

## Research.

# Evaluation of the Minimum Essential Force Program on the Independence of the Indonesian Defense Industry

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**Abstract:** Indonesia as a strategic archipelagic country in Southeast Asia requires an independent defense industry to maintain national sovereignty and security. The government through the Ministry of Defense initiated the Minimum Essential Force (MEF) Program in 2010 to build adequate defense forces, encourage transfer of technology, increase production capacity, and develop human resources in the defense sector. This research evaluates the achievements of the MEF Program in increasing the independence of the Indonesian defense industry using the CIPP (Context, Input, Process, Product) evaluation model. This research uses a qualitative descriptive analytical approach, examining the implementation and impact of the MEF policy. Evaluation of the context, planning and implementation, implementation process, and results and impacts show that despite challenges such as budget constraints and dependence on foreign industries, the MEF policy has increased the capacity of the domestic defense industry. An example of success is PT PAL which produces various types of defense equipment through a transfer of technology scheme and government support. The conclusion of this research emphasizes the importance of synergy between the government, defense industry, and research institutions to achieve sustainable defense industry independence and increase domestic production capabilities.

**Keywords:** CIPP Evaluation, Defense Policy, Defense Industrial Independence, Minimum Essential Force (MEF)

## INTRODUCTION

### Background

Indonesia, as an archipelagic country that holds a strategic position in Southeast Asia, faces major challenges in maintaining national sovereignty and security amidst complex global dynamics. As an integral part of this effort, the defense industry has a very important role in facing various threats that may arise both from within and outside the country. The independence of the defense industry is crucial because it includes the ability to independently design, develop, produce, and maintain the main weapons systems (alutsista), so that it no longer needs to depend on other countries for essential defense needs. The Indonesian government, through the Ministry of Defense, has responded to this challenge by implementing various programs and policies designed to strengthen the defense industry. One of the central initiatives in this effort is the Minimum Essential Force (MEF) Program, which was launched in 2010. MEF was designed as a long-term strategy to build an adequate national defense force that is ready to face various threats, both existing and those that may emerge in the future. This program not only focuses on the procurement of modern defense equipment, but also prioritizes the

**Elga Adestria; Hikmat Zakky Almubaroq; Agung Risdhianto.** Evaluation of the Minimum Essential Force Program on the Independence of the Indonesian Defense Industry

development of the capacity of the domestic defense industry. This is reflected in the government's active efforts to encourage transfer of technology, increase production capacity, and develop human resources in the defense sector.

In line with the vision to achieve independence, MEF is implemented through three phases with different focuses. The first phase (2010-2014) focuses on meeting basic defense equipment needs, while the second phase (2015-2019) and third phase (2020-2024) focus on improving the quality, technology, and independence of the domestic defense industry (Ministry of Defense, 2020). Evaluation of the achievements of the MEF Program is important to measure the extent to which success in increasing the independence of the Indonesian defense industry has been achieved.

Previous research, as mentioned by, (Rahman et al., 2018) emphasized that MEF aims to meet joint operational needs for the three dimensions, with the main focus on achieving 100 percent readiness of defense equipment on a minimum scale as a deterrent effort. However, despite significant progress, there are also challenges that must be faced in implementing MEF. These challenges include budget constraints, dependence on foreign technology and industry in the procurement of defense equipment, and the need to optimize human resource and technology management domestically.

Evaluation of the success of the MEF Program is crucial in measuring the extent to which government efforts have succeeded in increasing the independence of the Indonesian defense industry. This independence does not only refer to technical capabilities, but also to the ability to innovate, maintain, and develop sustainably. This research aims to investigate the concrete achievements of the MEF Program in these various aspects, while identifying obstacles and challenges that may be faced in its implementation. Through this evaluation, it is hoped that useful recommendations can be found to optimize future efforts to strengthen Indonesia's national defense industry. This research aims to evaluate the achievements of the MEF Program in increasing the independence of the Indonesian defense industry using the CIPP (Context, Input, Process, Product) evaluation model. With a qualitative descriptive analytical approach, this research examines the implementation and impact of the MEF policy. It is hoped that this evaluation can provide useful recommendations to optimize future efforts to strengthen Indonesia's national defense industry.

### **Formulation of the Problem**

In accordance with the background above, the formulation of the problem to be discussed in this research is:

1. To what extent has the Minimum Essential Force (MEF) Program succeeded in increasing the independence of the Indonesian defense industry?
2. What are the factors that effect the success or failure of the implementation of the MEF Program in increasing the independence of the defense industry?
3. What are the roles of the government, defense industry, and research institutions in supporting the implementation of the MEF Program?
4. What are the challenges faced in implementing the MEF Program and how can they be overcome?
5. What are the strategic recommendations for strengthening efforts to increase the independence of the Indonesian defense industry in the future?

It is hoped that by answering these questions, this research can provide comprehensive insight into the effectiveness of the MEF Program and the steps that need to be taken to achieve sustainable defense industry independence.

## LITERATURE REVIEW

### Defense Industry Independence

Defense industry independence refers to a country's ability to produce, develop and maintain defense equipment and military technology independently without relying on other countries. Indicators of this independence include innovation capability, production capacity, technology quality and the ability to maintain and repair defense equipment. Indonesia has realized the importance of this independence and has begun to initiate various policies to support the development of the domestic defense industry. One significant effort is the establishment of the Defense Industry Policy Committee (KKIP) which is tasked with coordinating and synergizing national defense industry policies. The following are some factors that effect the independence of the defense industry in Indonesia according to (Farhan et al., 2023). In his research, it was stated that the following three things would be able to support the readiness of the defense industry in production:

1. Human Resources: availability of skilled and competent workforce in the field of military technology.
2. Technology: ability to develop and adopt the latest technology.
3. Funding: Financial support from the government and the private sector for research and development is still minimal.

### Minimum Essential Force (MEF) Program

Minimum Essential Force (MEF) is a concept introduced by the Indonesian Ministry of Defense to ensure that the country's defense forces have the basic capabilities needed to defend sovereignty and territorial integrity. The MEF aims to achieve a minimum but essential level of defense readiness, with a focus on modernizing and strengthening defense equipment (Ministry of Defense, 2020).

Legally and formally, the MEF defense posture development policy is in accordance with Law Number 17 of 2007 concerning National Long-Term Development (RPJPN) 2009-2025. This policy is outlined in each segment of the 2010-2014 National Medium-Term Development Plan (RPJMN), which emphasizes improving the condition and number of main weapons systems (alutsista) in each dimension. The implementation of this policy is conducted in accordance with validation of the defense posture and structure to achieve minimum defense force needs, as stipulated in Presidential Regulation Number 5 of 2010 concerning RPJMN and Presidential Regulation Number 7 of 2008 concerning General Policy of State Defense. This policy is also formulated through the Regulation of the Minister of Defense of the Republic of Indonesia Number 16 of 2008 concerning the policy of organizing national defense.

The implementation of MEF is conducted in three different phases in accordance with Presidential Regulation Number 5 of 2010. The first phase (2010-2014) emphasizes the fulfillment of basic defense equipment needs. The second phase (2015-2019) focuses on improving the quality and technology of defense equipment. The third phase (2020-2024) leads to full independence in the production and maintenance of defense equipment (Santiko & Agustien, 2022).

This formulation is intended as a response to threats, both actual and future threats. By going through these three phases, MEF seeks to improve Indonesia's defense capabilities gradually but significantly. In the first phase, priority is given to meeting basic needs to ensure operational continuity. The second phase focuses on improving the technology and quality of defense equipment to make it more modern and competitive. The third phase targets full independence in the aspects of production and maintenance, which is an important step towards overall national defense independence. Through this

gradual implementation, MEF is expected to build a strong and highly competitive defense force, capable of maintaining Indonesia's sovereignty and territorial integrity.

### **Indonesian Defense Policy**

Law No. 16 of 2012 concerning the Defense Industry is the legal basis that supports the development of the national defense industry. This law regulates various aspects related to the management, development, and utilization of the defense industry to achieve independence and competitiveness at the global level (Susdarwono, 2020).

The Indonesian government has certainly implemented various policies in an effort to support the national defense industry, including fiscal incentives, research and development support, and the establishment of State-Owned Enterprises (BUMN) in the defense sector such as PT PAL, PT Pindad, and PT Dirgantara Indonesia. The Public Relations Bureau of the Secretariat General of the Ministry of Defense (Ministry of Defense, 2022) said that to achieve independence in the defense industry.

### **CIPP Policy and Model Evaluation**

The CIPP (Context, Input, Process, Product) evaluation model is the most frequently used framework in program and policy evaluation. This model provides a comprehensive and systematic approach to assessing various aspects of a program, from context, input, process, to final results. Context evaluation aims to understand the environment in which the program is implemented, including program objectives, related policies, and social, economic, and political conditions that effect program implementation. Input evaluation assesses the resources used to implement the program, such as budget, personnel, and facilities, to ensure that these resources are sufficient and used effectively. Process evaluation evaluates how the program is implemented, including the strategies used, activities conducted, and interactions between personnel and program participants. Finally, product evaluation assesses the final results of the program, both in the form of outputs and outcomes, to determine whether the program achieves the stated objectives and whether the results achieved are in accordance with expectations (Rama et al., 2023).

1. Context  
Context is the program being implemented. This context can include factors such as the program, related policies, and the social, economic and political conditions of the location where the program is implemented.
2. Input  
Input is the resources used to implement a program, such as funds, manpower, and facilities. Input evaluation aims to assess whether these resources are adequate to achieve program objectives and whether their use has been effective.
3. Process  
Process is how a program is run, including the strategies implemented, the activities conducted, and the interactions between personnel and program participants. Process evaluation aims to assess whether the strategies and activities are effective in achieving program objectives and whether the interactions between personnel and participants are positive. This evaluation also aims to identify problems in the process, whether they are related to specific activities or events, in order to determine the extent to which the plan has been implemented and which components need to be improved.
4. Product  
Products refer to the results obtained from the program, such as increased knowledge or skills of participants. Product evaluation aims to assess whether the program has met its stated objectives and whether the results achieved are in line with expectations. This evaluation helps in further decision making by interpreting and measuring the results obtained in accordance with the stated objectives. The information obtained from this evaluation will determine whether the program needs to be continued, modified, or terminated.

**Elga Adestria; Hikmat Zakky Almubaroq; Agung Risdhianto.** Evaluation of the Minimum Essential Force Program on the Independence of the Indonesian Defense Industry

Research conducted by (Rama et al., 2023) evaluated the implementation of the CIPP model in Vocational High Schools (SMK). This model is used to assess the effectiveness of educational programs in SMK with a focus on developing students' professional skills and competencies. Context evaluation involves assessing the needs and objectives of educational programs in SMK. Input evaluation assesses the readiness of resources such as budget, teaching staff, and facilities. Process evaluation evaluates program implementation, including teaching methods and teaching and learning activities. Finally, product evaluation assesses the final results of the educational program, such as improving students' skills and knowledge. The same approach can be applied to the Minimum Essential Force (MEF) Program in the context of the Indonesian defense industry. Context evaluation will identify the needs and objectives of the MEF program to increase the independence of the defense industry. Input evaluation will assess the readiness and completeness of the allocated resources, such as budget, technology, and manpower. Process evaluation will examine program implementation, including the production process and procurement of defense equipment. Product evaluation will assess the final results of the MEF program, such as increasing domestic production capacity and reducing dependence on imports.

## **RESEARCH METHOD**

This research adopts a qualitative method with a descriptive analytical approach to explore and understand the implementation and impact of the Minimum Essential Force (MEF) Program on the independence of the Indonesian defense industry. This approach allows researchers to gain in-depth and detailed insights into how the program is implemented and what impact it has on the expected long-term goals. Secondary data used in this research include various sources, such as articles, scientific journals, reference books, and government reports, which provide a rich and diverse information base for analysis. In this research, the CIPP (Context, Input, Process, Product) model developed by Daniel L. Stufflebeam is used as an evaluation framework. The CIPP model is a comprehensive and systematic evaluation tool that allows for a comprehensive assessment of a program or policy from various perspectives. This model is known for its flexibility and ability to provide a comprehensive picture of various aspects of the program or policy being evaluated. By applying this model, researchers can conduct an in-depth evaluation of various elements of the MEF Program, starting from the context of its implementation, the inputs used, the implementation process, to the products or results achieved.

Evaluation using the CIPP model allows for a more detailed and comprehensive analysis of how the MEF policy is implemented and what impact it has on the independence of the Indonesian defense industry. This model provides a structure that allows researchers to evaluate not only the final results of the program, but also the processes and inputs that effect those results. With this approach, research can provide deeper insights into the effectiveness and efficiency of the MEF Program, as well as provide relevant recommendations for future policy improvements and developments. The proposed research design will involve an in-depth analysis in accordance with the four components of the CIPP model to gain a comprehensive understanding of the implementation and impact of the program on the defense industry. The following is the CIPP model and research design:

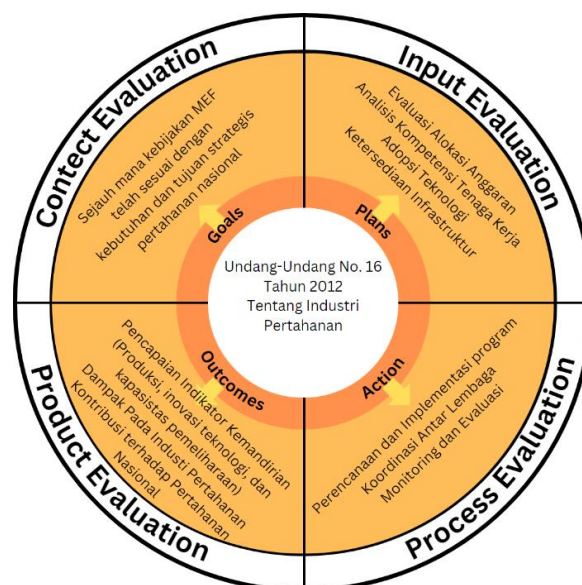


Figure 1.

Minimum Essential Force Program Evaluation Model for the Independence of the Indonesian Defense Industry Using the CIPP Evaluation Model from Daniel L Stufflebeam

## RESULTS AND DISCUSSION

### Evaluation of the Background of the Need for Implementation of MEF Policy in Defense Industry Independence Efforts (context component)

Evaluation of the background of the need to implement the Minimum Essential Force (MEF) policy in an effort to achieve defense industry independence is essential considering the increasingly complex global and regional challenges currently faced by Indonesia. As an archipelagic country with a strategic geopolitical position in Southeast Asia, Indonesia needs to ensure that its defense industry is not only capable of facing existing threats, but can also be independent in designing, developing, and producing defense equipment without being too dependent on imports.

The MEF policy implemented since 2010 is a strategic step to meet essential needs in maintaining Indonesia's sovereignty and territorial integrity. The main objective of the MEF is to reduce dependence on defense equipment imports and increase domestic production capacity, as stated by (Kennedy, 2023). Thus, the implementation of the MEF is expected to strengthen the local defense industry, encourage economic growth, and increase national competitiveness in the defense sector.

One of the policies related to defense equipment that also supports the vision of independence is Law No. 16 of 2012, which stipulates that state-owned defense industry companies have a role as lead integrators in the development of defense equipment. This aims to facilitate the development of a more coordinated and effective domestic defense industry, as demonstrated by the contributions of PT. Pindad, PT PAL, and PT DI in producing various types of defense equipment, including combat vehicles.

The implementation of MEF has also made a significant contribution to increasing the production capacity of the domestic defense industry. Following the entry into the third phase of MEF, the defense budget has consistently increased every year, as stated by the Public Relations Department of PT PAL (2022). This budget increase is important to ensure that Indonesia can provide adequate financial support to realize sustainable and independent defense development. Thus, an in-depth evaluation of the background and urgency of MEF implementation is crucial in understanding the challenges and opportunities faced by Indonesia in achieving defense industry independence. This

**Elga Adestria; Hikmat Zakky Almubaroq; Agung Risdhianto.** Evaluation of the Minimum Essential Force Program on the Independence of the Indonesian Defense Industry

research is expected to identify factors that effect the success of MEF implementation, as well as offer strategic recommendations to strengthen future steps in supporting Indonesia's vision as an independent country in the defense sector.

### **Evaluation of Planning and Implementation of MEF Policy on Defense Equipment Development (input component)**

Evaluation of the planning aspect of the implementation of the Minimum Essential Force (MEF) policy in the development of defense equipment to achieve defense industry independence is a crucial part in understanding the challenges and efforts in achieving these strategic goals. During the implementation of MEF in Renstra I and Renstra II, several obstacles have been identified that effect the effectiveness of this policy in meeting the budget needs and procurement of TNI defense equipment. Looking at the research conducted by (Jannah, Nurul Fatia, Apriyanto, I Nengah Putra and Bura, 2019) it is argued that there are several main problems faced in the implementation phase of Renstra I. First, the government's commitment to the allocation of the defense budget is often effectd by the dynamics of budget politics that can hinder the availability of adequate funds for defense development. Second, the use of loan policies from both domestic and foreign sources has not been optimal, which can limit the ability to acquire technology and defense equipment independently. The government's commitment as a budget policy maker to defense development caused by budget politics.

Third, the imbalance in the right sizing and zero growth policies poses a challenge in maintaining a balance between the development of defense capabilities and the limited budget available. Fourth, the process of modernizing and replacing defense equipment and non-defense equipment often experiences priority adjustments because of the limited budget available. This indicates the need for better alignment between the initial plan and the actual needs in national defense priorities. Fifth, the still large dependence on foreign industries in procurement in the defense industry reflects the challenges in achieving technological and production independence. Finally, the supervision and control functions in the development of the MEF still need to be improved to ensure efficiency and transparency in the management of this program. In the process of fulfilling the MEF, problems such as suboptimal human resource management, inefficient utilization of resources, limited defense budgets, and challenges in mastering technology are obstacles that need to be addressed comprehensively. Closer synergy between the defense industry, government, and related institutions is needed to ensure that every aspect of the MEF can be fulfilled effectively and sustainably.

Overall, an in-depth evaluation of the MEF planning and implementation is not only important to identify existing problems, but also to find the right solutions to strengthen the independence of the Indonesian defense industry in the long term. This will be a strong foundation for further policy development that focuses on improving efficiency, independence, and national safety as a whole.

### **Evaluation of the Implementation of MEF Policy in Defense Industry Independence Efforts (process component)**

At the process evaluation stage, it includes the implementation of the MEF policy in an effort to achieve the independence of the defense industry, which includes how to coordinate between institutions in meeting MEF needs and the implementation of MEF to create the independence of the defense industry. According to (Rasyida et al., 2022), the Department of Defense began designing to boost the performance of the defense industry through Presidential Regulation Number 42 of 2010 with the inauguration of the Defense Industry Policy Committee or KKIP. Then strengthened again by Law Number 16 of 2012 concerning the Defense Industry. In the master plan for the development of the defense industry, According to (Herma Yudhi Irwanto et al., 2022) The first stage program (2010-2014) is the stage of determining the program, stabilizing and optimizing the defense industry, preparing regulations, and preparing new future products. In the

**Elga Adestria; Hikmat Zakky Almubaroq; Agung Risdhianto.** Evaluation of the Minimum Essential Force Program on the Independence of the Indonesian Defense Industry

second stage (2015-2019), it is expected to be able to support the MEF program, by increasing the ability to cooperate in production and new products. In the third stage (2020-2024) it is expected to be able to have a program to develop the industry and increase international cooperation. In the final stage (2025-2029), the KKIP program is to form an independent defense industry, by increasing international collaboration capabilities and sustainable development.

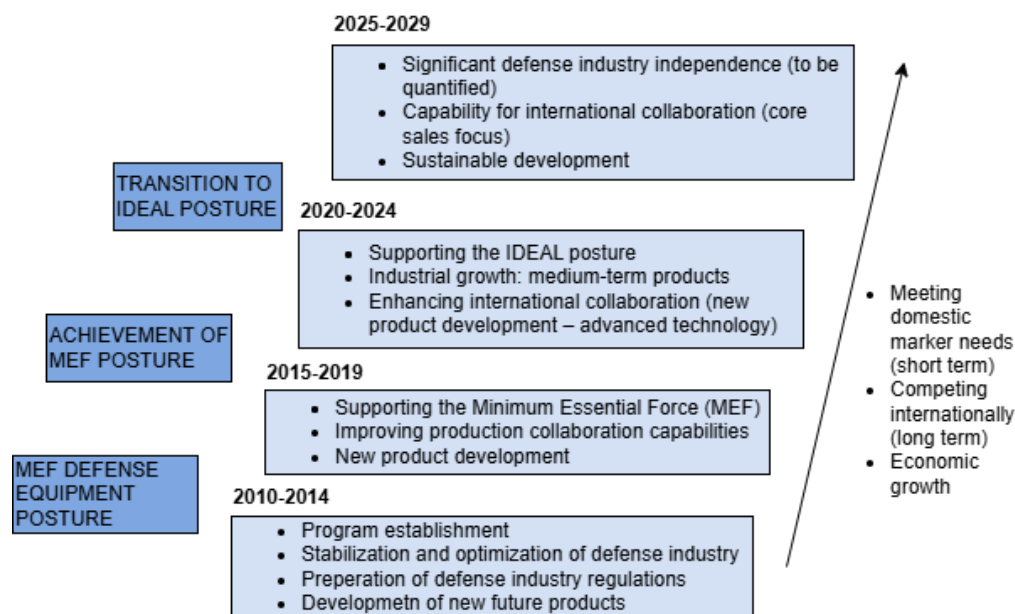


Figure 2. Defense Industry Master Plan 2010-2029  
 Source: Ministry of Defense

The implementation of this policy is highly dependent on strengthening human resources (HR) in the defense industry. Improving the quality of HR as an important factor will certainly help achieve industrial independence. In addition, collaboration between the defense industry and the government and research institutions is also a determining factor in the success of achieving independence. Collaboration between the government, research institutions, and industry is essential to encourage innovation and mastery of technology that supports the defense industry (Andalus & Djuyandi, 2022). However, one of the challenges in implementing the MEF policy is the limited budget. The current defense budget is still below the target, which is 1% of the total Gross Budget Product, to be precise 0.8%, so it can be said that this budget cannot be said to be ideal to encourage MEF by 100% (CNBC Indonesia, 2024). This will have an impact on the country's ability to procure and revitalize defense equipment. Therefore, increasing the budget and optimal utilization of resources are the most important steps to achieve the MEF target. Mastery of technology is an important factor in achieving defense industry independence. The technology owned by the Indonesian defense industry currently still requires further development (Andalus & Djuyandi, 2022). Therefore, support from research and development (R&D) and transfer of technology from other countries can help accelerate the modernization of defense equipment.

In addition, there are several obstacles in the implementation of the MEF policy, including budget constraints, human resource management, and low technological mastery. Nevertheless, the increase in achievements from MEF I to MEF II shows the government's efforts to realize the achievement of the MEF target. By considering these aspects, the implementation of the MEF policy can have a positive impact on efforts to achieve defense industry independence.



## **Impact of the Results of the Implementation of the MEF Policy in Efforts to Achieve Defense Industry Independence (Product Components)**

The implementation of the Minimum Essential Force (MEF) policy in Indonesia is not only aimed at increasing overall military strength, but also at advancing the domestic defense industry towards independence. Close collaboration between the Ministry of Defense as the main user and the defense industry is key to achieving this goal. The MEF policy has had a significant impact on the independence of the defense industry in Indonesia by prioritizing the procurement of defense equipment in accordance with local capabilities and transfer of technology (ToT) from foreign industries. One real example of the implementation of the MEF policy is the role of PT PAL (Persero) as one of the lead integrators of BUMN in the defense industry. PT PAL has successfully realized various contracts for the procurement of important warships such as the 60-meter Fast Missile Ship (KCR), the 125-meter Landing Platform Dock Ship (LPD), the 124-meter Hospital Auxiliary Ship (BRS), and the Changbogo Class Submarine. This procurement not only includes the acceptance of technology through the ToT scheme, but also adjustments are made according to the needs and production capacity of PT PAL.

The Indonesian government actively supports the defense industry's independence efforts by channeling large State Capital Participation (PMN) to strengthen technology mastery. This step is important to ensure that PT PAL and other defense industries can achieve the targets set in the MEF framework. PMN not only acts as a source of funding, but also as a form of government commitment to support the development of domestic technology that is vital for the sustainability of the defense industry. Overall, the implementation of the MEF policy has had a significant positive impact on the progress of the defense industry in Indonesia, especially through increasing production capacity, technology mastery, and independence in meeting national defense needs. Synergy between the government, defense industry, and other supporting institutions is the main key to maintaining this momentum so that it continues in the future.

## **CONCLUSION AND SUGGESTIONS**

In accordance with the results of research and discussion of the evaluation of MEF policies on the independence of the Indonesian defense industry using the context, input, process, and product (CIPP) evaluation model, the following conclusions can be drawn:

### **1. Context Evaluation (Context)**

Indonesia, as a vast archipelagic country with a strategic position in Southeast Asia, has a need to maintain its sovereignty and national security. The defense industry has an important role in facing various threats and challenges, both from within and outside the country. The independence of the defense industry includes the ability to design, develop, produce, and maintain the main weapons systems (alutsista) without dependence on other countries. The MEF policy is designed to ensure that Indonesia has the minimum capabilities needed to maintain its sovereignty and territorial integrity from various threats, reduce dependence on imported defense equipment, and increase domestic production capabilities.

### **2. Input Evaluation (Input)**

The input component evaluates the planning of the implementation of the MEF policy on the development of defense equipment to achieve the independence of the defense industry. Despite the government's commitment, challenges such as budget commitments, loan policies, and dependence on foreign industries still exist. The process of fulfilling the MEF faces problems such as human resource management, suboptimal utilization of resources, and limited

defense budget. To overcome these problems, synergy between the defense industry and the government is essential.

### 3. Process Components (Process)

The process evaluation includes the implementation of the MEF policy in the defense industry independence effort, including coordination between institutions and the implementation of MEF to create defense industry independence. The MEF program is designed in three phases, each aimed at improving the ability of production cooperation and technology development. The implementation of this policy is highly dependent on strengthening human resources (HR) in the defense industry, collaboration between the defense industry, government, and research institutions to encourage innovation and mastery of technology. However, budget constraints remain a major challenge in the implementation of the MEF policy.

### 4. Product Component (Product)

The implementation of the MEF policy aims to accommodate and encourage the domestic defense industry towards independence. Synergy between the Ministry of Defense and the defense industry is a major factor in achieving independence. The MEF policy has a significant impact on the independence of the defense industry through the procurement of defense equipment in accordance with local industrial capabilities and transfer of technology (ToT) from foreign industries. A concrete example of the impact of the MEF policy is the success of PT PAL as the lead integrator of state-owned defense industry companies in the development of maritime defense equipment, including the procurement of 60-meter Fast Missile Ships (KCR), 125-meter Landing Platform Dock Ships (LPD), 124-meter Hospital Auxiliary Ships (BRS), and Changbogo Class Submarines. This success is supported by large investments through State Capital Participation (PMN) which ensures mastery of technology and sustainability of defense equipment production in Indonesia.

This research presents an in-depth evaluation of the Minimum Essential Force (MEF) Program and its impact on the independence of the Indonesian defense industry using the CIPP evaluation model. However, to enrich the analysis, it is recommended to strengthen the arguments with more specific empirical data, such as case studies or interviews with relevant stakeholders (government, industry, academics). In addition, additional focus on evaluating the socio-economic impacts of the MEF policy can provide a broader view of the long-term benefits for the national economy. For a more effective presentation, the author can consider explaining more about how the regulatory and policy frameworks support or hinder the implementation of the MEF. In addition, the use of simpler language and clearer structure can improve the accessibility and understanding of the research results for non-specialist readers in the defense field.

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**Elga Adestria; Hikmat Zakky Almubaroq; Agung Risdhianto.** Evaluation of the Minimum Essential Force Program on the Independence of the Indonesian Defense Industry

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