



Trade Policies Support for Palm Oil Downstreaming in Indonesia

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Abstract

The optimal trade policies are essential to determine the balance between international trade liberalization and protection in order to advance palm oil. Protection is carried out by limiting the export of CPO, while the liberalization applies to raw supporting materials that are not produced in Indonesia. However, the export limitations need to be implemented carefully to avoid counterproductivity to the palm oil industry. This study recommended necessary trade policies to enhance palm oil downstreaming, as well as assessed existing efforts and current policies. This study estimated that a 5% reduction in upstream product export and a 15% increase in downstream product export could rise Indonesian foreign exchange earnings by approximately 7 million USD annually. Descriptive statistics and value-added calculations were employed in this study. Indonesia should restrict the Crude Palm Oil (CPO) towards the countries that exclusively involved in the palm oil trade, guaranteeing that Indonesian palm oil products reach nations where they are utilized. To protect palm oil downstreaming industries, including food, cosmetics, detergents, chemicals, and animal feed, it is vital to regulate imports. Furthermore, strategic trade policies should be enacted to facilitate the export of these refined products. Strengthened negotiation and diplomatic capabilities are also indispensable.

Key words : Downstreaming, Export, Palm Oil, Value Added, Trade Policies

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INTRODUCTION

Indonesia is the largest exporter of crude palm oil (CPO) in the world. This versatile oil is used in the production of various household end-products such as cooking oil, soap, detergent, personal care items (shampoo, body lotion), cosmetics, cleaning agents, candle-making materials, medicines, bakery

products like bread and pastries, as well as electronic cigarettes. Furthermore, unused fruit bunches are processed into raw materials for paper and other paper-related products. Indonesia has the potential to manufacture these diverse products through palm oil downstreaming.

Biodiesel, a primary downstream product of CPO, could enhance domestic CPO consumption and consequently reduce exports. Since bi-

odiesel serves as a diesel substitute, both prices are correlated. (Kapusta & Lajdová, 2016) found that biodiesel prices showed the same trend as crude oil prices. Low crude oil prices benefit biodiesel producers since vegetable oil, a key material in biodiesel production, also experiences price reductions. These lower CPO prices led to reduced diesel prices, which resulted in a downward pressure on biodiesel prices.

Downstreaming involves the transformation of raw materials into higher-value products through complex production processes. The downstreaming process of CPO demands additional resources for domestic industries. Meanwhile, export restrictions on raw materials are policies used to fulfill domestic needs and are implemented in various ways. Downstreaming reduces the need for importing finished goods and has the potential to enhance exports while curbing imports. According to (Yülek, 2018), international trade stimulated income and production growth. Nevertheless, trade benefits are not always evenly distributed among transacting parties. Some countries sustain trade surpluses (export exceeding imports), while others grapple with trade deficits (imports surpassing export) over prolonged periods. Sustained trade imbalances warrant substantial attention, and the ongoing trade deficits lead to an increased international debt. Imports that are deemed "non-essential" result in lower growth and employment opportunities. The term "non-essential" in this case means goods that could be domestically produced.

Indonesia enforces export restrictions on CPO through the establishment of the Domestic Market Obligation (DMO). This DMO sets a mandatory supply threshold that requires producers to maintain domestic stocks according to specified regulations. A 30% DMO means CPO producers are obligated to allocate 30% of their production for domestic needs. DMO often employs a ratio system, for

instance, a DMO ratio of 1:6 implies that when a business domestically supplies 1,000 tons of CPO, it gains the right to export 6,000 tons. The higher the DMO, the greater export restrictions, which impacted the international CPO supply. In addition, international CPO prices are expected to rise when the Indonesian government increases the DMO.

The issue of rising cooking oil prices is a prevailing problem, and in early 2008, Indonesia experienced a significant increase in the prices. One of the factors responsible for this issue was the surge in international CPO prices. In (Rifin, 2009), the effect of international prices on domestic CPO and cooking oil prices was examined using cointegration tests, causal relationships, and an analysis of how domestic CPO and cooking oil prices responded to changes in international prices. The results showed that international and domestic CPO, as well as cooking oil prices were not cointegrated. Granger causality analysis showed that international price fluctuations influenced both domestic CPO and cooking oil prices, while these domestic prices exhibited mutual influence.

Apart from DMO, the Indonesian government also used the Domestic Price Obligation (DPO), Export Duty, and export levy. The establishment of these export restriction policies varied over time and was adjusted based on domestic and international CPO supply conditions. For example, the government might raise the DMO when the domestic cooking oil supply diminishes, leading to price increase. Downstreaming requires export restrictions, but trade policies should be carefully executed to avoid counter-productivity and hindrance to industrial progress.

Trade policies play a crucial role in supporting the downstreaming of the palm oil industry. Trade policy refers to the set of rules, regulations, and measures that a government adopts to manage its trade relations with other countries. Some key elements and theories related to trade policy:

Comparative Advantage: The theory of comparative advantage, developed by economists David Ricardo and James Mill, suggests that countries should specialize in producing goods and services in which they have a relative efficiency or lower opportunity cost compared to other countries. By doing so and engaging in international trade, countries can maximize their overall economic welfare. This theory is a fundamental justification for free trade.

Protectionism: Protectionism is the opposite of free trade. It involves the use of trade barriers and restrictions, such as tariffs (taxes on imports), quotas (limits on the quantity of imports), and subsidies (financial assistance to domestic industries) to protect domestic industries from foreign competition. Protectionist policies can be motivated by various reasons, including safeguarding domestic jobs, preserving national security interests, and protecting infant industries.

Balance of Payments: Trade policy is often concerned with a country's balance of payments, which includes the balance of trade (the difference between a country's exports and imports of goods and services) and the financial flows between countries. Policymakers may intervene to correct trade imbalances or maintain favorable trade positions through trade policy measures.

Strategic Trade Policy: This theory suggests that governments can strategically intervene in trade to promote the growth and competitiveness of specific industries deemed vital for a country's long-term economic success. Strategic trade policies might include subsidies, research and development support, and export promotion for targeted industries.

Trade Liberalization: Trade liberalization refers to the removal of trade barriers and the promotion of free trade. It is often advocated for its potential to increase economic efficiency, foster competition, and provide consumers with a wider range of choices. Tra-

de liberalization can be pursued unilaterally, bilaterally through trade agreements, or multilaterally through organizations like the World Trade Organization (WTO).

Dumping: Dumping occurs when a country exports goods to another country at a price lower than their production cost or domestic market price. Trade policy can address dumping through anti-dumping measures, such as imposing tariffs on these unfairly priced imports.

Trade Retaliation: When one country believes another country's trade policies are unfair or harmful to its own interests, it may engage in trade retaliation by imposing tariffs or other trade restrictions on the offending country's exports. This can lead to trade disputes and potential trade wars.

WTO and Trade Agreements: International trade rules and agreements, such as those governed by the World Trade Organization (WTO) and regional trade agreements (e.g., NAFTA (USMCA)), play a crucial role in shaping trade policy. These agreements establish rules for trade and provide mechanisms for resolving trade disputes.

Trade and Development: Trade policy can also have implications for the economic development of countries. Some argue that developing countries may need different trade policies to protect and nurture their industries, while others emphasize the benefits of openness to international markets.

Trade protection policies for the downstream palm oil industry are sometimes considered due to various economic, environmental, and social factors. Some reasons why a country might consider trade protection for its downstream palm oil industry:

Domestic Employment: Protecting the domestic palm oil industry through trade measures such as tariffs or quotas can help preserve jobs in this sector. Palm oil production and processing can be a significant source of employment in some countries, especially in rural areas.

Economic Development: Governments may view the palm oil industry as a strategic sector for economic development and rural income generation. Trade protection measures can provide stability and support to encourage investment and growth in this industry.

Environmental Conservation: trade protection policies may use as a means to promote sustainable palm oil production practices. By imposing restrictions on imported palm oil that doesn't meet certain environmental standards or certification requirements, they aim to reduce deforestation, protect biodiversity, and promote sustainable land use.

Food Security: Palm oil is a widely used edible oil in many countries. Ensuring a stable and affordable supply of palm oil through trade protection measures can be seen as a way to enhance food security for the population.

Reducing Reliance on Imports: The net imported countries of the palm oil may want to reduce their dependence on imported palm oil and encourage domestic production to meet their domestic demand. This can involve imposing tariffs or quotas on palm oil imports to promote self-sufficiency.

Public Health: In some cases, trade protection measures may be used to address public health concerns. For example, a country might restrict imports of palm oil due to health-related issues, such as concerns about high levels of trans fats in certain palm oil products.

Market Price Stabilization: Trade protection measures can be used to stabilize domestic palm oil prices, especially when global price fluctuations are significant. Tariffs or quotas can be imposed to regulate the flow of imports and prevent price volatility.

Supporting Smallholders: Governments may use trade protection policies to support small-scale palm oil producers and processors. These measures can help level the playing

field against larger, more competitive producers and promote equitable distribution of benefits.

National Identity and Culture: In some cases, palm oil may be seen as culturally or historically significant. Protecting domestic palm oil production can be seen as a way to preserve cultural heritage.

Meanwhile, the downstream palm oil industry can also benefit from trade liberalization policies under certain conditions. Trade liberalization, which involves reducing or eliminating trade barriers such as tariffs and quotas, can offer several advantages for the palm oil industry:

Access to Global Markets: Trade liberalization opens up global markets to domestic palm oil producers and exporters. This access can lead to increased export opportunities, helping the industry expand its customer base and increase sales.

Economies of Scale: Access to larger international markets allows palm oil producers to benefit from economies of scale. Increased production levels can lead to lower average production costs, making the industry more competitive.

Efficiency Gains: Competition from international producers can drive efficiency improvements in the domestic palm oil industry. Faced with global competition, producers are motivated to adopt best practices, invest in technology, and optimize their operations.

Variety of Inputs: Trade liberalization allows palm oil producers to access a wider range of inputs, including agricultural equipment, fertilizers, and processing machinery, from global suppliers. This can lead to improved production processes and product quality.

Technology Transfer: Engaging in international trade can facilitate technology transfer and knowledge sharing. Producers can learn from international counterparts, adopt innovative practices, and stay updated with the latest developments in palm oil cultivation and processing.

Reduced Costs for Consumers: Lower trade barriers often result in lower prices for imported palm oil and palm oil products. This can benefit consumers who use palm oil in various products, from food to cosmetics.

Diversification: Trade liberalization can encourage diversification within the palm oil industry. Producers may explore new products and markets, reducing their reliance on a single type of palm oil product.

Income Generation: Increased exports and sales can lead to greater income for palm oil producers, potentially benefiting rural communities that rely on palm oil cultivation for their livelihoods.

Environmental Sustainability: Trade liberalization can promote the adoption of sustainable palm oil production practices. Access to international markets may be contingent on meeting certain environmental and certification standards, encouraging producers to adopt more responsible cultivation and processing methods.

The Malaysian palm oil downstream industry benefits from EU environmental regulations, which have a positive impact on its competitiveness (Othman, Yusop, & Ismail, 2023). However, it is important to distinguish the palm oil industry from other processed food and beverage manufacturing industries in order to design policies that increase production complexity and improve domestic value added (Amanta & Aprilianti, 2020). Both Indonesia and Malaysia have a comparative advantage and export specialization in palm oil products, indicating the need for strategic policies to support downstream activities and enhance the production of derivative products (Arsyad et al., 2020). Additionally, trade agreements have contributed to the growth of global palm oil trade, and policy changes due to COVID-19 and export bans have quantifiable effects on trade (Adhikari, Poudel, & Gopinath, 2023). To strengthen the national palm oil downstream industry in Indonesia,

government policies should focus on the supply of raw materials, infrastructure, utilities, and developing missing value chain industries (Subiyanto, 2013)

Currently, no study analyzed the appropriate trade policies to support the national downstream program. This study provided estimates of foreign exchange earnings from the implementation of palm oil downstream program for household end-products. Furthermore, an evaluation of current palm oil trade policies was conducted, followed by the formulation of suitable trade policies to support the national downstream program. Trade policies should be accompanied by proper investment and production policies. In addition, this study analyzed the investment and production policies that supported the national palm oil downstream program.

METHOD

Descriptive statistical analysis was used to show that downstream enhanced national economic growth. This method numerically or graphically portrayed and summarized data into an extractable and understandable form. Furthermore, descriptive statistics aided in comprehending data patterns or characteristics. It involved data collection, presentation through tables or graphs, and the use of statistical measures such as mean, median, mode, standard deviation, quartiles, and percentiles to provide data information. Descriptive statistics also identified missing and unreasonable data, as well as outliers.

The analysis was conducted based on international trade or export-import data of palm oil and its derivative products. The data used was sourced from www.trademap.org, which provided international trade data categorized according to HS codes and distinguished whether traded products were upstream or downstream goods. For palm oil products, the analysis began with the use of the 4-digit HS code 1511. The HS code 1511 encompassed both upstream and dow-

nstream products. Meanwhile, the 6-digit HS code differentiated between upstream and downstream products. Table 1 shows the description of palm oil and its derivative product data based on the HS codes used in the analysis. In Table 1, the HS code 15110 represents upstream products, while code 15190 corresponds to downstream products.

Table 1. Palm Oil Derivative Products Based on HS Code

No	Digit	HS Code	Description
1	4	1511	Palm oil and its fractions, whether or not refined, but not chemically modified
2	6	15110	CPO
3	6	15190	Palm oil and its fractions, whether or not refined (excluding chemically modified and crude)

By processing the aforementioned data, the following information can be obtained: (1) Value-added (price increase) of downstream palm oil products; (2) Indonesian import value from around the world for downstream palm oil products. This import value reduces national income, and when Indonesia can produce these products, national income can be increased.

The WWF organization has registered several products that require palm oil for production, namely (1) Lipstick. Palm oil is used in lipstick production due to its color, resistance to high temperatures, smooth, and nearly tasteless application. (2) Pizza Dough. Palm oil is added to both frozen and fresh pizza dough to prevent sticking and enhance the texture. (3) Instant Noodles. Palm oil content can reach 20% of the weight of a single package of instant noodles, which applies to both pre-cooked and pour-over hot water types. (4) Shampoo. Palm oil is used as a conditioning agent to restore lost natural oil in hair due to washing. (5) Ice Cream. Palm oil makes ice cream smooth and creamy. (6) Detergent. Palm oil is refined to make soaps,

detergents, and other cleaning products. (7) Margarine. Palm oil is used in margarine because it is solid at room temperature and free of trans fats. (8) Chocolate. Palm oil makes chocolate smooth, shiny, and prevents melting. (9) Cookies. Palm oil is used to impart a creamy taste and texture to baked goods because it is semi-solid at room temperature. (10) Biodiesel. Palm oil can be used to produce biodiesel and bio-fuels. (11) Soap. Palm oil is used for its ability to remove oil and dirt from hair and skin as well as moisturize. (12) Bread. Palm oil is widely used for making bread because it is solid at room temperature, easy to bake, and inexpensive.

The corresponding HS Codes for the above products are as follows:

Table 2. HS Codes for Products Made from Palm Oil

No	Product	HS Codes	Product Description
1	Lipstick	330410	Lip make-up preparations
2	Pizza Dough	190120	Mixes and dough of flour, groats, meal, starch or malt extract,
3	Instant Noodles	1902	Pasta, whether or not cooked....
4	Shampoo	330510	Shampoos
5	Ice Cream	2105	Ice cream and other edible ice,
6	Detergent + Soap	3401	Soap, organic surface-active products and preparations for use as soap, in the form of bars, cakes, molded pieces or shapes, coated or covered with soap or detergent
7	Margarine	1517	Margarine, other edible mixtures or preparations of animal or vegetable fats....
8	Chocolate	1806	Chocolate and other food preparations containing cocoa
9	Cookies + Package Bread	1905	Bread, pastry, cakes, biscuits and other bakers' wares,
10	Biodiesel	3826	Biodiesel and mixtures

No	Product	HS Codes	Product Description
			thereof, not containing or containing < 70 % by weight of petroleum oil or oil obtained from bituminous minerals

Indonesian import data from around the world for these products are analyzed to obtain the following information: (1) The value added (price increase) of downstream palm products; (2) The value of Indonesian imports for products that use palm as a raw material has an impact on the national income. When Indonesia successfully reduces the imports of these products, it could lead to an increase in national income; (3) The potential increase in gross national income when Indonesia decreases imports of products containing palm oil.

A review of trade policies was conducted on the most crucial and recent regulations related to palm oil industry downstreaming. These regulations include: (1) Presidential Regulation Number 74 of 2022 on the National Industry Policies for 2020-2024; (2) Minister of Trade Regulation Number 50 of 2022 on the provisions for exporting CPO, refined, bleached, and deodorized palm oil, refined, bleached, and deodorized palm olein, as well as used cooking oil; (3) Minister of Finance Regulation Number 39/PMK/0.10/2022 jo. Number 123/PMK.010/2022; (4) Minister of Finance Regulation Number 103/PMK.05/2022 jo. Number 154/PMK.05/2022. Appendix C; (5) Minister of Trade Decree Number 968 of 2023.

The regulations will naturally continue to change over time. The above regulations served as a foundation for analyzing government policies to determine whether they adequately support the creation of palm oil industry downstreaming. After evaluating these regulations, appropriate trade policies reco-

mmendations were formulated for future development.

RESULTS AND DISCUSSION

Downstream products had a higher value compared to upstream products. In fact, the price difference between upstream (HS code 151110) and downstream (HS code 151190) products was approximately 15% in 2022. Table 3 below explains the latest export data from Indonesia in 2022.

Table 3. Indonesian Export Data for 2022

No	Description	Value
1	Price of Upstream Products 2022 (USD/MT)	985
2	Price of Downstream Products 2022 (USD/MT)	1,130
3	Export of Upstream Products HS 151110 Indonesia 2022 (Tons)	3,462,817
4	Export of Downstream Products HS 151190 Indonesia 2022 (Tons)	21,546,108
5	Export Value of Upstream Products HS 151110 Indonesia 2022 (USD)	3,410,127
6	Export Value of Downstream Products HS 151190 Indonesia 2022 (USD)	24,355,703
7	Total Value of Export 2022 (USD)	27,765,830

Source: www.trademap.org

The Table above illustrates that the price of downstream products (1,130 USD/MT) is higher compared to upstream products (985 USD/MT). As the number of exported downstream products increased and the upstream products decreased, export value increased and consequently augmented foreign exchange. Table 4 below presents a simulation of increased foreign exchange through a decrease in export of upstream products and an increase in export of downstream products.

Table 4. Simulation of Additional Foreign Exchange Due to Increased Downstreaming

No	Description	Present Condition	Increased Downstreaming	
1	Increase in Export of Downstream Products	11%	1%	15%
2	Increase in Export of Upstream Products	-3%	-1%	-5%
3	Future Export of Indonesian Upstream Products (Tons)	3,310,333	3,428,189	3,289,676
4	Future Export of Indonesian Downstream Products (Tons)	23,941,490	21,761,569	28,009,058
5	Future Export Value of Indonesian Upstream Products (USD)	3,259,963	3,376,026	3,239,621
6	Future Export Value of Indonesia Downstream Products (USD)	27,063,441	24,599,260	31,661,417
7	Total Future Export Value (USD)	30,323,404	27,975,286	34,901,038
8	Additional Foreign Exchange (USD)	2,557,574	209,456	7,135,208

The average increase in export of downstream products was 11%, and the decrease in export of upstream products was 3%. When these conditions are maintained, Indonesia will gain an additional foreign exchange of approximately 2.5 million USD annually in the future. A 1% increase in downstream products and a 1% decrease in upstream products would add about 200 thousand USD to foreign exchange earnings.

Domestic downstreaming necessitated a greater quantity of upstream products, which led to a reduction in export of upstream products. When export of upstream products decreased by 5% and downstream products increased by 15%, Indonesian foreign exchange was estimated to increase by 7 million USD annually. The magnitude of this increase depended on the extent to which downstreaming program is implemented. Palm is a

widely used input for the production of various end products.

In the 2035 National Industry Development Master Plan (RIPIN), Indonesia needs a capacity 33 times that of the current oleochemical industry. Rofiqi et al., (2016) stated that to achieve this goal, a strategy to accelerate the downstream development of palm oil industry is crucial. The formulated development strategy should encompass streamlined licensing, infrastructural preparation, tax incentives, financial support, government commitment, and market certainty. The government commitment remained the highest priority.

Table 5 below presents daily necessity products made from palm oil, as well as Indonesian import value and their prices in 2022.

Table 5. Indonesian Import Value and Prices of Daily Necessity Products that Use Palm Oil

No	Product	Value (USD)	Quantity (Tons)	Price (USD/MT)
1	Lipstick	37,640	1,670	22,539
2	Pizza Dough	567	NA	NA
3	Instant Noodles	53,563	24,112	2,221
4	Shampoo	17,541	3,260	5,381
5	Ice Cream	18,007	5,128	3,512
6	Detergent + Soap	76,952	22,927	3,356
7	Margarine	49,151	13,340	3,684
8	Chocolate	123,716	23,181	5,337
9	Cookies + Package Bread	175,510	41,886	4,190
10	Biodiesel	277	86	3,221

Even though the total import value of the aforementioned products was not substantial (553 thousand USD), the development of industries that used palm oil as a raw material needed to be increased to reduce or eliminate the imports. Investment should be directed towards establishing factories that use palm oil or other raw materials, such as cocoa, which are available in Indonesia. This step would enable the country to cease imports and subsequently export the products. Therefore, the more the achieved downstreaming, the greater value added.

Wihardja (2016) found that the trend of downstreaming in Indonesia began with the enactment of Trade Law in 2014 and the Industrial Law in 2014. Restrictions on minerals and coal were stipulated in the Coal and Mineral Mining Law of 2009 and took effect in 2014. Nevertheless, policies of export restrictions on raw materials should be balanced with efforts to enhance agricultural productivity and harness the potential in service sectors, including tourism and the creative industry. These actions were necessary to promote production and trade diversification.

Coelli (2022) studied the effect of resolving trade policies uncertainty on innovation investment in China between 1990-2007. The results found that eliminating tariff uncertainty significantly affected innovation. Incre-

ased innovation was reflected in the introduction of patents for new technologies and an uptick in the number of companies obtaining patent rights. The boost in innovation was driven by export to the United States.

Trade openness is generally regarded as a driver of economic growth. Therefore, some countries have proactively made efforts to ensure their industrial and trade policies facilitate trade openness. The impact of trade openness is not always positive or significant, which emphasizes the importance of deeper investigations into the relationship between trade openness and economic growth. Malefane (2020) recommended that policies formulation should primarily consider supporting factors to ensure significant positive benefits from trade openness. Furthermore, countries should prioritize aligning their trade and industrial policies with trade facilitation, financial development, industrialization, technological progress, and infrastructure development.

The government needs to make careful plan by first setting the additional foreign exchange targets to be achieved through downstreaming programs. Second, the plan should be made by selecting the products for downstreaming. Third, by analyzing competition from other countries that have already produced downstream products. Fourth, by meticulously assessing the costs and benefits of downstreaming programs. Last, by planning the estimated

timeline for the implementation of downstreaming programs. This necessitated coordination among relevant ministries to effectively plan downstreaming programs.

Kowalski and Legendre (2023) stated that export restrictions on raw materials play a significant role in the international market for essential raw materials, and consequently affected availability and prices. The global economy could shift from fossil fuels to renewable energy dominance through the international trade of certain essential raw materials. The Inventory of Export Restrictions on Industrial Raw Materials was conducted by the OECD for the period 2009 - 2020.

Export strategies for the success of palm oil industry downstreaming aimed to optimize market access and enhance value added of exported downstream products. The necessary export strategies include:

New Market Penetration: Identifying and establishing potential new markets for palm oil products, as well as exploring export opportunities, particularly in countries with high demand for cooking oil, margarine, olein, and other derivatives.

Promotion and Marketing: The promotion of palm oil products in export markets as well as using effective marketing and branding strategies to increase awareness and enhance the image of Indonesian palm oil products.

Specialized Product Development for Specific Markets: Developing derivative palm oil products tailored to the needs of specific markets, such as creating organic or cholesterol-free products to cater to niche markets.

Partnerships and Distribution: Building partnerships with local distributors or agents in target export countries to expand market reach and facilitate products distribution.

Application of International Standards: Ensuring the products meet international quality and food safety standards as well as implementing sustainable certifications like

RSPO (Roundtable on Sustainable Palm Oil) to support an environmentally friendly product image.

Quality Development and Innovation: Improving product quality and innovation in palm oil production process. High-quality and innovative products are more likely to be embraced in the international markets.

Implementing Digital Technology and E-commerce: Leveraging digital technology and e-commerce to enhance access to international markets. Companies can efficiently seek partners and customers worldwide through digital technology adoption.

Addressing Tariff Challenges and Trade Barriers: Coordinating with the government to overcome trade barriers and tackle tariff challenges in export markets, as well as consider free trade agreements with target export countries to improve market access.

Monitoring International Policies and Regulations: Monitoring policies and regulation developments in export markets, and making adjustments to export strategies according to changes in the international business environment.

Export strategies need to be actively supported by the government in opening and facilitating access to export markets, as well as building collaborations with target countries. Additionally, collaboration with the private sector and industry associations is crucial to create a synergy to enhance export of downstream products.

Export restriction policies have been implemented in the palm oil industry to support downstreaming efforts. These policies aim to enhance the competitiveness and sustainability of palm oil exports. Safriyana et al propose a decision-making model using multilabel classification to improve downstreaming decisions in the palm oil agroindustry. Integrated decision making rule using multilabel decision tree. Adequate accuracy and good precision in downstreaming decision making (Safriyana et al., 2019), Tandra and Suroso (2023) analyze the determin-

ants, efficiency, and potential of Indonesian palm oil downstream exports, highlighting the positive impact of export taxes and membership in international organization on palm oil exports and Vast potential for Indonesian palm oil exports (Tandra & Suroso, 2023). Export duties are applied for fiscal and market balancing purposes, and they can affect the level of world prices for goods. (Abdulla et al., 2014). Wong et al. (2014). Investigates the impact of export duty structure changes in Mala-ysia and Indonesia on the performance of the Malaysian palm oil industry, emphasizing the need for diversification and innovative strategies to enhance competitiveness. Further reduction of export tax is not effective in enhancing competitiveness.

Policies and programs for the development of palm Oil Basic Chemical (Oleochemical) Industry should be implemented. Operational policies for palm Oil Basic Chemical Industry Downstreaming, such as Export Duty Restructuring on CPO and its Derivative Products (Minister of Finance Regulation Number 136/2015) as well as palm Plantation Fund Collection Policies (Minister of Finance Regulation Number 133/2015), are needed to: (1) Ensure the availability of raw palm oil materials for the domestic industry; (2) Secure the supply and price of cooking oil as a staple commodity domestically; (3) Support the National Program for palm Oil Basic Chemical Industry Downstreaming.

The principles of restructuring palm oil export policies are as follows: (1) Vertical Progressivity: Higher Export Duty rates for Upstream - Intermediate products, based on the Industry Value Chain; (2) Horizontal Progressivity: Export Duty rates aligned with the International CPO Price, and acted as a windfall profit balancer; (3) Development of Industrial Zones (Sei Mangkei, Palalawan, Maloy, West Kalimantan, Central Kalimantan, and Papua) and the Establishment of a Center for Innovative Palm Oil Industry Technology; (4) Inv-

estment Promotion, Non-Tariff Barrier Advocacy, and Anti-Negative Campaigns.

Kinzius et al. (2021) stated that various trade policies instruments were used to limit imports, known as non-tariff barriers (NTBs). The implementation of NTBs reduced the impact of affected imports by up to 12%. Therefore, trade reduction impact was proportionate to trade impact. Various types of NTBs significantly affected the reduction of importers market access.

Export restrictions serve as trade protection. Both trade protection and liberalization had an impact on human resource development. Bayar and Gunduz (2020) stated that globalization accelerated in the 1980s, and barriers to the flow of goods, services, and capital were gradually reduced in many countries. These developments led to a significant increase in foreign direct investment (FDI), which became a significant external financing instrument, specifically for developing countries. The economic and non-economic impacts of FDI had a negative effect on human resource development, while trade liberalization had a positive effect.

Support for trade liberalization was highlighted by Cirera et al. (2021) who elaborated the impact of input and output tariffs on company productivity in Brazil between 2000-2008. Furthermore, trade liberalization through reducing input and output tariffs increased the Total Factor Productivity (TFP) for each company. This was consistent with the spillover effect from trading to non-trading companies. Trade liberalization provided competitive pressure on all companies.

Trade liberalization has a positive impact on the palm oil trade, particularly in the ASEAN region. The ASEAN-India Free Trade Agreement (AIFTA) has resulted in trade creation effects between ASEAN member countries and India, leading to increased palm oil trade from ASEAN to India (Lakshmi et al., 2022a). Market liberalization in the oil palm industry has also contributed positively to farming performance and household welfare in Indonesia, including incre-

ased farm production, investment, and consumption (Irawan, 2020). In addition, intra-industry trade in the palm oil industry between Indonesia and Malaysia has been observed, highlighting the mutual trade of palm oil commodities between the two countries (Hendy, Firmansyah & Wahyu, 2018). Trade liberalization has played a significant role in supporting the downstreaming of palm oil and promoting its global trade. Trade policies have supported the downstreaming of palm oil, with trade agreements increasing crude and refined palm oil trade by up to 8% and 4% of the global import value, respectively. (Adhikari, Poudel & Gopinath, 2023)

Topalova and Khandelwal (2011) leveraged India rapid, comprehensive, and externally driven trade reforms to establish a causal relationship between tariff changes and company productivity. Meanwhile, pro-competitive forces resulting from low final goods tariffs and improved access to inputs due to lower input tariffs appeared to have increased company productivity, with input tariffs having a larger impact. The greatest impact occurred in industries that compete with imports and those not subject to excessive domestic regulations. Even though there was no evidence of differing impacts based on state-level characteristics, the study observed complementarity between trade liberalization and additional industrial policies reforms.

Trade protection through export restrictions was implemented to stimulate company innovation. Trade protection measures, such as tariffs, have been implemented by countries to support palm oil downstreaming. The European Union (EU) has imposed environmental regulations that positively impact the competitiveness of the Malaysian palm oil downstream industry. The UK and EU's green deal initiatives, along with the Roundtable of Sustainable Palm Oil certification, are recommended for adoption by all palm oil producing and market countries to

align with sustainable practices. Adopt green deal initiatives and sustainable palm oil certification - Implement interventions to compensate for economic losses. In India, palm oil consumption has increased, leading to concerns about cardiovascular disease and environmental sustainability. Potential policy interventions, including palm oil tariff changes, have been analyzed for their economic and nutritional impacts. Increased tariffs on palm oil can lead to modest reductions in saturated fat intakes and promote healthier oil consumption. (Cuevas García-Dorado et al., 2019). - Indonesia lost comparative advantage due to tariff rates. To support sustainable palm oil cultivation, a balanced approach is needed to fix tariff rates that protect domestic producers and refineries while meeting consumer demand (Lakshmi et al., 2022b). Huang (2022) investigated the effect of trade protection on domestic company innovation in China and explored the channels through which trade protection affected innovation. Trade protection significantly promoted companies patent applications, particularly substantive patents, and the effect was stronger for non-state-owned enterprises (non-SOEs). Additionally, financial constraint mitigation served as a channel through which trade protection can boost innovation. For policymakers, during the early stages of industrial development, trade protection can be used to alleviate company financing constraints and enhance profitability, helping to focus efforts, drive innovation, and facilitate development. However, in medium-term industrial development, policymakers should reduce trade protection. With the entry of foreign capital, companies faced increased competition, potentially increasing their motivation for long-term development. Hussinger and Issah (2022) conducted a study on innovation within family companies. The results showed that family companies were more inclined to innovate when the government provided greater trade protection for the goods produced.

Trade liberalization should be carried out for products that are not domestically produced. When trade protection is strictly applied to all products, it will have a negative and counterproductive effect on the economy. The United States had implemented increasingly high trade protection against China over the past few decades. (Bown et al., 2021) combined detailed information about US anti-dumping (AD) duty, a frequently used trade barrier, with US input-output data. This combination allowed them to analyze the impact of trade protection on the supply chain. Tariffs have a significant negative effect on downstream industries, including reduced jobs, wages, sales, and investment. Between 1988 to 2016, due to the AD protection against China, about 1.8 million jobs were lost in downstream US industries with no significant increase in protected sectors. In addition, AD duty reduced imports and increased production costs for downstream industries.

The development of downstream palm oil industries required the availability of CPO, hence policies for industrial downstreaming need close coordination with trade policies. Minister of Trade Regulation Number 50 of 2022 outlines the latest regulations on export of CPO, refined, bleached, and deodorized palm oil, refined, bleached, and deodorized palm olein, as well as used cooking oil.

This regulation grants export rights by issuing approval after exporters fulfill the DMO and DPO. In May 2023, export volume ratio of CPO was 1:4, which means companies can export 4 times the volume of CPO sold domestically. Cooking oil had a ratio of 1:2 for pillow packaging and 1:2.25 for bottle packaging. The DMO ratio can be used as an instrument to reduce export of upstream products and increase upstream products export. Complex calculations are required to determine the optimal DMO for each export

product. In addition, the government should consider whether the domestic downstream industries can accommodate the reduction in export.

Neilson et al. (2020) stated that the success of the cocoa industry downstreaming in Indonesia is mainly supported by export restrictions. The industry outcomes were significantly affected by Indonesia position in a globally connected network and the alignment of national policies with the strategies of major companies within this network. Upstream supply in resource-based industrialization is crucial, thereby requiring further attention.

The government has other policies instruments to either slow down or accelerate palm oil export, namely Export Duty (ED). This Export Duty is determined by the Minister of Finance Regulation Number 39/PMK/0.10/2022 jo. Number 123/PMK.010/2022. In this regulation, Export Duty is set in a tiered manner per metric ton according to the reference price. Therefore, the higher the price, the higher the Export Duty, and it is also determined based on the type of palm oil product. The more upstream the product being exported, the higher the Export Duty set. Fresh Fruit Bunches (FFB) were subjected to the highest Export Duty. This provided an incentive for the industry to first process the products into downstream products before being exported.

The calculation of the reference price for CPO was not straightforward. The price sources for determining the Reference Price for CPO were obtained from: (1) Free On Board (FOB) CPO prices from Indonesian and Malaysian exchanges, as well as cost insurance freight (CIF) Rotterdam, minus insurance and freight costs; (2) Prices from Indonesian and Malaysian exchanges were based on settlement prices for the nearest available delivery month; and (3) Prices from Rotterdam were based on spot prices for the nearest available delivery month.

The determination of the Reference Price for CPO was carried out using the following calculations: (1) In case of an average price difference in each of the 3 sources that was less than or equal to USD 40.00, the Reference Price calculation used a weighted average price with Indonesian exchange weighting at 60%, Malaysian at 20%, and Rotterdam at 20%; or (2) In case of an average price difference in each of the 3 sources as mentioned in letter b point 1, exceeding USD 40.00, the Reference Price calculation used the average price from 2 sources, namely the median source and the closest source to the median.

Using the calculations above, the reference price was then determined by the Ministry of Trade. For May 2023, the reference price was set based on Minister of Trade Decree Number 968 of 2023. The reference price for CPO subject to Export Duty and the Tariff of the General Service Agency for Palm Oil Plantation Fund Management were set at US\$ 893.23/MT.

Based on the reference price determination, the CPO Export Duty for the period of May 16-31, 2023 was set at USD 74 per MT and export Levy was USD 95 per MT. Therefore, exporters were required to pay USD 169 per MT. The inclusion of Malaysian and Rotterdam prices in the reference price determination showed that the government still lacks confidence in the prices formed in the Indonesian palm oil exchange. This was understandable as more trading occurs in the Malaysian exchange and the Rotterdam Port, making palm oil prices dependent on both countries. To strengthen Indonesia position in international trade, the government needs to establish the reference price based on the exchange, accompanied by an increased trade volume on palm oil exchange. The government-imposed export levy based on the Minister of Finance Regulation Number 103 /PMK.05/2022 jo. Number 154/PMK.05/2022. Appendix C.

Based on the explanations above, it can be concluded that the current regulations and taxation for export were quite extensive, including Export Duty, Export Levy, DMO, and Export Approval. The complex calculation of the reference price and tiered Export Duty rates contributed to this complexity. Malaysia applied a flat tariff that does not change with price increases, though there were differences between the 2 locations. In addition, Malaysian export taxes were significantly lower than Indonesian export taxes. This flat tariff could be easily used as a tool to control export volume. When the domestic CPO supply decreases, the government can increase the tariff. Conversely, when export need to be expanded, the tariff can be reduced. When tariff instruments effectively function as export control, meaning export increases or decreases align with the expected tariff increase or decrease, then policies like DMO may no longer be necessary.

The success of palm oil industry downstreaming heavily depends on export control. Stability and balance between international and domestic prices need to be maintained along with the availability of CPO for domestic downstreaming efforts. The extent of palm oil export should follow downstreaming processes in Indonesia. Therefore, regulations and taxation for export should align with the national downstreaming program. These regulations and taxation should be simplified to become reliable export control instruments.

Apart from trade policies, downstreaming requires substantial investment. This investment is needed from plantations to export of downstream products. Some of the investment strategies for the development of Indonesian palm oil downstreaming are as follows:

Development of Palm Oil Processing Mills (POPM): Investment in the construction or expansion of modern and efficient POPM is crucial for this industry downstreaming. Advanced POPM increases production capacity, reduce

waste, and yield high-quality derivative palm oil products.

Product Diversification and Innovation: Investment in study and development of higher quality and diverse derivative products includes cooking oil, margarine, olein, stearin, biodiesel feedstock, and cosmetic products. This diversification enhances income and help reduce reliance on raw CPO export.

Appropriate Technology Use: Investment in cutting-edge technology and equipment enhances the efficiency and productivity of the production process. The appropriate technology aids in reducing environmental impact and achieving better sustainability standards.

Labor Training and Capability Development: It is essential to invest in training and skill development for palm oil industry labor to improve product quality and production processes. Skilled labor is crucial for global competition.

Efficient Supply Chain Development: Investment in logistics and distribution infrastructure enhances the efficiency of palm oil product supply chain. Efficient infrastructure eases both domestic and international market access.

Export Market Development: Investment in marketing and promoting derivative palm oil products in export markets creates new business opportunities and increase value of exported downstream products.

Collaboration and Partnerships: Investment in partnerships with local and international companies is beneficial in terms of technology, market knowledge, and product distribution. This collaboration aids in marketing and expanding palm oil products.

Sustainable Standards Implementation: Investment in adopting sustainable standards such as the RSPO enhances the image of the Indonesian palm oil industry and gain access to markets that prioritize sustainable products.

The investment strategies mentioned above should be supported by clear and consistent government regulations, as well as policies to create a conducive environment for investment and sustainable development. In addition, involving the participation and support of stakeholders, including local and indigenous communities, is crucial for achieving the success of downstreaming program.

Incentives provision for the downstreaming program development is regulated by several rules as follows: (1) Tax Allowance for Specific Sectors and/or Specific Regions in accordance with Government Regulation Number 1 of 2007 jo. Government Regulation Number 62 of 2008 jo. Government Regulation Number 52 of 2011 jo. Government Regulation Number 18 of 2015; (2) Tax Holiday in accordance with Minister of Finance Regulation Number 130/2011 jo. Minister of Finance Regulation Number 154 of 2014 jo. Minister of Finance Regulation Number 159 of 2015; (3) Exemption from Import Duty on Machinery as well as Goods and Materials for Industrial Development or Expansion as part of Investment (Minister of Finance Regulation Number 76 of 2012).

Production strategies for the success of downstreaming program aimed to enhance value added, efficiency, and quality of palm oil products through processing and diversification. Some of the production strategies that need to be implemented are as follows:

Modernization of POPM: Modernization of POPM by adopting the latest and most efficient technologies is important to improving productivity and quality. Advanced mills increase production capacity and yield high-quality derivative products.

Enhancing Production Efficiency: This involves optimizing the production process to increase efficiency and reduce resource wastage. Furthermore, improvements in processing, waste management, and energy use helps to boost productivity and reduce environmental impact.

Product Diversification: This entails developing and producing diverse derivative products, such as cooking oil, margarine, olein, stearin, biodiesel feedstock, and cosmetics. Product diversification aids in achieving higher value added and reducing dependence on raw CPO export.

Labor Training: This involves providing training and skill development for the industry labor to enhance product quality and production processes. Skilled labor improves efficiency and product quality.

Technological Innovation: This involves encouraging technological innovation in palm oil processing, both in production and product development. These innovative technologies enhance the products competitiveness in the global market.

Adopting Sustainable Practices: This involves implementing sustainable practices production, such as sustainable agricultural policies, responsible land management, and environmentally friendly resource use. The sustainable practices help maintain ecosystem balance and support certifications like RSPO.

Development of Partnerships with Farmers: This entails enhancing partnerships with farmers as well as providing technical support and financing to improve productivity and harvest quality. Strong partnerships can contribute to an improved supply of quality palm oil.

Education and Technology Transfer: This involves providing education and technology to farmers to ensure best practices. Appropriate education enhances harvest yields and fruit quality.

These production strategies need to be supported by government regulations and policies to promote and encourage downstreaming. The regulations should involve active participation of stakeholders, including farmers, processing mills, and local communities. Through the adoption of right production strategies, Indonesia can achieve success in

downstreaming program as well as enhance competitiveness and economic contribution.

Downstreaming is part of the national industrial policies outlined in the Presidential Regulation Number 74 of 2022 regarding the National Industrial Policies for 2020-2024 (KIN 2020-2024). KIN 2020-2024 includes (1) industrial development targets; (2) focus areas for industrial development; (3) stages of industrial development achievement; (4) development of industrial resources; (5) development of industrial infrastructure; (6) industrial empowerment; (7) development of industrial locations; as well as (8) fiscal and non-fiscal facilities.

KIN 2020-2024 was elaborated into the Annual Industrial Development Plan, which was prepared for a 1-year period. The plan was formulated by the Minister of Industry in coordination with relevant agencies, considering input from related stakeholders. Furthermore, ministers and heads of non-ministerial institutions in sectoral policies related to the industrial field referred to the National Industrial Development Master Plan for 2015-2035 and KIN 2020-2024. At the regional level, the provincial and regency/ city industrial development plans were prepared by governors and regents/ mayors, with reference to the National Industrial Development Master Plan for 2015-2035 and KIN 2020-2024.

In the National Industrial Development Master Plan for 2015-2035, 10 priority industries were determined and categorized into flagship, supporting, and upstream industries as follows: (1) Flagship Industries (Food Industry; Pharmaceutical, Cosmetics, and Medical Devices Industry; Textile, Leather, Footwear, and Miscellaneous Industry; Transportation Equipment Industry; Electronics and Telematics/ICT Industry; Power Generation Industry); (2) Supporting Industries (Capital Goods, Components, and Auxiliary Material Industry); (3) Upstream Industries (Agro-based Upstream Industry; Upstream Basic Metal and Non-Metallic Mineral Indu-

stry; Oil and Coal-Based Basic Chemical Industry)

For the period 2020-2024, palm Oil Industry Downstreaming was detailed in the Strategic Plan for Forest and Plantation Products Industry formulated by the Directorate General of Agro-based Industries, Ministry of Industry. According to this strategic plan, a significant portion of CPO was still exported in its raw form, while global demand for derivative palm oil products increased.

To leverage the opportunity for the development of basic processing industry, 3 potential locations were selected, namely Sei Mangke (North Sumatra), Palalawan (Riau), and Maloy (East Kalimantan).

To optimize the opportunities for the development of palm Oil Basic Chemical Industry, strategies were needed to maximize strengths.

The strategies for maximizing strengths through opportunity optimization include: (1) Addition of ISPO-certified plantations/ industries, specifically outside Java; (2) Mastery of technology and human resource capabilities from upstream to downstream industries with support of the Plantation Fund; (3) Development of downstream palm oil industries aligned with value chain (oleochemicals and bioenergy); (4) Increased production capacity and domestic biodiesel absorption; (5) Formation of sustainable downstream industry investment packages within the framework of CPOPC; (6) Development of distinctive palm oil products, such as red cooking oil, golden nutrients, and others.

The strategies for minimizing weaknesses through opportunity optimization include: (1) Replanting program for old plantations supported by palm oil plantation funds; (2) Strengthening domestic study capacity and human resources in palm oil sector via the CPO Fund; (3) Improvement of plantation and downstream industry-supporting infrastructure, specifically ports and world-

class industrial zones in PPP (Public Private Partnership) format; (4) Increased diplomatic efforts and joint anti-negative campaigns with CPOPC member countries; (5) Development of second-generation biofuel technology (green diesel); (6) Attracting investment in world-class infrastructure sectors.

Palm Oil Basic Chemical Industry had a target to focus on advanced derivative products as substitutes for non-renewable green products. Examples of these products include Bio asphalt, Biosurfactant, Biopolymer, Bio jet fuel, and Bio lube.

CONCLUSION

In conclusion, downstreaming enhanced value added to export products and reduced imports. Furthermore, domestic downstreaming necessitated more upstream products, which resulted to a decrease in export of raw materials. Simulations conducted in this dissertation showed that when export of raw material products decreased by 5% and export of downstream products increased by 15%, then Indonesian foreign exchange reserves were projected to increase by approximately 7 million USD annually. Consequently, the Gross Domestic Product (GDP) would increase.

Downstreaming was key to controlling export of palm oil, and enabled Indonesia to manage international prices that have historically been controlled by Malaysia and the Netherlands. It was difficult for other countries to compete with Indonesia in palm oil production. However, those with the highest consumption, such as China and India, continuously developed plantations and palm oil industries to reduce their dependency on palm oil imports from Indonesia. Countries that are unable to naturally produce palm oil, like Europe and the United States, consistently vied with Indonesia by conducting anti-palm oil campaigns. The negative campaigns, specifically from Europe aimed to lower the price of Indonesian palm oil, enabling

these countries to profit more. Thailand, as the third-largest global producer of palm oil, required special attention to enhance cooperation in the development of downstream products within the ASEAN framework.

The transformation of palm oil into finished products like cosmetics and soap was most feasible through downstream processing. Therefore, Indonesia should position as a hub for producing downstream products. Palm oil is the most versatile among vegetable oils, making it easier to create various derivatives. Its unique characteristics make it challenging to substitute with other vegetable oils. The ease of transformation into derivative products was attributed to its characteristics. It required the smallest land area, which resulted to lower production costs compared to other vegetable oils.

This process strengthened Indonesia position as the world largest palm oil seller, and weakened the dominance of buyers that have long controlled international trade. The buyers fall into two categories, namely those buying for domestic needs (e.g., India and China) and those reselling to other countries (e.g., Malaysia and the Netherlands). All palm oil bought by the Netherlands from Malaysia was originally Indonesian. Malaysia and the Netherlands made significant profits from trading Indonesian palm oil. Therefore, downstreaming enabled Indonesia to reduce export to trading nations without diminishing national production.

Downstreaming enhanced the productivity of independent palm farmers. These farmers managed 42% of land but achieved a low production rate of 2-3 tons per hectare annually. This was considerably lower compared to large plantations owned by companies that yielded 5-7 tons per hectare per year. The quality of FFB they produce was also lower, which resulted to lower payments to

independent farmers. The domestic demand for palm oil to manufacture downstream products increased the price. Therefore, downstreaming compelled farmers to produce standardized palm oil with higher productivity levels.

Downstreaming impeded the goals of the anti-palm oil campaigns launched by other oil-producing countries competing with Indonesia in the international market. These campaigns were unable to lower the international price, as Indonesia restricted export to facilitate domestic downstream product manufacturing.

The success relied on well-regulated policies and taxation regarding export. An instrument was needed to decrease export of raw materials while increasing export of downstream palm oil products. The current regulations and taxation on export are overly intricate. In fact, export duties and complex methods for setting palm oil reference prices made it challenging to export. High export duties combined with additional charges made the Indonesian products less competitive compared to Malaysia. Many palm oil traders and their derivative products have yet to trade on the Indonesian exchange. Consequently, the Malaysian exchange and the Rotterdam Port prices were still used as references in trading and palm oil policies in Indonesia.

Palm oil downstreaming program, as agreed in the Master Plan for National Industry Development 2015-2035 or Government Regulation Number 14 of 2015, should be consistently implemented, with clear detailed steps and expedited execution.

Coordination among ministries, including the Ministry of Industry, Ministry of Trade, and Ministry of Finance, needs improvement. Regulations and taxation concerning palm oil should be streamlined. These regulations and export taxation need to align with the planned downstreaming program set by the government. Furthermore, the implementation of downstrea-

ming program, palm oil regulations, and export taxation should be designed to reduce the volume of raw palm oil export and maintain production. All the three aspects should contribute to increasing the national export value.

Regulations and taxation for palm oil need to be streamlined and easily deployable as instruments to control export. A flat Export Duty should be established, flexibly adjusting based on international prices and domestic downstream processing needs.

Indonesia should enhance collaboration with palm oil-producing nations, particularly within ASEAN, to develop downstream products. Investors capable of manufacturing palm oil-intensive products such as cosmetics, soap, chocolate, and biodiesel should be encouraged to establish factories in Indonesia and export the resultant products. It is important to ensure that setting up factories, production, and subsequent export are more profitable when accomplished within the country.

Indonesia should minimize the volume of export to Malaysia and the Netherlands, and allow the latter to purchase directly from Indonesia, bypassing Malaysia. Countries that import from the Netherlands would directly source from Indonesia. However, a careful calculation is necessary to determine the optimal reduction in export volume that benefits Indonesia without causing self-harm. This reduction could counteract negative campaigns initiated by Europe. Subsidies for fertilizers, technical guidance, and other aids should be extended to independent palm farmers until they can produce goods of comparable quality to plasma farmers and large plantations. The goods should also be sold at high prices equivalent to those from larger estates. Therefore, greater attention should be directed towards the Indonesian palm oil

exchange until it becomes the sole reference for prices in international trade.

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