, Y. H. Yogaswara⁴

^{1,2,3,4} Faculty of Defense Technology, Indonesia Defense University, Indonesia

*Corresponding author E-mail: achmad.wardana@tp.idu.ac.id

Received: Aug. 16, 2022
Revised: Aug. 29, 2022
Accepted: Sept. 1, 2022
Online: Sept. 5, 2022

Abstract

Indonesia's decision to procure 4.5 generation Rafale fighter jets has been approved to replace obsolete aircraft, namely the US-made F-16 and the Russian-made Su-27 and Su-30. The selection of Rafale was based on Indonesia's defense relationship with France which had existed for a very long time, besides that it was also based on the foreign policy adopted by Indonesia, namely the free and active policy shown from several defense equipment owned by Indonesia, not only from a particular country. This study aims to examine government policies in the plan to procure Dassault Rafale fighter aircraft for Indonesia. This study uses a descriptive qualitative approach through a literature review from reputable national and international journals, ebooks, and online media by exploring or explaining more broadly the government policy issues in the plan to procure the Dassault Rafale fighter aircraft for Indonesia. The findings of this study indicate that Indonesia is still lagging behind Vietnam, Thailand, and Singapore in terms of the number of first-tier modern combat aircraft that are ready for combat. In addition, purchase of the Dassault Rafale aircraft must provide effectiveness to improve national defense and security by using a definitive combination of "high-low" that can be adopted from the USAF (United States Air Force), and also Indonesia must be realistic in responding to the regional balance of power (ASEAN) through the realization of the MEF towards IEF. One important factor that needs to be considered in the procurement agreement is the existence of a strong policy and commitment from the government that emphasizes the transfer of technology (ToT) by sending human resources to study and do internships in the development industry.

© The Author 2022.
Published by ARDA.

Keywords: Dassault Rafale, Combination high-low, Transfer of technology, MEF, IEF

1. Introduction

The process of globalization has touched various fields of human life, in the fields of education, socio-culture, economy, politics, defense and security. They are never separated from the effects of globalization. The transformation process that aims to make people around the world into a single society and interdependent on each other is growing rapidly due to the sophistication of information and communication technology. However, the occurrence of the globalization process as a process that will bring the world under one control

This work is licensed under a [Creative Commons Attribution License](https://creativecommons.org/licenses/by/4.0/) (<https://creativecommons.org/licenses/by/4.0/>) that allows others to share and adapt the material for any purpose (even commercially), in any medium with an acknowledgement of the work's authorship and initial publication in this journal.



through one global power has resulted in the dominance of the world community by countries that have great powers that are able to take a role in the process. [1] For Indonesia as a developing country with an area that stretches from Sabang to Merauke and with the fourth largest population in the world, it has not been able to take advantage of the momentum properly. Indonesia's strategic position has been used by other countries in various forms, Indonesia is used as a consumer in trade for other countries' products, so that Indonesia is only used as a market.

As an independent and sovereign country, it is fitting for Indonesia to increase its defense and security forces. In order to protect the sovereignty of the nation. Moreover, in recent times there have been frequent conflicts in the border areas due to illegal fishing by foreign vessels flagged by Vietnam, Malaysia, China and several other countries that consciously take natural resources and wealth. Indonesian sea. Besides that, the confrontation carried out by the Chinese state over the South China Sea dispute by sending several warships in the Indonesian maritime border area allowed an open war for the countries with an interest in it. This further emphasizes the importance of the strength of military weapons for the defense and security of the nation. Mainly to anticipate conflicts in the Southeast Asian region by strengthening the military weapons of the Indonesian National Army (TNI).

Indonesia continues to strengthen its military defenses under the command of Defense Minister Prabowo Subianto. Recently, Indonesia entered into a contract to purchase one of the most sophisticated types of fighter aircraft in the world to improve defense and maintain Indonesia's air sovereignty. Airspace is one of the most important defenses in military defense. From the news on Defense Minister Prabowo's working visit, the Dassault Rafale multirole generation 4.5 from France is the strongest candidate, in addition to the hope to get an aircraft from the United States F-15EX. Indonesia will buy 42 Rafale aircraft and hopes to become the owner of 8 F-15EX. [2]

The purchase of 42 Rafale fighter planes by Defense Minister Prabowo Subianto in early 2022 raised pros and cons. Apart from that, the purchase of 6 Rafale-type aircraft (36 planes will follow) with representatives of Dassault Aviation in Jakarta, on Thursday (10/2/2022). [3] Buying a new fighter aircraft is an option strategic political and military. This decision, of course, is not just a purchase for valor, but for the defense and security of the country. If it is not used to actively fight, then its existence must be effective in giving effects that affect the defense and security of the country. Therefore, this study aims to examine government policies in the plan to procure Dassault Rafale fighter aircraft for Indonesia.

2. Research method

This study uses a descriptive qualitative approach by exploring or explaining more broadly government policy issues in the plan to procure the Dassault Rafale fighter aircraft for Indonesia. The research focuses on the strategic plan for the procurement of the Dassault Rafale and the presence of the Dassault Rafale in Indonesia. Data collection is carried out through literature studies originating from reputable national and international journals, ebooks, and online media.

The literature study in this study was conducted by searching and studying various literature related to government policies in the plan to procure the Dassault Rafale fighter aircraft for Indonesia. Sources of data in this study are books, journals, website pages and other references that are considered relevant to the theme in this study. The author uses data analysis techniques with qualitative descriptive analysis strategies.

3. Results and discussion

3.1 Global Free Power Index

The Global Free Power Index is one of the institutions that assesses the military strength of all countries in the world, indicators that assess a country's military strength include several aspects. Among them are geography, the number of troops, the strength of military weaponry on land, water, and air. Until the military budget becomes an assessment aspect. According to several public releases, such as the Global Free Power Index, currently, the Indonesian Air Force only has about 445 aircraft forces. This fleet consists partly of second-tier

light fighter aircraft that are running down. Meanwhile, the total area of Indonesia that must be covered is 1.9 million km². This does not include important flashpoints, such as the South China Sea, Natuna waters, the Malacca Strait, and parts of the eastern region, which need more attention and fleets. [4]

Table 1. Air Force comparison of several ASEAN (Source: GFP Index, 2022; processed data)

Countries	Total Aircraft Strength	Fighter/Interceptors	Dedicated Attack	Transport	Trainers
Indonesia	445	41	23	66	126
Malaysia	144	26	12	18	39
Thailand	496	74	18	50	130
Singapore	224	100	0	9	36
Vietnam	218	75	0	9	30
Myanmar	280	55	21	26	93
Philippines	182	0	25	21	24
Cambodia	23	0	0	4	0
Laos	32	0	0	1	4

The data above shows that Indonesia's Total Aircraft Strength sub-indicator is at 445 which only loses to Thailand at 490, then on the Transport sub-indicator, Indonesia is superior compared to other ASEAN countries, namely 66. In matters of the number of first-tier modern fighter aircraft that are ready For combat, Indonesia is also still lagging behind Vietnam, Thailand, and Singapore. Indonesia's lack of hitting power in air defense, as the largest country in ASEAN, is quite a contrast to some of its neighbors. In terms of the number of air force personnel, Indonesia has an estimated 37,850 personnel, which is still less than Thailand with 47,000 personnel, whose area and total population differ greatly (270 million vs. 70 million), and is almost on par with Vietnam (95 million people). million people) with a total of 35,000 Air Force personnel.

For this reason, as an effort to anticipate conflicts and attacks on a country, the maintenance and renewal of the main weapon system for each country is very important. The modernization of military power is also influenced by advances in defense technology. This reflects alertness, and valor as a nation (KSAU Marsda TNI Dr. Umar Sugeng Hariyono, S.IP, S.E, M.M.)

3.2 Strategic considerations

Indonesia plans to purchase a number of major modern weapons systems in stages until 2024, in order to fulfill the strategic plan for phase III of the TNI's Minimum Essential Force (MEF) program. Some of the defense equipment to be purchased includes 8 units of multirole combat aircraft F-15 EX (United States) and 42 units of Dassault Rafale fighter aircraft (France). Although there are guidelines for posture, strategic plan and MEF, the procurement of defense equipment basically depends on the conditions of the strategic environment that continue to change dynamically. In addition, the procurement of defense equipment also has a contribution to defense diplomacy efforts with other countries of strategic value to the global political constellation. The purchase of these two fighter aircraft can also increase the deterrence effect for Indonesia in the region. Previously, Indonesia planned to procure Russian-made fighter aircraft, namely the Sukhoi Su-35, but the purchase plan was not forwarded by the Ministry of Defense and TNI Headquarters. The plan to purchase the Dassault Rafale & F-15 Ex is considered a wise step amid the United States' implementation of *The Countering America's Adversaries Through Sanctions Act* (CAATSA). CAATSA is a rule applied to impose sanctions in the form of sanctions and embargoes against countries that buy weapons from Russia, Iran, and North Korea. [4]

The addition of the main fighting force is a very important requirement for Indonesia. From the *Global Firepower* it is clear that Indonesia's air combat power is still relatively inadequate. Purchasing more precise fighter aircraft is the key word. If it is assumed that the purchase of Rafale fighter aircraft is in accordance

with the plan, then the combat power of the Indonesian air force will increase from 461 units to 503 units of defense equipment. [5]

3.3 Combination “High and Low”

Buying a new fighter is a strategic political and military choice. The decision to operate it is not just a purchase with a certain ability for valor but for military defense. If it is not used to actively wage war, then its presence must be effective in providing a *deterrence*, which also affects regional security and as part of the country's political tools. In concocting fighter aircraft postures, we can learn from the USAF example (*United States Air Force*), which uses the definitive combination of “*high-low*”. The USAF does not rely on one type of advanced aircraft but operates several types of fighter aircraft, designed for a specific mission and simplified into two. That is, those with high abilities (*high*) and those with abilities below (*low*).

Table 2. Fighter Aircraft Category

Fighter Aircraft High Capability	Fighter Aircraft Low Capability
GD F-111	Boeing F/A-18A atau F16
Sukhoi Su-32FN/34	Dassault Rafale
Sukhoi Su-27/30/33	Eurofighter Typhoon
Boeing F-15K/SG	LM F-16C
LM F-22A	Joint Strike Fighter F-35

“High” fighter aircraft dedicated to air superiority (air-to-air combat). The specifications are very high speed above Mach 1.5, long range, sensitive advanced radar, advanced computer that can identify and track multiple targets at once, and can carry multiple air-to-air missiles. The main role of the “high” fighter aircraft is to clear the air combat zone of enemy fighters and air defense systems. This makes the combat area relatively safer for other vehicles, such as tactical bombers and helicopters, which are more vulnerable to attack by aircraft and anti-aircraft defense systems, from that function emerged the F-15 Eagle and now its successor is the F-22, the Su- 35, Su-57. However, of course this existence is very expensive and requires a high commitment with a long process. Therefore, the production of “high” class fighter aircraft is not as high as other classes, and the fleet is also specialized in the elite tier. While the high demand due to conflict persists, the solution is to design a second tier fighter, which has been reduced in specifications and is definitely cheaper. However, the line which was less sophisticated than the first tier was covered by a sizable quantity of the second tier fleet.

For “low” fighter aircraft, its main role is to strike the ground with more *air-to-surface*. Air-to-air missiles still exist, but only as a limited support tool for self-defense. “Low” fighter planes will rely on their friends “high” fighter planes to guard and defend themselves from enemy threats. “Low” fighter designs are usually smaller and have a shorter cruising range. The maximum speed is lower, the radar is not as sophisticated as the “high” class, and the avionics are simpler. An example of a fighter of this category is the F-16 Fighting Falcon, then now there is the F-35. [6]

3.4 MEF to IEF

According to the Expert Staff Coordinator (Koorsahli) KSAU Marsda TNI Dr. Umar Sugeng Hariyono, S.IP, SE, MM, in his doctoral dissertation explained that the Indonesian Air Force is still far from the ideal number of aircraft fleet needs with a total of around 600 units. The plan to develop the power towards the *Ideal Essential Force* (IEF) for the period 2024-2039 requires at least 348 aircraft to be added. [7] Assuming the posture of the fighter aircraft is in the 30-40% range, it means that the Indonesian Air Force still needs more than 100 units of first-tier modern fighter aircraft (comparable to and above the F-16 specifications) to reach the *Ideal Essential Force* (IEF). In practice, the air defense posture of each country or defense agency of course does not or cannot be exactly the same as the USAF's, due to financial constraints and so on. However, the basis of reference for the US setting the definition of high-low was because it had been actively fighting in

various combat theaters outside its own territory. Of course, the Indonesian Air Force is not required to have 100% same definition of fleet posture, but the USAF approach can be adopted, according to the advantages of each type of aircraft that can be acquired. [6]

If Indonesia's current free-active policy tends to be oriented towards the US and allied defense equipment, the posture of its fighter aircraft can modify the USAF *high-low*, to then equalize its position with Thailand and approach or slightly exceed Singapore. The uniformity of the fighter aircraft fleet is very important, especially since the TNI is currently strengthening its Network Centric Warfare system. The strength of the Indonesian Air Force cannot be dominated, for example, by fighter aircraft made in the US vs. Russia. This is because it will cause system conflicts in the field, in addition to disrupting the smooth interoperability of the three dimensions. Not only is it an up-to-date fighter specification, but the presence of an ideal fighter combination at the outermost air base, and cruising range (including response time) around flash points is imperative. [6]

Plan A is a combination of F-15EX aircraft (not yet US approval), Rafale (bright, but not final), old F-16s, and some Sukhois. However, Indonesia must also have a plan B. For example, the Rafale is the "high" aircraft, and the F-16 is "low". Then, another decade or two, the F-16 was dethroned by the Rafale, and the "high" role was filled by the F-15EX or F-35 and others. [6]

3.5 Rafale fighter aircraft

Secretary General of the Ministry of Defense Marsdya Donny Ermawan Taufano in the webinar 'Welcoming the Rafale Plane', said that Indonesia currently only relies on 33 F-16 aircraft that are more than 30 years old. Meanwhile, 16 Sukhoi Su 27 and Su 30 fighters are almost 20 years old. Under these conditions, it is the obligation of the Ministry of Defense to plan fighter aircraft that will serve in the 2030s and 2040s. The government's decision to choose the Rafale fighter is based on technical and non-technical considerations. Choosing products made in France is safer from US sanctions against Russia or better known as CAATSA (*Countering America's Adversaries Through Sanction Act*). This is inseparable from the military competition between the US and Russia. In addition, the certainty of technology transfer of the Rafale fighter is more secure than the previous two types of fighter aircraft. [8] Rafale is known as a versatile aircraft because it can be used for various missions. For example, interdiction (ban), aerial reconnaissance (air reconnaissance), ground support (ground support), anti-ship strike (anti-ship attack) and nuclear deterrence mission (nuclear prevention mission).

Dassault Rafale fighter specifications:

1. Generation 4.5 aircraft.
2. Maximum speed 1.8 Mach or 750 knots.
3. Maximum altitude 50,000 feet.
4. Has an 'Active Electronically Scanned Array' radar.
5. Has a wingspan of 10.9 meters, length 15.30 meters and 5.30 meters high.

Armament Specifications Dassault Rafale:

1. The MICA combat and self-defense missile.
2. Meteor long range rocket.
3. High Agile and Manoeuvrable Munition Extended Range equipped with GPS and infrared.
4. Aircraft-brake-powered air missiles.
5. SCALP long range missile.
6. AM39Exocet anti-ship missile.
7. Laser guided bombs with warheads ranging from 500-2,000 pounds.
8. Internal gun with 2,500 rounds/minute Nexter30M791 mm

In addition, for special missions, the Rafale can deliver MBDA nuclear missiles. With the addition of the main combat defense equipment in the form of the Rafale type fighter aircraft, it is certain that the combat

power of the Indonesian air force is the strongest in Southeast Asia for now. However, it must still be noted that the very large area of the air boundary with the four Sector Commands (Kosek) of the National Air Defense Command (Korhanudnas) which includes: Jakarta, Makassar, Medan and Biak is not sufficient. The current number and posture of the main combat defense equipment can only support a maximum of 30 units per Korhanudnas. Seeing the development of the global geopolitical situation which is full of uncertainty after the start of the Russian invasion of Ukraine, the Indonesian government needs to consider the fulfillment of the main combat defense equipment which is relatively adequate, sophisticated and modern. Thus, the sovereignty of Indonesia's airspace is not easily threatened and violated by foreign parties and is protected from enemy attacks if at any time there is a war between Indonesia and other countries.

3.6 Transfer of technology

Transfer of technology is one way to eliminate the limitations that hinder mastery of technology and towards increasing mastery of technology. The policy is a strategy in developing the capacity of human resources so that their productivity will increase even more. Increased human productivity will produce quality and competitive products. [9]

In the contract for the purchase of 42 Rafale aircraft made by Dassault, a memorandum of understanding (MoU) of the Offset and ToT Program cooperation between Dassault and PT DI was also made. The Dassault Rafale aircraft procurement contract agreement should emphasize *the transfer of technology* (ToT) by sending human resources to study and do internships in the development industry. In addition to HR offsets, there is also a need for an offset scheme for the production of aircraft components in Indonesia by the national industry, namely PT Dirgantara Indonesia (PT DI). As a strategic national asset, PT DI requires continuity between human resources and facilities that are recognized by authority globally. PT DI's business portfolio consists of aircraft (airplane and helicopter), aircraft services (maintenance, overhaul, repair and alteration), aerostructure (parts and sub assemblies, assemblies tools and equipment), engineering services (communication technology, simulator technology, information technology). solution, design center) should focus on optimizing the national aviation system as a provider and supporter of commuter aircraft and TNI defense equipment. The development strategy must prioritize the importance of the independence of the nation and the mastery of technology by the nation's own children. For this reason, the government needs to include elements of science and technology for human resource development in the defense equipment spending agreement.

It must be admitted that the human resources we currently have are still limited, both in terms of quality and quantity. HR is the main component in determining the success of R&D work. The limited quality and quantity of technology experts will only shackle the R&D function. R&D is a bridge that connects science and technology with human interests. Therefore, R&D agencies must be supported by qualified technology experts and in sufficient numbers. Every effort and effort must be made to increase the number of transfer of technology (including *Transfer of Technology/ToT*) of a general nature, or military, in accordance with the demands of the required disciplines. [10]

The development of the defense technology industry does require a strong commitment from the government. This commitment is certainly related to the development of the defense industry, including the offset policy in it, as an effort towards Indonesia's defense independence. The government holds the main control in the development and implementation of offset policies because the support of funds, human resources, and political will is very much needed. However, if this policy is carried out optimally, we will see an independent Indonesia and talk a lot on the international stage. [11] In addition, the role of academics can help maximize the absorption and dissemination of knowledge that can help smooth *the transfer of knowledge* needed to support technology transfer. In addition, influential factors in technology transfer include production facilities, managerial capabilities of human resources, and government commitment in transfer projects. technology. In technology transfer, a large investment is needed to prepare the required production support facilities.

Investment is needed to support the success of the technology transfer process. The success of technology management in a country depends on the political commitment of the government to be able to increase mastery of certain technologies, such as making regulations that support the achievement of mastery of technology, and other supports such as financial support aimed at the success of technology management in the context of mastering certain technologies. [12]

Defense Minister Prabowo's military diplomacy, which has been active for the past year, must be able to produce concrete results. It must no longer run aground, such as the planned acquisition of the Su-35 and the development of KFX/IFX, where almost a decade has been wasted, swallowing the bitter pill of defense equipment politics and the complexities of aerospace technology. The issue of the balance of power in ASEAN and the potential conflict between the South China Sea and China are definitely part of Indonesia's ammunition, in lobbying for defense equipment needs to other strong democratic countries, such as the US and its allies. The successive governments must also faithfully guard this vision and commitment. [6]

4. Conclusions

Based on the results of the analysis, conclusions can be drawn in this study as follows. The existence of Indonesia, which is in the Southeast Asian region as well as bordering the Pacific Ocean, makes the country characterized by the archipelago must have a military force that is capable of dealing with various external threats. Especially in the Southeast Asia region. So that the strength of military weapons for a country is very important to anticipate various threats that have the potential to come to disturb the security and peace of a country.

Fighter aircraft *Dassault Rafale* that has been carried out by the Ministry of Defense so that its existence becomes effective in formulating defense postures, the USAF approach (*United States Air Force*) the definitive combination of "high-low" can be adopted according to the advantages of each type of aircraft that can be acquired. In fulfilling its defense equipment, Indonesia must also be realistic in responding to the balance of regional power, namely ASEAN. The realization of the *MEF* towards *IEF* must adapt, for example, to the air power of three strong neighboring countries, such as Vietnam, Thailand and Singapore. Thus, the sovereignty of Indonesia's airspace is not easily threatened and violated by foreign parties and is protected from enemy attacks if at any time there is a war between Indonesia and other countries.

The Dassault Rafale aircraft procurement contract agreement should emphasize *the transfer of technology* (ToT) by sending human resources to study and do internships in the development industry. In addition to HR offsets, there is also a need for an offset scheme for the production of aircraft components in Indonesia by the national industry. This policy does require a strong commitment from the government. The government holds the main control in the development and implementation of offset policies because the support of funds, human resources, and political will is very much needed. if this policy is carried out optimally, we will see an independent Indonesia and speak a lot on the international stage.

Declaration of competing interest

The authors declare that they have no any known financial or non-financial competing interests in any material discussed in this paper.

Funding information

No funding was received from any financial organization to conduct this research.

References

- [1] M. A. Wibowo, "Eksistensi TNI dalam Menghadapi Ancaman Militer dan Nir Militer Multidimensional di Era Milenial". Kemhan RI : Edisi KHUSUS (WIRA), 2019.
- [2] T. P. Sorongan, "Prabowo Borong 42 Jet Tempur Rafale", CNBC Indonesia, 2022.

- [3] F. C. Farisa, "Deretan Alutsista yang di beli Prabowo". Kompas, Indonesia, 2022.
- [4] A. Fitri, P. Dalam N. Kepakaran, S. Pertahanan, P. Penelitian B. Keahlian Sekjen, DPR RI, 2022.
- [5] Mujiburrahman, "Menakar Kekuatan TNI AU Pasca Kontrak Pembelian Rafale", Politik dan Keamanan Budget Issue Brief Vol 02, Ed 3, Maret 2022.
- [6] D. Toruan, "Menanti Kombinasi Maut Jet Tempur Indonesia", Armory Reborn 6, 2021.
- [7] F. Setiawan, "Menuju Ideal Essential Force (IEF), Indonesia Perlu Menambah 348 Unit Pesawat untuk TNI AU, Air Space Riview, 2018.
- [8] B. Santosa, "Pembelian Pesawat Rafale," Kompas, Indonesia , 2022.
- [9] M. Waluyo, "Transfer Teknologi dan Keberlanjutan Industri", LIPI, 2018
- [10] I. Samego, S. Pertahanan-Keamanan Negara, "Analisis Potensi dan Problem", (Jakarta: the Habibie Center, pp. 227-228, 2001.
- [11] R. M. J. Indrawan, "Kebijakan Ofset Dalam Membangun Kemandirian Pertahanan Negara", 2016.
- [12] R. L. Muchtiwibowo, "Transfer of Technology," *Jurnal Industri Pertahanan*, Volume 1, No 1 , 2019.