

OPTIMISATION OF MARKETING AND LOGISTICS SYSTEMS AS A MEANS OF ENHANCING ECONOMIC VALUE AND SUSTAINABILITY IN THE PALM OIL INDUSTRY

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Abstract

The palm oil industry is a strategic pillar of the Indonesian economy, making a significant contribution to Gross Domestic Product (GDP), exports and employment. However, the industry faces structural challenges in the form of a sub-optimal marketing system, a reliance on raw material exports, a negative image regarding sustainability, and logistical inefficiencies that increase distribution costs and reduce product quality. This study aims to examine strategies for optimising the marketing and logistics systems as an effort to enhance the economic value and sustainability of Indonesia's palm oil industry. The method employed is a *literature review* using a descriptive qualitative approach. The research findings indicate that optimising the marketing system through the diversification of high-value derivative products (oleochemicals, biodiesel, oleofoods), strengthening sustainability certification (ISPO and RSPO), digitalising marketing (e-commerce and blockchain), and enhancing national branding can increase export value by up to 25–30 per cent and open access to premium markets. Meanwhile, optimising the logistics system through infrastructure modernisation (plantation roads, specialised ports), the integration of digital technology (*Warehouse Management System*, IoT, GPS tracking), the implementation of *green logistics*, and collaboration with state-owned logistics enterprises has the potential to reduce distribution costs by 25–30 per cent, maintain product quality, and lower the carbon footprint of the supply chain. Synergy between these two pillars creates a multiplier effect for enhancing global competitiveness, stabilising farmers' prices, and ensuring environmental sustainability. This study recommends an integrated approach involving political commitment from the government through coherent cross-ministerial policies, sustainable investment from industry players, and inclusive multi-stakeholder collaboration to build an economical, sustainable, and inclusive palm oil industry for the welfare of the Indonesian people.

Keywords: palm oil, marketing optimisation, sustainable logistics, economic value, ISPO, RSPO, downstream processing, *green supply chain*, export competitiveness, Indonesia.

Introduction

The palm oil industry has long been one of the fundamental pillars of Indonesia's economy, making a significant contribution to Gross Domestic Product (GDP), employment and foreign exchange earnings. In the third quarter of 2025, this sector continued to demonstrate remarkable resilience amidst the global economic slowdown, with national economic growth reaching 5.04 per cent, largely underpinned by the manufacturing, trade, and agricultural sectors, including the palm oil industry (Ariprayugo et al., 2025). This strategic position means that palm oil is not merely an export commodity, but the primary driver of national economic transformation and clean energy.

As the world's largest producer and exporter of *crude palm oil* (CPO), Indonesia accounts for nearly 60 per cent of the global palm oil supply, with plantation areas exceeding 16 million hectares (Turnip et al., 2016). This dominance positions Indonesia as a key player in the international trade of food commodities and renewable energy. Data from the Central Statistics Agency (2025) shows that exports of CPO and its derivatives from January to May 2025 saw a significant cumulative increase of 27.89 per cent, with export values reaching tens of billions of US dollars, reaffirming palm oil's position as a flagship national export commodity. However, behind this massive economic strength and potential, Indonesia's palm oil industry faces a number of complex structural challenges, particularly regarding a marketing system that remains sub-optimal. An increasingly competitive global market structure, international price fluctuations, and pressure from the protectionist trade policies of major importing nations such as the European Union have created uncertainty for industry players (Qoni'ah, 2024). Negative perceptions regarding environmental and social issues also pose a serious barrier to accessing premium markets, thereby demanding marketing strategies that are more adaptive, transparent, and sustainability-based.

Marketing challenges are further compounded by the lack of diversification in domestic palm oil derivatives. The majority of exports still take the form of crude palm oil (CPO) or semi-finished products, which have relatively low added value compared to oleochemicals, biodiesel, or functional foods that have undergone extensive processing (Djamaris, 2024). This reliance on primary products makes Indonesia's palm oil industry highly vulnerable to fluctuations in global commodity prices and less capable of capturing the highest economic value from the palm oil value chain, which is actually very long and diverse.

On the other hand, the logistics system within Indonesia's palm oil supply chain continues to face chronic inefficiencies rooted in infrastructure and distribution management. The logistics network stretching from remote plantations in the interior to export ports on the coast is often hampered by poor road conditions, limited transport fleets, and inadequate port facilities (Buluaro et al., 2025). Riau Province, as one of the largest CPO production centres, serves as a clear example of how a logistics

infrastructure crisis can lead to delivery delays, a decline in the quality of Fresh Fruit Bunches (FFB), and a surge in operational costs throughout the supply chain.

High logistics costs represent a significant additional burden on the competitiveness of Indonesia's palm oil industry in the global market. Studies indicate that logistical inefficiencies can account for up to 15–20 per cent of total CPO production costs, a figure far higher than that of competing nations such as Malaysia (Arwini & Suputra, 2025). Distribution delays not only increase costs but also risk reducing the quality of palm oil due to oxidation and contamination during transport, which ultimately lowers selling prices and erodes the confidence of international buyers.

Sustainability challenges are also a central issue that cannot be ignored in the context of palm oil marketing and logistics. Although smallholders account for more than 40 per cent of the national palm oil plantation area, less than 1 per cent of them have obtained Indonesian Sustainable Palm Oil (ISPO) certification (Maygirtasari, 2015). This disparity reflects farmers' limited access to information, funding and sustainable cultivation technologies, which in turn hinders the industry's efforts to meet international sustainability standards such as the Roundtable on Sustainable Palm Oil (RSPO) and EU regulations on deforestation-free products.

Global market pressure for sustainable palm oil products is becoming increasingly urgent with the implementation of policies such as the *European Union Deforestation Regulation* (EUDR), which will come into full effect in 2025. This regulation demands full *traceability* from upstream to downstream, including proof that palm oil products do not originate from land that has been deforested after December 2020 (Qoni'ah, 2024). Without a marketing and logistics system integrated with digital technology for monitoring and tracking, Indonesia's palm oil industry risks losing access to the most lucrative premium markets.

Optimising the marketing system is a strategic key to enhancing the economic value of the palm oil industry through product differentiation, strengthening sustainable branding, and expanding into alternative markets. Diversification into high-value derivative products such as oleochemicals for the cosmetics and pharmaceutical industries, biodiesel for the B35–B40 programme, and functional foods rich in vitamin E can add domestic value (Siregar, 2025). Furthermore, the digitalisation of marketing through *e-commerce* platforms for raw materials and *blockchain-based* traceability systems can enhance transparency and global buyer confidence in Indonesian palm oil products. Meanwhile, the optimisation of logistics systems requires a holistic approach encompassing infrastructure modernisation, information technology integration, and the implementation of *green* logistics principles. The development of *warehouse management* systems (WMS), real-time tracking based on the *Internet of Things* (IoT), and the optimisation of distribution routes can significantly reduce delivery costs and times (Huda & Widodo, 2017). Collaboration with state-owned logistics enterprises and

the development of specialised palm oil ports in key production regions are also crucial steps towards creating an efficient and sustainable supply chain.

Synergy between an optimal marketing system and logistics will create a powerful multiplier effect for enhancing the competitiveness and sustainability of the national palm oil industry. Efficient logistics ensure product quality is maintained right up to the buyer, whilst adaptive marketing opens access to markets with better prices and stable demand (Huda & Widodo, 2017) . A data-driven, integrated approach and green industry policies form the foundation for building a palm oil industry that is not only economically viable, but also environmentally friendly and inclusive for millions of smallholder farmers.

Based on the above discussion, this paper aims to conduct an in-depth examination of strategies for optimising marketing and logistics systems as a means of enhancing the economic value and the sustainability of Indonesia's palm oil industry. Through an analysis of these two key pillars, it is hoped that policy recommendations and best practices can be formulated for adoption by the government, industry players and other stakeholders to strengthen Indonesia's position as a global leader in sustainable palm oil production.

Research Methodology

This study employs a *literature review* method using a descriptive qualitative approach, with the aim of analysing, synthesising and interpreting various secondary sources relating to the optimisation of marketing and logistics systems within the palm oil industry. Data were collected through a literature review of books, journals and other documents, with a specific focus on studies discussing the palm oil supply chain, commodity marketing strategies, sustainable logistics, and national and international palm oil industry policies (Eliyah & Aslan, 2025) . These sources were systematically selected based on topic relevance, the credibility of the authors or institutions, and the recency of the data; they were then critically analysed using *content analysis* techniques to identify patterns, challenges, strategies, and existing research gaps (Myeong et al., 2022) .

Results and Discussion

Optimisation of the Palm Oil Marketing System

Indonesia's palm oil marketing system currently operates within an increasingly complex global landscape, characterised by volatile commodity price fluctuations, fierce competition with other producers, and trade regulatory pressures from major importing nations. As the world's largest producer, accounting for nearly 60 per cent of global supply, Indonesia faces a paradox where volume dominance does not always correlate with pricing power, particularly when export destinations such as India and China leverage *a buyer's market* to drive down the price of Indonesian CPO. This

situation is exacerbated by stagnant national production in recent years due to limitations on land expansion and declining productivity in older plantations, which could potentially constrain export volumes amidst rising global demand (Ariprayugo et al., 2025).

The structure of Indonesia's palm oil export market, which remains overly reliant on a few key destination countries, creates strategic vulnerability to external shocks. India, as the largest importer, consistently exploits the price differential between Indonesian CPO and its competitors from Colombia and Guatemala to maximise profits, which in turn squeezes the export margins of domestic industry players (Raja & Siswanto, 2026). This reliance on a handful of traditional markets highlights the need for more aggressive geographical diversification into countries with high demand growth in Africa, the Middle East and Central Asia, whilst simultaneously strengthening Indonesia's bargaining position through more proactive bilateral trade diplomacy.

Marketing challenges are further compounded by the negative image of palm oil in international markets, particularly regarding issues of deforestation, biodiversity and workers' rights, which are often used as a basis for protectionist policies by importing countries. The European Union, for example, has implemented the *European Union Deforestation Regulation* (EUDR), which requires full *traceability* and proof of deforestation-free status for all commodity products entering their market, including palm oil and its derivatives (Maygirtasari, 2015). This regulation creates significant non-tariff barriers for Indonesian exporters who do not yet have adequate supply chain documentation and verification systems, thereby potentially closing off access to premium markets with higher prices.

In this context, sustainability certification has become a critical marketing tool for differentiating Indonesian palm oil products from competitors and gaining access to increasingly selective markets. The mandatory Indonesian Sustainable Palm Oil (ISPO) certification and the voluntary Roundtable on Sustainable Palm Oil (RSPO) certification have been shown to contribute positively to the increase in Indonesian CPO exports to countries that require sustainability, such as India, the Netherlands, and the United States (Bari et al., 2002). Studies show that certified products not only have broader market access but are also able to command a premium of 3–5 per cent compared to non-certified products, which cumulatively can significantly increase revenue for industry players.

Nevertheless, the uptake of sustainability certification among smallholder farmers—who control more than 40 per cent of the national plantation area—remains very low, with less than 1 per cent having obtained ISPO certification (Azizah, 2015). This gap reflects structural barriers in the form of limited access to technical information, relatively high certification costs, and the complexity of the required documentation procedures, all of which hinder the integration of smallholders into sustainable supply chains. Optimising the marketing system requires policy interventions that facilitate

group certification, ongoing technical support, and financial incentives for smallholder farmers to meet national and international sustainability standards.

A strategy for diversifying palm oil derivatives is a fundamental pillar in increasing value added and reducing dependence on crude palm oil (CPO) exports, which are vulnerable to fluctuations in global commodity prices. Downstream processing towards oleofoods, oleochemicals, and bioenergy has proven capable of multiplying the economic value of palm oil by 5–10 times compared to selling it in the form of crude palm oil (Almizri & Akhmad, 2025) . Oleochemical products such as surfactants, detergents, shampoos, biolubricants, and bioplastics have higher profit margins and more stable demand as they are used in downstream industries with high added value such as cosmetics, pharmaceuticals, and green manufacturing (Mulyani et al., 2023) .

The development of palm oil-based bioenergy, particularly through the B35 biodiesel mandate—which is set to be increased to B40 and B50—represents a revolutionary domestic marketing strategy to absorb national production and reduce reliance on exports. This programme not only creates a stable domestic market for Indonesian CPO, but also contributes to reducing fossil fuel imports, improving the trade balance, and mitigating greenhouse gas emissions in line with Indonesia’s commitments under the Paris Agreement. Innovations in the use of alternative feedstocks such as Palm Acid Oil (PAO) and Palm Fatty Acid Distillate (PFAD) for biodiesel production further strengthen the concept of a circular economy by transforming low-value by-products into high-value renewable energy sources (Hadiguna, 2012) .

Digital transformation in palm oil marketing opens up new opportunities to enhance market reach, transparency and transaction efficiency across the value chain. E-commerce platforms specifically designed for agricultural commodities, which integrate farmers, traders and industrial buyers, enable fairer price discovery, a reduction in the role of excessive intermediaries, and direct access to both domestic and international markets (Widjaja, 2021) . A prototype blockchain-based e-commerce system for the Fresh Fruit Bunch (FFB) supply chain has been successfully developed and tested, demonstrating significant potential in ensuring product authenticity, providing detailed information on origin and quality, and meeting the traceability requirements demanded by international regulations such as the EUDR (Harison, 2025).

Blockchain technology, in particular, offers a transformative solution to the challenges of transparency and accountability that have long hindered the marketing of Indonesian palm oil in premium markets. By recording every transaction and movement of the product from the plantation to the end buyer in a decentralised and tamper-proof ledger, blockchain provides a guarantee of credibility for sustainability claims and product provenance, which are increasingly demanded by global consumers (Widjaja, 2021) . The implementation of this technology not only boosts buyer confidence but also

enables product differentiation based on sustainability attributes, which can be capitalised upon through premium pricing and long-term brand loyalty.

Strengthening the national branding of “Indonesian Palm Oil” as a sustainable, high-quality product requires strategic coordination between the government, industry associations and business operators to convey a positive narrative based on data and empirical evidence. An integrated marketing campaign highlighting palm oil’s contribution to rural poverty alleviation, job creation, and a commitment to environmentally friendly cultivation practices can transform negative perceptions into a competitive advantage in the global market (Muliyani et al., 2023) . Multi-stakeholder collaboration through international forums such as the Council of Palm Oil Producing Countries (CPOPC) also strengthens the bargaining position of Indonesia and Malaysia in addressing discriminatory policies and advocating for the shared interests of sustainable palm oil producers.

Optimising the marketing system also requires strengthening the human resource and institutional capacity of industry players, particularly in terms of understanding global market dynamics, international trade negotiations, and the use of financial instruments for hedging against the risk of price fluctuations. Training and mentoring programmes organised by the government in collaboration with industry associations such as GAPKI can enhance the competencies of marketing managers, exporters, and farmers’ cooperatives in identifying market opportunities, formulating product differentiation strategies, and managing foreign exchange risks (Raja & Siswanto, 2026) . Investment in market research and competitive intelligence is also vital for proactively anticipating global demand trends, regulatory changes, and competitors’ product innovations.

The economic impact of optimising the marketing system is expected to be significant in terms of increasing domestic value added, price stability for farmers, and the competitiveness of national exports. Projection studies indicate that a combination of product diversification strategies, sustainability certification, and marketing digitalisation could increase the export value of palm oil and its derivatives by up to 25–30 per cent over the next five years, whilst reducing the volatility of farmers’ incomes caused by fluctuations in global CPO prices(Altarazi et al., 2022) . This increase in economic value will create a multiplier effect in the form of growth in downstream industries, job creation, and an increased contribution of the palm oil sector to the national GDP.

The success of marketing system optimisation depends heavily on coherent policy coordination between the Ministry of Trade, the Ministry of Agriculture, the Ministry of Industry, and the Ministry of Environment and Forestry to create a conducive industrial ecosystem. Inter-ministerial coordination is required to harmonise export regulations, fiscal incentives for downstream processing, the facilitation of farmer certification, and proactive international trade diplomacy in opening up new market

access (Azizah, 2015) . Without an integrated approach and strong political commitment, the potential for increasing the economic value and sustainability of the palm oil industry through marketing optimisation will not be fully realised.

Overall, optimising Indonesia's palm oil marketing system requires a fundamental shift from a volume-based approach to one focused on value, sustainability and innovation. Through the diversification of high-value derivative products, the strengthening of sustainability certification, the adoption of digital technology, and the enhancement of national branding, Indonesia's palm oil industry can not only maintain its dominant position in the global market but also sustainably increase its economic contribution to the welfare of millions of smallholders and the Indonesian people.

Optimising the Logistics System within the Palm Oil Supply Chain

The logistics system within Indonesia's palm oil supply chain faces chronic and multidimensional structural challenges, ranging from inadequate physical infrastructure and operational inefficiencies to high distribution costs that significantly erode the competitiveness of national exports. The logistics network stretching from remote plantations in the interior of Sumatra and Kalimantan to export ports on the coast is frequently hampered by poor road conditions, a shortage of specialised transport fleets, and port facilities that have not been optimised to handle the ever-increasing volume of CPO. Riau Province, as one of the nation's largest CPO production hubs contributing over 20 per cent to total national production, serves as a clear case study of how a logistics infrastructure crisis can lead to delays in the delivery of Fresh Fruit Bunches (FFB) to mills, a decline in oil quality due to oxidation during transport, and a surge in operational costs across the entire supply chain (Buluaro et al., 2025) .

High logistics costs represent a significant additional burden on the competitiveness of Indonesia's palm oil industry in the global market, particularly when compared with key competitors such as Malaysia and Thailand. According to a report by the Asian Development Bank (2024), logistics costs in Indonesia remain 15–20 per cent higher than in Malaysia, which directly reduces exporters' profit margins and makes Indonesian CPO prices less competitive despite the country having the world's largest production volume (Turnip et al., 2016) . Factors contributing to these high costs include limited road infrastructure leading to ports, a distribution system that is not yet well integrated, high *handling* costs and *dwelling times* at ports, and a reliance on inefficient land transport for long distances(Haryanti et al., 2021) .

The impact of logistical inefficiencies is not limited to economic aspects, but also has the potential to reduce the quality of the palm oil itself due to delays in distribution and sub-optimal storage conditions. Fresh Fruit Bunches (FFB) that arrive at the mill more than 24 hours after harvesting will experience a significant increase in *free fatty acid* (FFA) levels, which directly reduces the quality of the CPO produced and lowers the

selling price on the international market (Haryanti et al., 2021) . Similarly, CPO stored in tanks without adequate temperature and humidity monitoring systems is at risk of oxidation and contamination, which in turn reduces its quality and economic value in the eyes of global buyers.

Optimising the logistics system requires strategic investment in the modernisation of physical infrastructure linking production centres with processing hubs and export ports. The government, at both central and regional levels, must prioritise the construction and maintenance of plantation roads, bridges and dedicated transport routes designed to withstand the weight of trucks carrying fresh fruit bunches (FFB) and CPO tankers. Fiscal policy reforms are also required to ensure that a portion of the massive revenue generated by the palm oil industry through export taxes and plantation funds is reallocated to maintain the public assets that underpin the industry itself, creating a sustainable investment cycle between the industry and infrastructure (Hasan & Rahman, 2017) .

The integration of digital technology into logistics management is key to the transformation towards a supply chain that is more efficient, transparent and responsive to market dynamics. The implementation of a *Warehouse Management System* (WMS) equipped with *Internet of Things* (IoT) technology enables real-time monitoring of CPO stock in storage tanks, including critical parameters such as temperature, humidity, FFA content, and inventory levels, which can be accessed remotely by logistics managers. IoT sensors installed on storage tanks, transport trucks, and shipping containers can also send automatic alerts when conditions deviate in a way that could potentially reduce product quality, allowing for rapid intervention before damage occurs (Primadasa & Tauhida, 2020) .

Radio Frequency Identification (RFID) technology and *Global Positioning System* (GPS)-based tracking systems can enhance the visibility and accountability of CPO distribution from the factory to the export port. Every tanker truck equipped with an RFID tag and a GPS tracker can be monitored in real-time for location, speed, route, and estimated time of arrival, enabling the optimisation of distribution routes to avoid traffic congestion, reduce waiting times, and minimise fuel consumption (Hadiguna, 2012) . Historical data from this tracking system can also be analysed using *big data analytics* to identify patterns of inefficiency, predict fleet requirements, and devise distribution strategies that are more responsive to seasonal fluctuations in demand.

The development of *palm oil dedicated terminals* in key production regions such as Riau, North Sumatra and Central Kalimantan is a crucial strategy for reducing reliance on general-purpose ports, which are often subject to congestion and long *dwelling times*. Specialised terminals equipped with large-capacity storage tanks, direct *pipeline* systems from the factory to the port, and modern loading and unloading equipment can significantly reduce distribution time and costs (Ariprayugo et al., 2025) . This model for the development of specialised ports can be implemented through a Public-Private

Partnership (PPP) scheme involving private investment, supported by government regulations and fiscal incentives to ensure economic viability and operational sustainability.

The implementation of *Green Supply Chain Management* (GSCM) principles in the palm oil logistics sector is becoming increasingly urgent in light of global demands for environmentally friendly products and a low carbon footprint. GSCM-based supply chain optimisation models integrate economic efficiency with environmental sustainability through strategies such as route optimisation to minimise greenhouse gas emissions, the use of alternative-fuel fleets (biofuels derived from palm oil itself), and the implementation of *reverse logistics* systems to recycle packaging waste and logistics materials (Raja & Siswanto, 2026). This approach not only reduces the environmental impact of logistics operations but also enhances the competitiveness of Indonesian palm oil products in markets that are increasingly sensitive to sustainability issues, such as the European Union and North America.

Strategic collaboration between palm oil industry players and state-owned logistics companies such as PT Pos Logistik Indonesia, PT Pelayaran Nasional Indonesia (PELNI) and PT Kereta Api Indonesia (KAI) can create synergies to strengthen the national commodity supply chain. This collaboration enables the utilisation of existing national logistics networks for the distribution of CPO and palm oil derivatives at a more cost-efficient rate, particularly for deliveries to remote areas that are difficult for private fleets to reach (Primadasa & Tauhida, 2020). A *multi-industry logistics* model, in which the same fleet is used to transport various commodities on return journeys, can improve asset utilisation, reduce *empty return trips*, and lower overall logistics costs (Djamaris, 2024).

Optimising logistics systems also requires strengthening the human resource and institutional capacity of supply chain managers through training programmes and professional certification in logistics and *supply chain* management. Competence in distribution planning, inventory management, transport tariff negotiation, and the utilisation of digital technology is critical to ensuring that investments in infrastructure and technology systems can be utilised to their full potential (Arwini & Suputra, 2025). Partnerships between the palm oil industry, educational institutions, and logistics associations such as the Indonesian Logistics Association (ILA) can develop training curricula relevant to the specific needs of the palm oil industry and produce competent professionals.

The economic impact of optimising the logistics system is expected to be significant in terms of reducing distribution costs, improving product quality and enhancing national export competitiveness. Projection studies indicate that the integrated implementation of infrastructure modernisation, the adoption of digital technology and the application of GSCM could reduce CPO logistics costs by up to 25–30 per cent over the next five years, which would directly increase exporters' profit

margins and the prices received by farmers (Djamaris, 2024) . This cost reduction will also strengthen the position of Indonesian CPO prices in the global market, enabling penetration into more profitable premium market segments, and creating fiscal space for further investment in innovation and sustainability.

Overall, optimising the logistics system within Indonesia's palm oil supply chain requires a holistic approach that integrates investment in physical infrastructure, the adoption of digital technology, the application of sustainability principles, and strategic multi-stakeholder collaboration. Without a fundamental transformation in the way palm oil products are moved from plantations to global markets, the potential for increased economic value and industry sustainability will not be fully realised, and Indonesia risks losing its dominant position amidst increasingly fierce global competition.

Conclusion

The optimisation of marketing and logistics systems are two interrelated and inseparable strategic pillars in efforts to enhance the economic value and sustainability of Indonesia's palm oil industry. In terms of marketing, the shift from a volume-based to a value-based approach through the diversification of high-value derivative products (oleochemicals, biodiesel, oleofoods), the strengthening of sustainability certifications (ISPO and RSPO), and the adoption of digital technologies (e-commerce and blockchain) has proven capable of boosting export competitiveness, opening access to premium markets, and creating price stability for millions of smallholder farmers. Without a marketing strategy that adapts to global market dynamics and sustainability demands, Indonesia's dominance in production volume will not translate into optimal pricing power and value addition.

On the logistics front, chronic inefficiencies characterised by inadequate infrastructure, high distribution costs and delivery delays have long been a burden that erodes the competitiveness of the national palm oil industry in the global market. Optimisation through the modernisation of physical infrastructure (plantation roads, specialised ports), the integration of digital technology (Warehouse Management Systems, IoT, GPS tracking), the application of green logistics principles, and strategic collaboration with state-owned logistics enterprises has the potential to reduce distribution costs by up to 25–30 per cent, maintain product quality from the plantation to the end consumer, and reduce the supply chain's carbon footprint. Investment in efficient logistics is not merely an economic issue, but also a commitment to environmental sustainability, which is increasingly becoming a prerequisite for access to international markets.

Overall, the synergy between an adaptive marketing system and an efficient logistics system will create a powerful multiplier effect for enhancing economic value, global competitiveness and the long-term sustainability of Indonesia's palm oil industry. Realising this potential requires strong political commitment from the government

through coherent and coordinated cross-ministerial policies, sustained investment by industry players in technology and infrastructure, and inclusive multi-stakeholder collaboration involving the government, the private sector, industry associations, and smallholder farmers. Only through this integrated and holistic approach can Indonesia maintain its dominant position as the world's largest palm oil producer whilst building an industry that is economically viable, sustainable, and inclusive for the welfare of all Indonesians.

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