

The Potential of Indonesia's Ship Engine Market to Attract Foreign Investors for Domestic Manufacturing

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Abstract: Indonesia is a prospective country for everyone to decide on an investment. There are four reasons to strengthen the motivation to invest some capital in the maritime industry sector. Moreover, Indonesia has approximately 342 shipbuilding companies and 127 ship component companies which spread out throughout the nation. However, Indonesia has no engine maker company yet and this is an opportunity for all investors who want to establish their own engine company or a branch in this country. The biggest opportunity is in the fishery sector with a growing number of fishing vessels and the Indonesian marine fishery production potential as the largest archipelagic country is still increasing. Furthermore, other opportunities are passenger ships, cargo ships, and tug boats because they have a significant number in the nation. In addition, Indonesia also gives several incentives to new investors, like a tax allowance, a super tax deduction, and an import duty facility. Ultimately, the prospect has been considered to involve responsibilities among shipowners, shipyards, main engine manufacturers, and the government.

Keywords: maritime industry, new investors, main engine

JEL: F4, L1, O1

1. INTRODUCTION

Indonesia, as the largest archipelagic country in the world and rich in natural resources, and the world's second longest coastline of 95,000 km, requires integrated management (Lichun Sui, 2020). Ships are important and vital both as means of transportation and connection, as well as to support various activities such as mining, fishing, tourism and the national defense system. Thus, the shipping industry or shipbuilding is a strategic industry and a future industry that is important to develop.

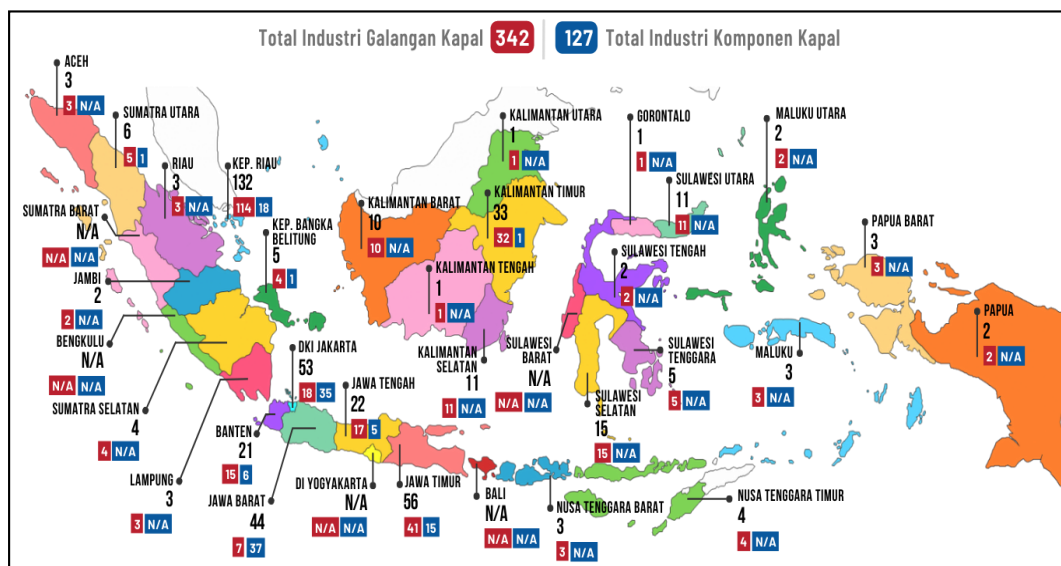


Figure 1. Indonesia's Maritime Industry Map

Source: Kementerian Perindustrian, 2022

Figure 1 shows the number of registered Indonesian shipping industry/shipyard companies is $\pm$ 250 companies spread across 29 provinces and more than 70 cities/districts throughout Indonesia (Kementerian Perindustrian, 2022). The installed capacity is around 1,000,000 DWT/year for new buildings and around 12,000,000 DWT/year for ship repairs/docking-repair. The largest domestic shipyard facilities are as follows:

- Graving dock : 300.000 DWT
- Slipway : 20.000 DWT
- Building berth : 100.000 DWT
- Floating dock : 100.000 DWT

The Indonesian shipyard has experience in building new ships of various types and sizes and even their quality has received international recognition, such as:

- a) 50,000 DWT Bulk Carrier, export to Germany, Turkey and Italy;
- b) Ferry Ro-Ro 19,000 GT, ordered by Rederi AB Gotland, for export to Sweden;
- c) Dry Cargo Vessel 18,500 DWT, ordered by Stephenson & Clark, for export to England and the Netherlands;
- d) Passenger Ship with a capacity of up to 500 people;
- e) Ship type "Caraka Jaya" (General Cargo and Container Vessel);
- f) Oil Tanker 30,000 DWT;
- g) Fishing Vessels up to 1,000 GT;
- h) Fast Patrol Boat 57 m and 28 m;
- i) Tugboat 7,500 HP;
- j) Supply Vessel (Anchor Handling Tug Supply/AHTS) 2 x 8,000 HP;
- k) Offshore structures, platforms;

The capability of the domestic shipbuilding industry can also be seen through the potential for building new ships through ship building projects for transporting mining products considering the increasing demand for commodities, especially coal and nickel; the new capital city (Ibu Kota Negara/IKN) development project for logistics transportation, such as tug boats and barges; construction projects for LCT ships, cargo, SPOB, Mini LNG, Mini tankers, AHTS, and others (Raunek, 2023); the Ministry of Transportation's pioneer ship development project; the project to build Ferry Ro-Ro ships; also shipbuilding and refurbishment projects for the Ministry of Defense, domestic fleets, and the National Search and Rescue Agency.

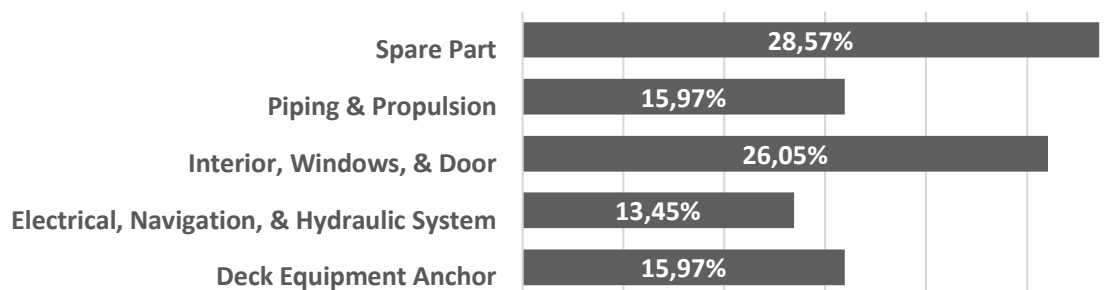


Figure 2. Indonesia's Ship Component Industry Distribution
Source: Kementerian Perindustrian, 2022

In addition, the Indonesian shipbuilding industry also has the potential to rejuvenate ships supported by regulations to dock every year for passenger ships and twice in five years for cargo ships. Based on data from the Indonesian National Shipowners' Association (INSA), in 2021 there

will be around 34,000 units of the national commercial fleet (Kementerian Perhubungan, 2012). Apart from that, continuous ship maintenance is also needed for patrol boats and warships to support domestic defense systems, fishing vessels, and old ships that are still operating on domestic shipping.

The development of the domestic ship component industry is also part of the development of the national shipping industry. The number of Indonesian ship component industry companies that have been registered is 127 that are concentrated on the Java island and the Kepulauan Riau Province. In Figure 2, the ship component industry is divided into 4 job categories (Kementerian Perindustrian, 2022), as follows:

- a) Spare Part of 37 companies;
- b) Piping dan Propulsion of 20 companies;
- c) Interior, Window, dan Door of 33 companies;
- d) Electrical, Navigation, dan Hydraulic System of 17 companies;
- e) Deck Equipment Anchor of 20 companies.

2. LITERATURE REVIEW

2.1. Foreign Direct Investment

The primary objective of many governments, especially those in developing nations, is to attract Foreign Direct Investment (FDI) with the expectation of achieving sustained economic expansion through enhanced resource reliability within their borders. When these host countries function as export hubs for regional product dissemination, FDI can additionally facilitate entry into international markets. Consequently, FDI appears to yield advantageous outcomes such as heightened stability, increased financial assets, positive productivity effects, and expanded market access (Iamsiraroj, 2016). Furthermore, on a microeconomic scale, FDI facilitates technology transfer through knowledge spill-overs and enhances connections between domestic and foreign enterprises. This process contributes to the development of managerial expertise, enhances the skills of the workforce, and strengthens investment incentives and productivity across various sectors of the economy. Additionally, heightened competition resulting from foreign market entry can incentivize local firms to enhance their productivity, eliminate inefficient enterprises, and allocate production factors more efficiently among more productive enterprises and activities (Rivera-Batiz & Spatareanu, 2020). The correlation between FDI and economic growth is generally positive; however, the extent of its impact hinges on the host nation's capacity to effectively utilize and integrate these investments (Iamsiraroj, 2016).

The World Trade Organization (WTO) defines FDI as an occurrence where an investor from one country acquires an asset in another country with the intention of managing that asset. FDI encompasses various management dimensions, including bonds and portfolio investments in foreign stocks. It is considered an essential component of economic growth and financial globalization because it brings much-needed foreign capital, advanced technology, and improved managerial skills (Xinxin Wang, 2021).

The motivations for FDI are categorized into three main types according to economic literature: horizontal, vertical, and complex. Horizontal FDI occurs when a firm establishes an overseas affiliate in its core industry to serve foreign markets, driven by lower costs compared to domestic production and shipping expenses. Vertical FDI involves setting up a foreign affiliate that produces inputs or intermediate services linked to a final product, responding to cost disparities or the availability of specific factors across countries (e.g., raw materials). The concept of "complex" FDI has emerged to describe firms' strategic positioning within increasingly intricate global production and distribution networks, influenced by both horizontal and vertical considerations (Rivera-Batiz & Spatareanu, 2020).

2.2. Economic Growth Theory

Economic growth theory highlights how a country's economy can grow and develop over time. It includes concepts such as capital accumulation, technological innovation, increased productivity, and structural change. This theory is important because it provides an in-depth view of the factors

that drive economic growth and how the government can plan appropriate steps to enhance economic growth. (Sri Wahyuni, 2024)

2.3. Absolute And Comparative Advantage Theory

The theory of Comparative Advantage was first developed by David Ricardo in 1817, in his book entitled "On the Principles of Political Economy and Taxation." According to Ricardo, comparative advantage describes the ability of a company or country to produce a particular good or service at a lower opportunity cost. Lower opportunity costs indicate that smaller and tolerable potential benefits are lost. Even if a country has its own absolute advantage in producing goods, the opportunity cost might be higher compared to importing those goods. Therefore, importing goods is a favorable decision if the opportunity cost is lower. (Faccarello, 2015)

Adam Smith's theory of international trade is dynamic, as it is integrated into the broader economic framework of the division of labor. It considers economic growth that results from and influences international trade. Absolute production cost advantages and the division of trade benefits are not fixed permanently; instead, they develop and emerge endogenously as a result of trade. (Schumahrer, 2012)

3. METHOD

The location or the object of this research is in Indonesia where all the supporting data came from Ministry of Industry, Ministry of Transportation, Ministry of Fishery and Marine Affairs, several state owned enterprise companies, and shipbuilding associations. The research methodology adopted for this study is primarily descriptive in nature. It involved a multifaceted approach encompassing visits and discussions with key stakeholders including industrial companies, as well as pertinent ministries and governmental agencies. Through these interactions, insights were gleaned into various aspects of Indonesia's ship machinery sector, encompassing both its current state and future prospects.

In addition to primary data collection through direct engagements, this research also relied on secondary sources for comprehensive understanding. A thorough review of existing reports, scholarly articles, and industry publications was undertaken to augment the primary findings. This synthesis of both primary and secondary data forms the backbone of the study, providing a holistic perspective on the subject matter.

The culmination of these research efforts is the development of a comprehensive study, aimed at serving as a foundational resource for potential investors considering entry into Indonesia's ship machinery market. This study endeavors to present a nuanced understanding of the investment landscape, identifying key opportunities, challenges, and strategic considerations. By providing a detailed profile of the investment prospects within the Indonesian context, this research aims to facilitate informed decision-making among prospective investors, ultimately contributing to the growth and development of the ship machinery industry in Indonesia.

4. RESULTS AND DISCUSSION

Indonesia has a long history of stable economic growth, with an average annual growth rate of over 5% over the past two decades. This is expected to continue in the coming years, with McKinsey & Company forecasting that Indonesia will become the 7th largest economy in the world by 2030 (Al-Haq, 2024) and it is supported with the data on Figure 3 (Kementerian Perindustrian, 2023).

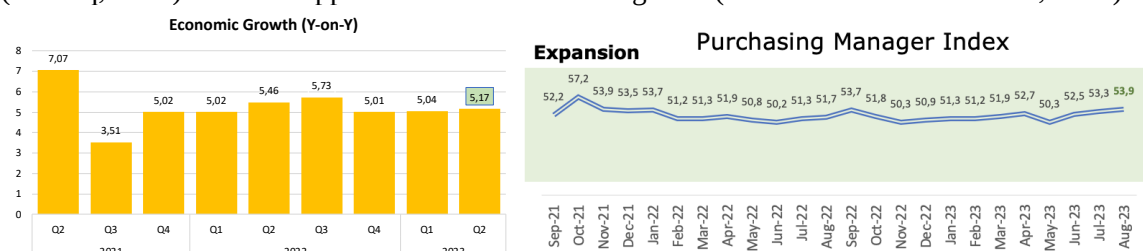


Figure 3. Indonesia's Macro-Economy Overview

Source: Pusdatin Kementerian Perindustrian, 2023

4.1. Export and Import Condition

Throughout 2022, Indonesia's export transactions for HS code 89, in Figure 4 (Badan Pusat Statistik, 2023), reached a higher figure (USD 1.3 B) compared to import transactions (USD 807.4 B) with the highest export destination countries being Senegal, Denmark and Singapore as Figure 5 (Kementerian Perindustrian, 2023) presents. Products with the highest export value include floating structures, light-vessels, tug boats and barges. Meanwhile, in the period from January to July 2023 the value of export transactions for Indonesia's HS code 89 reached USD 523.8 B with the highest export destination countries namely Qatar, England and Singapore. Almost the same as in 2022, products with the highest export value in January to July 2023 are floating structures and barges, added with tankers and special purpose vessels.

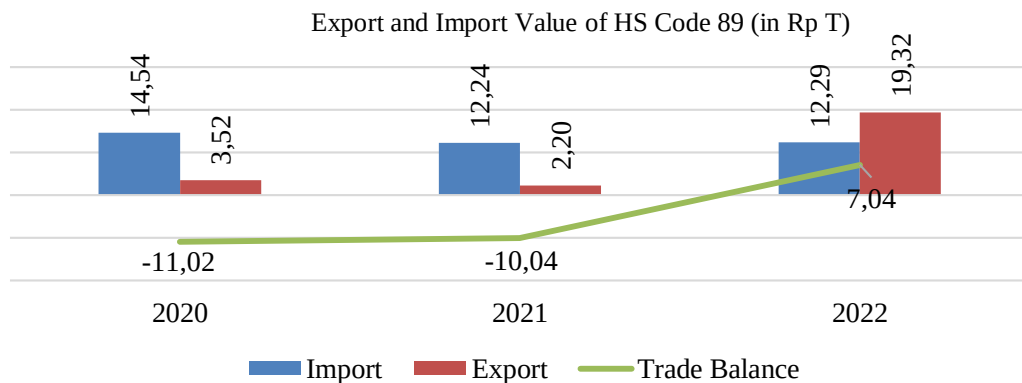


Figure 4. Indonesia's Export and Import Balance, HS89

Source: Badan Pusat Statistik, 2023

This pictured that the Indonesian shipping industry has high competitiveness and continues to develop, manufacturing technology has been mastered, and to a certain extent has mastered ship design and engineering.

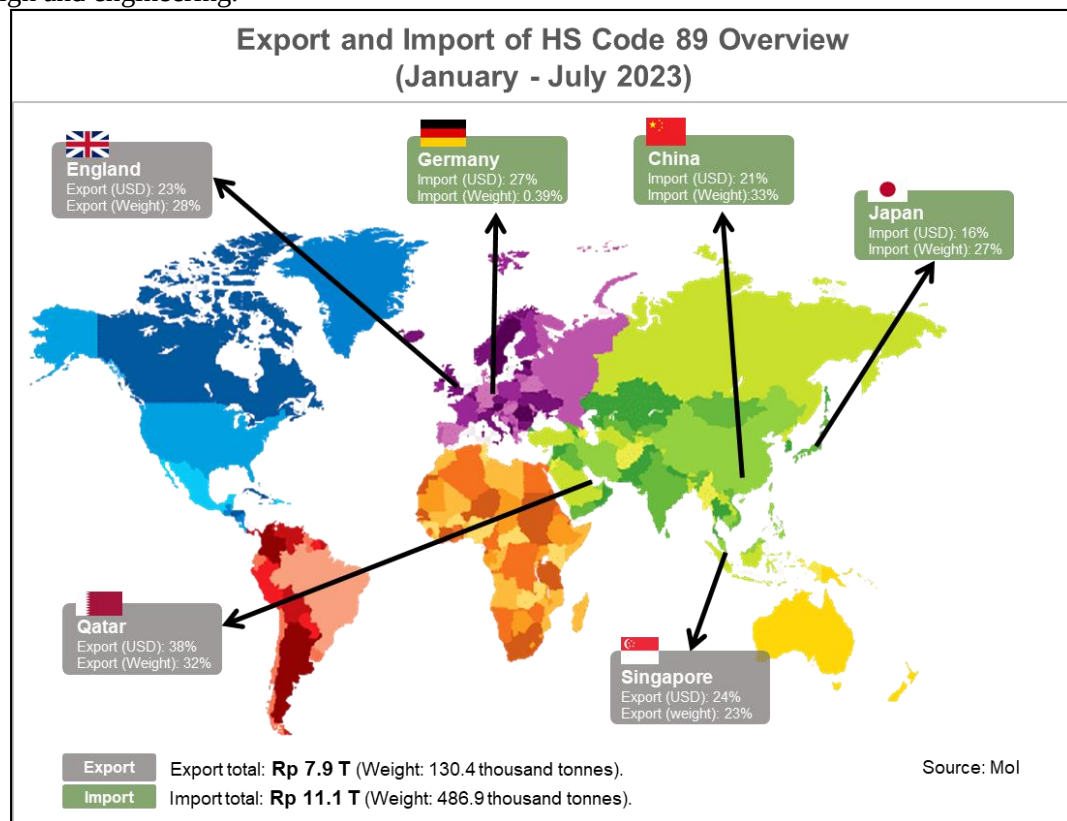


Figure 5. Indonesia's Export and Import Overview, HS89

Source: Pusdatin Kementerian Perindustrian, 2023

4.2. Potential Project

Indonesian ship population, as can be seen in Figure 6, is dominated by cargo ships by 51% followed by fisheries and passengers with 44% and 5% respectively (Divisi Material dan Komponen, 2023). This proportion is a result of being the biggest archipelagic country, therefore, all logistics need to be delivered to all islands we have. The number of passenger ship, however, has a potential to skyrocket as some more new ports are to be built significantly.

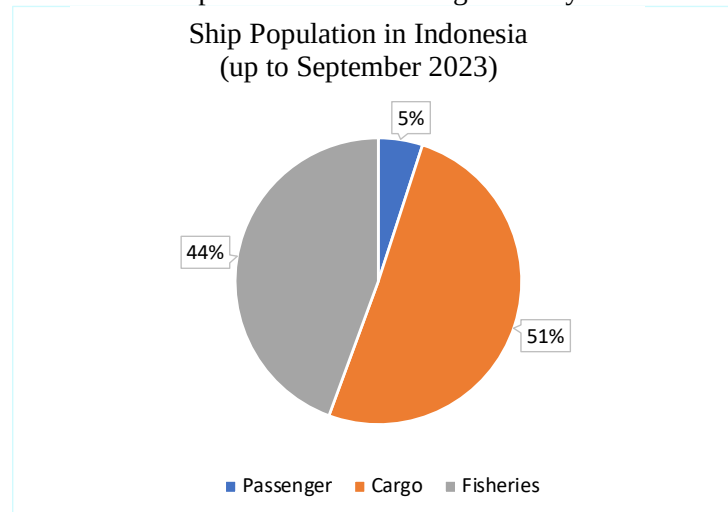


Figure 6. Ship Population in Indonesia
Source: PT. Biro Klasifikasi Indonesia, 2023

Figure 7 presents that up until September 2023, the total number of ship engines is 101,513 units with the largest percentage being on a range of power between 151-500 HP with 51% (Divisi Material dan Komponen, 2023). Ship engines between 1-150 HP also take part as a dominant used engine in Indonesia. Both Engines groups of 501-1,000 and >1,000 are on the bottom but will still be the main keys on Indonesian market needs because bigger ship engine orders are the sign of several big ships being built.

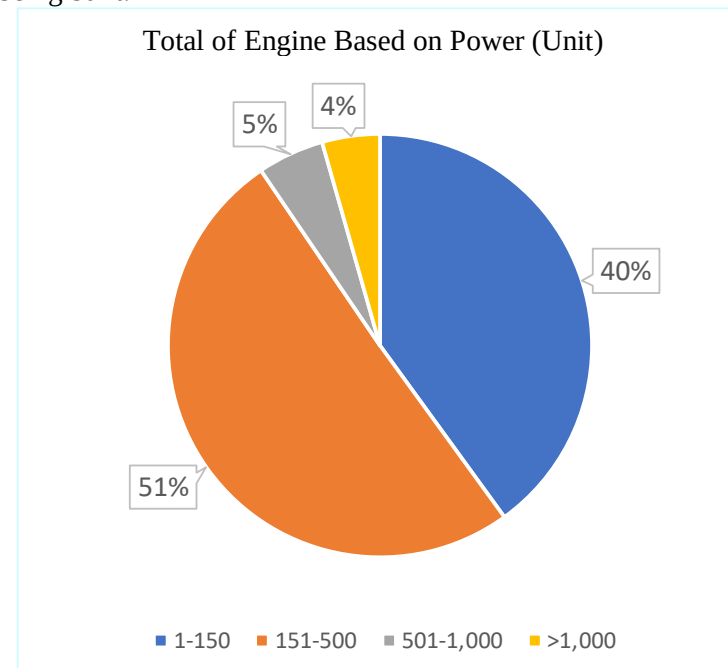


Figure 7. Total of Engine Based on Power
Source: Kementerian Perhubungan, 2023

In Table 1, we see a list of ship engine brands that have a reputable market in Indonesia (Pusat Data dan Informasi, 2023). The establishment of ship engine manufacturing facilities in Indonesia

has the potential to foster market expansion, cost efficiency, employment generation, technology transfer, supply chain strengthening, and export opportunities. It is a mutually beneficial proposition that aligns with Indonesia's maritime ambitions and offers promising opportunities for investors seeking to participate in this dynamic and expanding market.

Table 1. Ship Engine Brands

Shipe Engine Brands			
Niigata	Akasaka	Hansin	Iveco
Mercedes-Benz	Jiangdong	Kobe	Daewoo
Yanmar	Weichai	Hino	Kubota
Mwm	Gray Marine	Heyman	Daiwa
Honda	Nissan	B & W	Isuzu
Cummins	Volvo	Dongfeng	Man
Perkins	Mitsui	Changhai	Makita
Hitachi	Yamaha	Mitsubishi	Aec
Hyundai	Deutz	Daihatsu	Ratna
Ford	Caterpillar	Kruup	Matsui
Detroit	Otsuka	Suzuki	

4.2.1. Passenger Ship

In Figure 8 we can conclude that the majority of passenger ships are of the capacity between 7-174 GT with a number of 3,960 units (Direktorat Jenderal Perhubungan Laut, 2023). Bigger ships in a range of 175 to 499 GT, however, are the least in total with merely 536 units. Moreover, the biggest of all the types, which is over 500 GT, stands on the second rank of 693 units. As the pattern showed, the smallest ship engine will be required even more in the next few years.

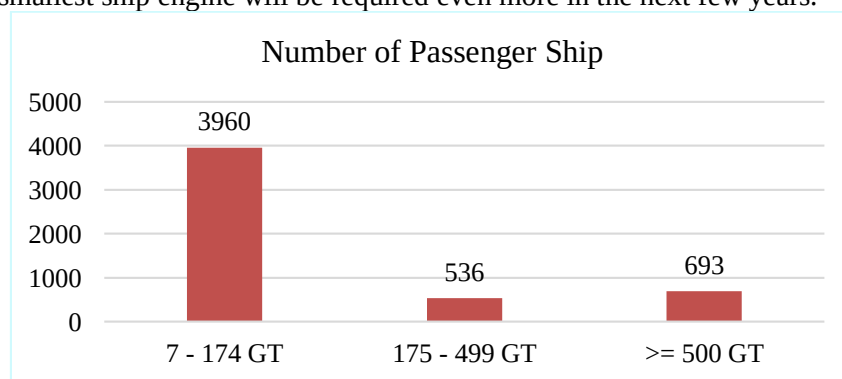


Figure 8. Number of Passenger Ship

Source: Kementerian Perhubungan, 2023

4.2.2. Fishing Vessel

Indonesia has a massive potential to pursue its marine fisheries production. As we can see in Figure 9 there are top five provinces in marine fisheries production, Central Java (399.02 thousand tonnage), West Java (316.59), East Java (240.24), Jakarta (220.00), and North Sulawesi (154.80) in the period of 2019-2021 (Badan Pusat Statistik, 2022). This opportunity might not be implemented if the shipbuilding industry does not support the fishery industry sector. Nowadays, a common practice among small fishing vessel owners is to equip their boats with used diesel engines originally

intended for trucks due to their cost-effectiveness and availability. This challenge can be effectively addressed by bolstering the availability of marine engines in Indonesia at competitive prices.

Top Five Provinces with The Largest Marine Fisheries Production (in Thousand Tonnage), 2019-2021

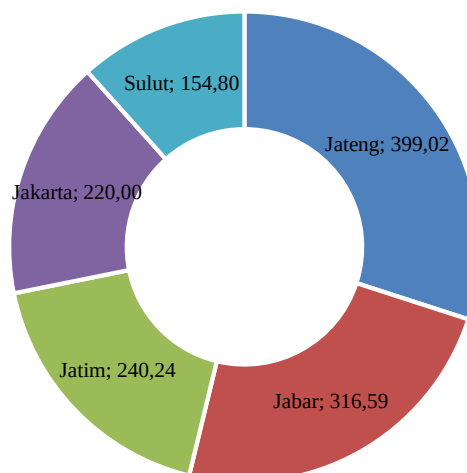


Figure 9. Top Five Provinces with The Largest Marine Fisheries Production

Source: Badan Pusat Statistik, 2022

In regards to ship engine type that is often used in Indonesia from 2000 to 2016, we can see in Figure 10 there are three types: non-engine ship, outboard engine ship, and onboard engine vessel (Badan Pusat Statistik, 2019). The number of non-engine ships had dropped gradually whereas the number of outboard engine ships remained stable in that period. On the other hand, the number of onboard vessels had increased steadily from 420 thousand units in 2000 to about 530 thousand units in 2016. This is a good sign for the ship engine companies to invest in Indonesia. The impact of the investment will surge engine supply and create an affordable pricing.

Number of Ships/Vessels in All Provinces by Their Engine Type for Marine Fisheries, 2000-2016

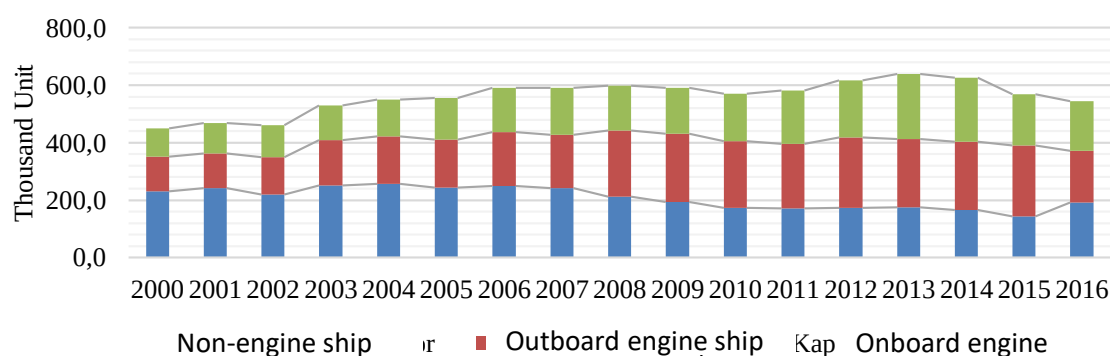


Figure 10. Number of Ships/Vessels in All Provinces

Source: Badan Pusat Statistik, 2019

In a period of 2018 to 2022, Figure 11 shows a large number of outboard engines which were used on a fishery vessel with 823 units (Direktorat Kapal Perikanan dan Alat Penangkap Ikan, 2023). Additionally, the total of onboard engines was 35 units followed by 2 in 1 outboard engines with merely 4 units. This can conclude from the fact that the most popular fishery vessel's engine in Indonesia is outboard engine and the number will still grow promptly since the nation is considered as a maritime country.

Fishery Vessel's Engine Types , 2018-2022 (Unit)

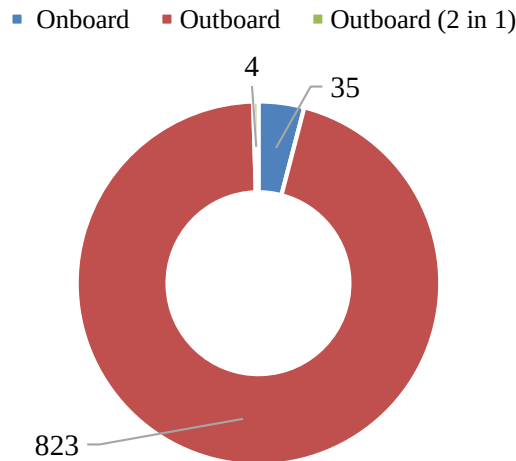


Figure 11. Fishery Vessels' Engine Types

Source: Kementerian Kelautan dan Perikanan, 2023

As can be seen in Figure 12, the number of fishing vessels has the biggest value of 28,860 units in a range of 7-29 GT followed by 17,863 units of the vessels in a group of 30 to 99 GT (Direktorat Jenderal Perhubungan Laut, 2023). In addition, the number of 100-299 GT fishing vessels is about 18% from the smallest ones or 5,368 units. The biggest kind of this vessel, however, is the lowest in number with only 482 units. Even though the number is too low, this amount of capacity can still be improved since Indonesia has so many seawater areas including their fishery potential.

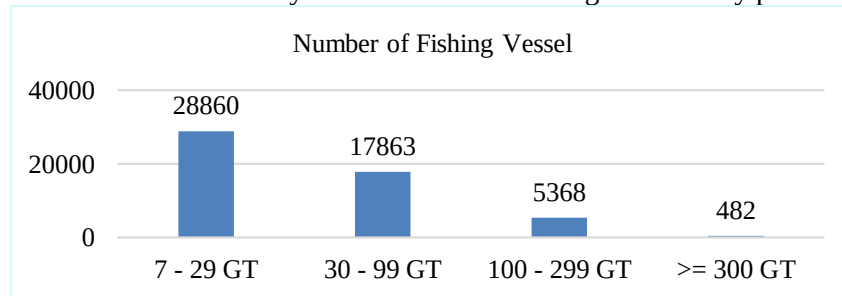


Figure 12. Number of Fishing Vessels

Source: Kementerian Perhubungan, 2023

4.2.3. Cargo Ship

From Figure 13 we can see the population of cargo ships by their capacity in GT which is the most common in practice (Direktorat Jenderal Perhubungan Laut, 2023). The range of cargo ships between 7-174 GT is the highest among the others with 23,593 units. On the other hand, the total number of cargo ships in a range of 175 to 499 GT, which is bigger in capacity, has the smallest value of 9,387 units. Interestingly, cargo ships with the capacity of 500 or higher show one-half of the smallest ones with a total number of 13,134 units. Furthermore, both the smallest and biggest cargo ships have an opportunity of ship engine orders which suit the ship's dimension.

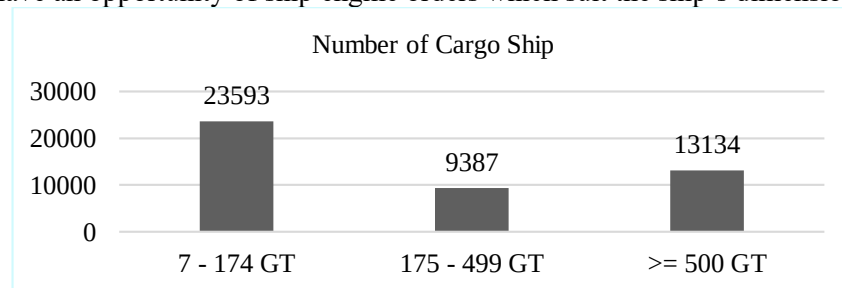


Figure 13. Number of Cargo Ship

Source: Kementerian Perhubungan, 2023

4.2.4. Tug Boat

As we can see in Figure 14, another opportunity is supplying more engines for Tug Boat since it is the most famous ship to be built in Indonesia (Divisi Material dan Komponen, 2024). In addition, Indonesia does not have a main engine and auxiliary engine manufacturer and tends to import them from other countries like South Korea, China, and Japan. This is the main challenge for Indonesia and will affect shipbuilding delivery-time. Moreover, Indonesia has a lack of technology weakness especially in the ship component industry. This is why Indonesian shipbuilders have a lot of experience building low-technology ships, like Tug Boat. By giving the shipbuilding industry a chance to know more about engine manufacturing, it will develop both technology and human resource's skills.

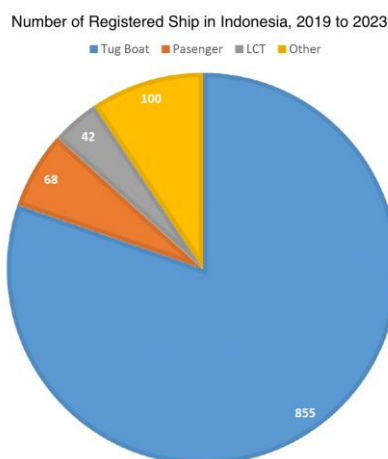


Figure 14. Number of Registered Ship in Indonesia

Source: PT. Biro Klasifikasi Indonesia, 2024

4.3. Investment Scheme

Investment scheme in Indonesia can be considered to be easy for both foreign investor and local investor. In Figure 15 the scheme can be divided into three parts: starting stage, construction stage, and commercial stage. In the starting stage, investor has to make their company's deed of incorporation with approval from Ministry of Law and Human Rights (Biro Humas, Hukum dan Kerja Sama, 2019). After that, in construction stage, several documents are needed before industrial business license is given by the Ministry of Industry. Finally, the company may start the business process or if the investor want to have a free import duties area, she can take care of the permits.

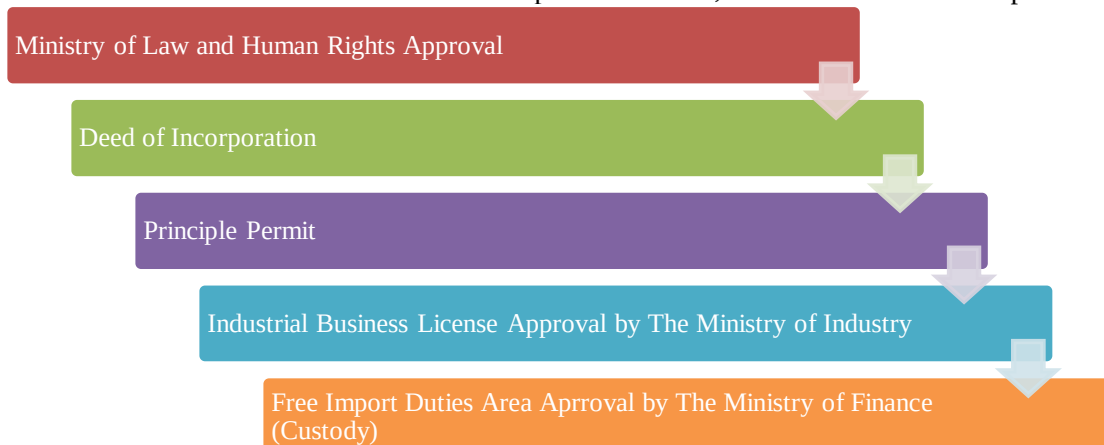


Figure 15. Investment Scheme in Indonesia

Source: Kementerian Hukum dan HAM, 2019

4.4. Stakeholders

4.4.1. Ministry of Investment/Indonesia Investment Coordinating Board (BKPM)

BKPM is a government institution endowed with the responsibility of coordinating policies and services in the investment sector, in accordance with statutory provisions. Serving as the principal intermediary between the private sector and the government, BKPM is mandated to encourage direct

investment, originating from both domestic and international sources, by creating a conducive investment climate. In pursuit of this mission, BKPM can provide licensing services and investment facilities, provide guidance on the implementation of investment, and provide assistance and consultation in responding to the challenges faced by investors throughout investment activities.

4.4.2. Ministry of Industry (MoI)

MoI is a Government Institution endowed with the responsibility of carrying out affairs in the industrial sector to assist the President in administering state government. In carrying out international cooperation such as investment in industry sector, MoI can develop strategic plans including the formulation, determination and implementation of policies and roadmaps in the industrial sector; and providing facilities such as providing information and administrative support to investors, infrastructure development, technical assistant to workers, and other facilities.

4.4.3. Institusi Perkapalan dan Sarana Lepas Pantai Indonesia (IPERINDO)

IPERINDO is the largest maritime industry association in Indonesia, whose members are more than 120 companies spread throughout Indonesia. IPERINDO's objective is to raise and develop the potential of ship industry, offshore industry, supporting and consultation of maritime services and classification covering all private businesses, cooperatives, and state-owned enterprise conducting development, ship building maintenance and offshore facilities, production of raw materials and supporting equipment and consultation service as well as supervision of maritime industry and making it as one of the strong sector of industry capable fulfillment local needs and capable of being in the global market.

As one of shipyard association, IPERINDO has an important role in supporting the above project in terms of training and education their members; development of standards and guidelines; as well as collaboration and networking, e.g. collaborating with the Government and ship engine principals in providing technical assistants for ship engine maintenance to its members to ensure maintenance standards and quality.

4.4.4. Batam Shipyard and Offshore Association (BSOA)

BSOA is an association consisting of shipbuilding companies and offshore companies on Batam Island with a total of 53 companies. BSOA was established with the abiding objective as government partners to participate in the developing business world especially in shipbuilding and offshore, as well as cooperate with the Government and other organizations to realize the equitable and prosperous societies.

BSOA works to enhance cooperation among its member companies and to promote their common interests and the mission is to represent shipyard industry and offshore industry in Indonesia especially in Batam, Bintan and Karimun islands, and makes shipbuilding and offshore industries in Batam become a leader and barometer in the world of marine industry.

As one of shipyard association, BSOA has an important role in supporting the above project in terms of training and education their members; development of standards and guidelines; as well as collaboration and networking, e.g collaborating with the Government and ship engine principals in providing technical assistants for ship engine maintenance to its members to ensure maintenance standards and quality.

4.4.5. Indonesia Ship Components Industry Association (ISCIA/PIKKI)

The establishment of ISCIA was initiated by the Government to accommodate domestic ship component manufacturers, with aims to bring together domestic ship component manufacturers to jointly advance their business, improve quality and production capacity so as to strengthen the role of domestic ship component industry in meeting the needs of the national and international shipping industry.

In supporting of its 50 members, ISCIA does several things like advocacy and representation of their members at regional, national and international levels; education and training to ensure that the workforce in the industry continues to grow and meet international standards; research and innovation to support research and development in better technology and production processes;

regulatory monitoring to help their members understand and comply with relevant regulations, including safety, standard and quality; networking and collaboration to facilitate their members in new opportunities, such as join projects and participate in exhibitions; etc.

4.4.6. Indonesia Classification Bureau (BKI)

BKI is a state-owned company engaged in the service sector which is authorized by the Government of the Republic of Indonesia to classify Indonesian-flagged ships or foreign ships operating in the territory of the Republic of Indonesia. BKI has an important role in supporting the above project, in which one of its services is the certification of ship materials and components so that in the implementation of the above project, BKI can become an entity for carrying out ship engine certification, as well as research collaboration and innovation with the mission of providing the best possible added value to customers of classification and regulatory services through international handling standards, operating rules and research, in terms of quality, safety and social responsibility, and responsibility for the marine environment.

4.5. Governmental Policies and Incentives

In developing the national industry, the Government follows Government Regulation Number 14 of 2015 concerning the Master Plan for the National Industrial Development (RIPIN) for the period 2015-2035. In RIPIN, the transportation equipment industry is one of the six priority industries, where the shipbuilding industry is part of the focus for the development of the transportation equipment industry until 2035, with several priority programs, including the use of domestic products, industrial zone development, development of part and component industry, human resource development, and design and engineering development.

In Indonesia, local content policy or Tingkat Komponen Dalam Negeri (TKDN) has been implemented as an integral part of Industrial development. The local content policy aims to increase the effectiveness of government spending in promoting Indonesian welfare, establish greater economic independence, provide better protection from external shocks, and pursue long-held goals of achieving steady industrial development and economic growth.

Indonesia's TKDN policy is not uniform across all industries. Instead, it is implemented differently in various sectors, including automotive, electronics, telecommunications, and others. Each sector may have its own specific TKDN requirements and regulations. However, in general the minimum level of locally sourced components and materials that must be used in the manufacturing of products is 25%. To comply with local regulations, manufacturers and companies are required to obtain verification from the appointed survey agency and certification from The Ministry of Industry to demonstrate that their products meet the prescribed local content levels. The Indonesian government provides incentives to companies that exceed the TKDN requirements, such as tax incentives or preferential treatment in government procurement. Conversely, there may be penalties for non-compliance with TKDN regulations. The government may periodically review and update TKDN requirements to align with its industrial development goals and economic policies. The Indonesian government provides investment Incentives for ship equipment, supplies and parts Industry (ISIC/KBLI: 30113).

4.5.1. Tax Holiday

- The provision of the tax holiday facility has been regulated in Article 31A of Law Number 36 of 2008 concerning Income Tax. The provided facilities include a reduction of the highest net income by 30% of the total investment made, accelerated depreciation and amortization, compensation for losses for a maximum of 10 years, and the imposition of Article 26 Income Tax on dividends at 10%, unless the rate set by P3B is lower.
- Criteria:
 - Tax holiday taxpayers must be Pioneer Industries that already have the status of an Indonesian Legal Entity, such as the aircraft industry, railway industry, metal industry, oil and gas industry, and so on.
 - Taxpayers eligible for a tax holiday are those who invest in new capital and have not previously been issued a decision regarding the rejection of corporate income tax

reduction and several other decisions.

- The taxpayer must have an investment plan or new capital investment of at least IDR 100 billion with the facility value, namely a 100% reduction in corporate income tax with a minimum capital of IDR 500 billion, or a 50% reduction in corporate income tax with a minimum capital of IDR 100 billion and a maximum of less than IDR 500 billion.

4.5.2. Tax Allowance

- Incentives: Net Income/Earning Before Tax (EBT) Reduction by 30% of CAPEX, in installment over 6 years at 5% per year, as well as included Accelerated Depreciation/Amortization, Withholding Tax for Dividend lowered to 10% or based on Tax Treaty, and Losses carry forward for 5-10 years.
- Product scope: Manufacturing of ship equipment, supplies and parts, like hull, accommodation work deck engines, steering gear and loading and unloading equipment.
- Criteria: Investment value ($\geq$ IDR 20 billion), manpower ($\geq$ 50 persons), and local content ($\geq$ 20%)

4.5.3. Super Tax Deduction

- For research and development activities: maximum of 300% gross income deduction of total cost for R&D activities, consists of:
 - 100% gross income deduction of cost incurred.
 - Additional 200% gross income deduction with details:
 - 50% for patent & PPV rights in Indonesia.
 - 25% for patent & PPV rights abroad.
 - 100% for the commercialization stage.
 - 25% for patent & PPV rights and/or commercialization stage involving cooperation with government R&D institutions and/or higher institutions in Indonesia.
- For vocational activities: maximum of 200 percent gross income deduction of total amount of cost incurred, consists of:
 - 100 percent gross income deduction of cost incurred
 - Additional 100 percent gross income deduction of cost incurred.

4.5.4. Import Duty Facility

- Machines
 - Used for own needs;
 - Eligible for Amendment, Additional Validity Period, and Restructuration/Modernization/Rehabilitation.
 - Validity period of 2 (two) years + additional period 2 (two) years
 - Other additional periods with T&C according to BKPM Regulation Number 4 of 2021 article YY.
 - Able to be granted for capital goods coming from FTFPZ, SEZ, or Bonded Zone.
- Goods and materials
 - Used for own needs, and 2 years of production needs (for facilitated imported machine or imported machine purchasing from domestic supplier).
 - Submitted at the latest 1 (one) year after commercial production declaration.
 - Validity period of 2 (two) years + additional period 1 (one) year.
 - With a minimum of 30% local content requirement (TKDN) à Validity period of 4 (four) years.
 - Additional period of 1 (one) year (only for Commerce Law).
 - Eligible for Amendment.

4.6 Specific Discussion

Focusing on the quality of technology, maintaining import composition, and increasing domestic investment is crucial for Indonesia's economic growth (Hijri Juliansyah, 2022). As

previously discussed, technology is a significant factor that contributes to economic growth. Therefore, new investments should include technology transfer to the nation. Conversely, increasing domestic investment alone is not as critical compared to attracting foreign investment, especially from technology-oriented companies.

Additionally, it is essential to consider inflation, interest rates, and exchange rates, as these factors impact the Indonesian economy (Ridwan Firadlan, 2021). These parameters pose challenges for foreign investment, making collaboration with all stakeholders vital to fostering positive cooperation with investors.

Interestingly, tax incentives have shown a negative relationship with Foreign Direct Investment (FDI), contrary to initial hypotheses. However, the effect of the Corporate Income Tax (CIT) rate aligns with the hypothesis that a lower CIT rate attracts greater FDI. The study also indicates that FDI increases when supported by high-quality institutions and macroeconomic stability (Rotua Andriyati Siregar, 2021). Consequently, the Indonesian government offers various incentives for foreign investments, such as tax holidays, tax allowances, super tax deductions, and import duty facilities. Our approach suggests that new investors will benefit from investing in Indonesia, given the nation's potential market, particularly in the shipping sector.

5. CONCLUSION AND SUGGESTION

CONCLUSION

1. Indonesia is a maritime nation

Indonesia has more than 17,000 islands, which makes maritime transportation a crucial part of its economy. The country heavily relies on ships and vessels for transportation of goods, passengers, and resources between its islands and to international markets. Indonesia also has significant fisheries potential due to its extensive coastline, diverse marine ecosystems, and abundant fishery resources. Indonesia has one of the largest fishing fleets in the world. A total of 384 thousand fishing vessels with a gross tonnage of less than 30 tons, the majority of which are powered by outboard engines. In the past five years, Indonesia has imported marine outboard engines with a total value of 200 million dollars (*Statistic Indonesia*). This makes Indonesia one of the highly potential markets for outboard engines, both in terms of new engines and for the repair and maintenance.

2. The cost of labor is relatively low in Indonesia

Indonesia has a large and growing population, which means there is a substantial labor force available. This abundance of workers can help keep labor costs competitive. Indonesia has a population of over 270 million people, and about 70% of them are of working age. Indonesia also has the fifth most competitive manufacturing costs in the world, according to the 2020 Manufacturing Risk Index (MRI) by Cushman & Wakefield. This makes Indonesia an attractive destination for businesses looking to reduce the production costs.

3. The Indonesian government is supportive of foreign investment

The Indonesian government is committed to attracting foreign investment, and it has put in place a number of policies to make it easier for foreign businesses to invest in the country. Indonesia offers a range of incentives to attract foreign investors, such as tax holidays, tax allowances, and import duty exemptions. These incentives are often granted to investors in specific sectors or regions that are considered priorities for development. The maritime sector is a priority sector in accordance with Indonesia's vision to become a Global Maritime Fulcrum.

SUGGESTION

The cost of a propulsion system (main engine, gearbox, tailshaft, and propeller) in shipbuilding can vary significantly depending on several factors, including the type of ship, size, speed, and other specifications. To illustrate, the propulsion system's cost for high-speed patrol boats typically accounts for approximately 60% to 70% of the overall expenses, whereas for cargo vessels, it typically ranges between 30% to 40%. In the case of fishing vessels, this cost generally falls within

the range of 20% to 30%. Investing in the main engine production facility in Indonesia can indeed have significant benefits for the shipbuilding industry and the nation's economy as a whole.

1. Shipowners and shipyards

Importing main engines from other countries can be expensive due to shipping and logistics costs. By producing these engines domestically, shipbuilders can eliminate or significantly reduce transportation costs. This also can reduce the risk of supply disruptions due to geopolitical factors or other unforeseen circumstances, ensuring a consistent supply of engines.

2. Main engine manufacturers

Local engine production allows for greater customization and adaptation of engines to meet the specific needs of domestic shipbuilders. This can lead to more efficient ship designs and better performance. In addition, as domestic engine production scales up, it can lead to economies of scale, which may result in lower production costs per unit. This can make engine manufacturers more competitive in the global market.

3. Government

Indonesia has been relying on foreign suppliers for critical components like main engines, that make the country vulnerable to disruptions in the global supply chain. Establishing engine production facilities reduces this dependency, increasing national security, and improving trade balance. Local production can also stimulate the growth of material and part industries, as well as create job opportunities in manufacturing, research and development, and maintenance. These can contribute to reduced unemployment, increasing more diversified and resilient shipbuilding industry, and stimulating economic growth

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