
From Commodity Powerhouse to Credible Price Maker: Institutional Prerequisites for Fair Price Discovery in Indonesia's CPO and Nickel Markets

Loso Judijanto

<https://orcid.org/0009-0007-7766-0647>

IPOSS Jakarta, Indonesia

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Abstract

Indonesia's dominant position in the production of several globally traded commodities has not automatically translated into equivalent influence over international price formation. This qualitative literature review examines the institutional, market-microstructure, regulatory, and physical-market prerequisites for developing a credible Indonesian commodity exchange capable of generating fairer and internationally relevant price discovery. Crude palm oil (CPO) is employed as the principal analytical case, while nickel serves as a comparative stress test because of its greater product heterogeneity and distinct benchmark architecture. The analysis integrates recent literature on commodity futures, price discovery, market liquidity, clearing, price transmission, palm-oil governance, and critical-mineral markets with Indonesia's experience involving KPNB/INACOM and the Indonesia Commodity and Derivatives Exchange (ICDX). The review finds that production dominance constitutes only an initial condition for benchmark development. Effective price discovery additionally requires concentrated and persistent liquidity, diversified market participation, credible physical delivery, commodity standardisation, transparent real-time information, robust clearing and settlement, market-integrity surveillance, international accessibility, regulatory predictability, and widespread contractual adoption of the resulting benchmark. The paper argues that Indonesia should avoid creating fragmented competing venues and instead develop an integrated price-discovery ecosystem that combines existing physical-market information, exchange infrastructure, international participation, and transparent benchmark governance. A phased policy architecture is proposed for transforming Indonesia from a large commodity producer into a credible contributor to global benchmark formation.

Keywords: commodity exchange, price discovery, benchmark pricing, crude palm oil, cpo, nickel, market liquidity, commodity governance, market microstructure, indonesia

JEL Classification: G13; G14; Q13; Q31; L51

1. Introduction

Indonesia occupies an unusual position in the global commodity economy. It is among the most important producers and exporters of crude palm oil (CPO), nickel, coal, tin and several other natural-resource-based products, yet the prices used in many commercial transactions involving those commodities continue to be influenced heavily by benchmarks generated outside Indonesia. This gap between **production power** and **pricing power** has increasingly become a policy concern because the capacity to produce a large share of internationally traded output does not necessarily confer an equivalent capacity to determine the informational benchmark against which physical transactions, derivative contracts, financing arrangements and taxation values are referenced. Recent Indonesian policy materials explicitly identify this paradox and place the development of a domestic mineral and strategic commodity exchange at the centre of an effort to create an “Indonesia Reference Price.”

The policy momentum intensified in 2026. Law No. 4 of 2026 amended Indonesia’s financial-sector framework by adding responsibilities for the regulation and supervision of mineral and strategic commodity exchanges to the Financial Services Authority (Otoritas Jasa Keuangan, OJK). OJK subsequently established a task force to prepare the relevant regulatory, supervisory and supporting infrastructure (Government of Indonesia, 2026; OJK, 2026). Initial policy documents also envisage an exchange—widely referred to as Icomex—intended to operate as an integrated market for strategic commodities and potentially to encompass CPO, nickel and coal. The ambition is not merely to create another transaction platform, but to construct a market sufficiently deep, transparent, liquid and credible to generate price signals accepted by domestic and international participants.

This distinction is fundamental. Establishing an exchange administratively is relatively straightforward compared with establishing a benchmark. A government can provide legal status, licences, technological infrastructure and supervisory arrangements, but benchmark status emerges endogenously from repeated market use. It depends on whether heterogeneous buyers and sellers choose to trade sufficient volumes, whether arbitrage links the exchange price to physical fundamentals, whether futures and spot prices converge appropriately, whether transaction costs are competitive, whether clearing reduces counterparty uncertainty, and—most importantly—whether commercial actors begin to incorporate the resulting price into real contracts. Studies of agricultural, energy and commodity futures demonstrate that price discovery is a market process whose location can migrate between spot and futures venues as liquidity, information arrival and market structure change (Bohl et al., 2020; Hu et al., 2020; Yang et al., 2021; Kim and Linn, 2022; Xu et al., 2022).

Consequently, a policy ambition to achieve “price sovereignty” should not be interpreted as the administrative power to determine a commodity price independently of world supply and demand. Such an interpretation would misunderstand the economic function of a commodity exchange. A credible domestic benchmark should instead enable information originating in Indonesia—including production, inventories, quality, logistics, sustainability attributes and domestic demand—to receive greater weight in the international price-formation process. It can

also allow Indonesia to influence location differentials, quality premiums or discounts and contractual reference prices without attempting to disconnect its market from global fundamentals. Accordingly, the feasible objective is greater influence over benchmark formation, basis differentials and contractual references within an integrated global market, rather than insulation from external price signals (Hupka et al., 2023; Fan et al., 2020).

CPO provides a particularly valuable case for examining these questions. Indonesia is a major producer, has a sophisticated palm-oil value chain and already possesses institutions that contribute to domestic price formation. PT Kharisma Pemasaran Bersama Nusantara (KPBN/INACOM) operates physical tenders that generate observable transaction information, while ICDX has developed commodity derivatives and, since 2023, a formal physical CPO exchange mechanism (KPBN, 2022; Bappebti, 2023a). Bappebti authorised ICDX as the organiser of the physical CPO market in October 2023, and the mechanism employs market-based auction procedures intended to produce transparent and accountable prices. Nevertheless, Malaysia's FCPO contract remains an internationally recognised CPO reference; Bursa Malaysia describes FCPO as a physically delivered CPO futures contract that has served as a global price benchmark since October 1980 and is accessible to international market participants (Bursa Malaysia Derivatives, 2024).

The contrast illustrates the central analytical puzzle of this paper: **why does being the principal location of physical production not automatically make a country the principal location of price discovery?** The answer lies in market institutions and network effects rather than production volumes alone. Commodity benchmarks accumulate credibility over time because market participants converge on a common reference. Greater liquidity makes a contract more attractive for hedging and speculation; more participants generate richer information; better information increases confidence in the price; confidence encourages further use of the benchmark; and contractual adoption strengthens the network advantage of the existing exchange. An entrant therefore confronts a coordination problem: it must offer sufficient liquidity and informational value to induce market participants to move from an already established benchmark.

Nickel provides a useful comparative case because the policy challenge is even more complex. Unlike relatively standardised CPO, "nickel" encompasses materials with substantially different qualities and industrial uses. Class 1 nickel, nickel pig iron, ferronickel, matte, mixed hydroxide precipitate and nickel sulphate are not economically identical products. The 2022 disruption in the London Metal Exchange (LME) nickel market demonstrated how position concentration, thin liquidity, off-exchange exposures, margining and differences between deliverable Class 1 nickel and the wider physical market can interact under stress. The LME subsequently introduced measures involving price limits, OTC position reporting, liquidity enhancement and the expansion of deliverable Class 1 supply (LME, 2023). These lessons are directly relevant to Indonesia if nickel is to become an early Icomex commodity.

The urgency of the issue also derives from distributional concerns. A more transparent exchange price is not automatically a fairer producer price. Indonesian oil-palm smallholders face asymmetric bargaining power, long marketing chains, variations in quality assessment and uneven access to market information. Studies of Indonesian palm-oil production show that smallholders operate within structurally heterogeneous value chains and face multiple economic, institutional and sustainability constraints (Mehraban et al., 2021; Chrisendo et al., 2021; Herdiansyah et al., 2020; Dharmawan et al., 2021). Recent evidence also indicates incomplete transmission of downstream CPO prices to independent smallholder fresh fruit bunch (FFB) prices (Nesti et al., 2026; Kartawinata et al., 2026). Therefore, the fairness of an Indonesian commodity benchmark must be evaluated both at the exchange level and through its transmission to the physical economy.

Against this background, this article addresses four questions. First, what institutional, market-microstructure, regulatory and physical-market prerequisites must be satisfied for an Indonesian commodity exchange to produce credible and fair price discovery? Second, what lessons can be drawn from the existing CPO ecosystem—including KPBN, ICDX and Bursa Malaysia Derivatives? Third, how should the emerging Indonesian exchange architecture be positioned relative to existing domestic institutions to prevent liquidity fragmentation? Fourth, how can more credible exchange-level price discovery generate wider economic benefits, including improved price transparency for upstream producers?

The article contributes by reframing commodity-price sovereignty as a question of **benchmark credibility rather than administrative price control**. It further integrates insights from futures-market microstructure, physical commodity governance, clearing, price transmission and sustainable supply-chain literature. CPO constitutes the primary case because Indonesia possesses established physical and exchange-market experience, while nickel tests the generalisability of the conclusions in a commodity characterised by greater grade heterogeneity, geopolitical exposure and transition-mineral demand.

2. Literature Review

2.1 Price Discovery, Benchmark Formation and Market Efficiency

Price discovery is the process through which dispersed information about expected supply, demand, inventories, financing conditions, transportation constraints and future fundamentals becomes incorporated into observable prices. Futures markets are frequently associated with price discovery because they allow participants to trade expectations about future market conditions at relatively low transaction costs. Yet the proposition that futures necessarily “determine” spot prices is too simplistic. Empirical studies show that leadership can shift across markets and maturities depending on trading activity, information asymmetry, liquidity and commodity characteristics (Hu et al., 2020; Yang et al., 2021; Kim and Linn, 2022; Xu et al., 2022).

Recent literature also rejects the idea that speculative trading is necessarily incompatible with fair price discovery. Bohl et al. (2020) show that speculative activity can contribute information to agricultural commodity markets, while Bohl, Pütz and Sulewski (2021) demonstrate that the informational implications of speculation depend on its form and market environment. Yan, Irwin and Sanders (2022) similarly show that trading associated with index rebalancing can have heterogeneous market effects rather than a uniform destabilising impact. Effective regulation should therefore distinguish manipulative or destabilising concentration from legitimate liquidity provision and information-based trading.

Trading volume itself is not synonymous with informational efficiency, but it is an important component. In CPO futures, Go and Lau (2020a, 2020b) show that volume, returns and information flows interact dynamically, including during periods of global financial stress. Commodity-price predictability can also change through time as market structures evolve (Hollstein et al., 2021). Phan et al. (2022) demonstrate that time to maturity and asymmetric information affect commodity-futures volatility, reinforcing the need for a sufficiently populated maturity curve rather than a market concentrated only in one short-dated contract.

Microstructure therefore matters. Narrow bid-ask spreads, sufficient depth on both sides of the order book, high participation, diverse trading motives and rapid arbitrage improve the ability of prices to assimilate new information. High-frequency evidence from agricultural commodities demonstrates that the speed and location of price adjustment are closely associated with market liquidity and trading structure (Zhou et al., 2023a). Evidence from account-level futures data likewise associates greater high-frequency-trader participation with narrower traded spreads and lower price impact, although aggressive directional trading can partly offset these benefits (Coughlan and Orlov, 2023). Algorithmic trading may therefore improve dimensions of market quality when combined with appropriate controls, but its effects depend on institutional design and trading behaviour (Chang and Chou, 2022).

A useful benchmark consequently requires more than a frequently quoted settlement price. It requires an underlying market that is contestable: buyers and sellers must be able to enter and exit, alternative views must be expressed through orders, and no small group should be able to determine prices persistently without economic discipline from arbitrage. Rout, Das and Rao (2021) find that the effectiveness of commodity futures should be assessed simultaneously through price discovery, volatility management and hedging performance. Evidence from China further shows that time-varying margins, strict position limits and barriers to entry can distort liquidity-related premia and limits to arbitrage, underscoring the need to calibrate prudential controls rather than simply maximise them (Fan and Zhang, 2020). Similar evidence from emerging commodity markets indicates that an exchange becomes economically relevant when it performs price discovery and risk-management functions jointly rather than serving solely as a reporting venue (Pani et al., 2022).

2.2 Physical-Market Anchoring and Deliverability

A commodity benchmark must remain connected to the physical market it represents. This connection can be established through physical delivery, cash settlement against a credible physical index, or arbitrage arrangements sufficiently robust to prevent persistent divergence. If an exchange price becomes detached from economically deliverable supply, it can lose usefulness for producers and industrial users.

Contract specifications are therefore central to price discovery. Grade, moisture, free-fatty-acid content, delivery location, shipment size, sustainability certification, storage conditions and timing determine what physical exposure a CPO futures contract actually represents. In metal markets, chemical purity, form and approved brands perform comparable functions. Tvedt (2020) demonstrates how physical commodity flexibility and derivative design interact, while Adhikari and Putnam (2020) show that relationships among commodity futures sectors reflect common factors without eliminating commodity-specific fundamentals.

Information from physical transactions can enhance futures-market price discovery. Fernandez-Perez et al. (2023) show that physical auction data—including traded quantities and bidder participation—can contain incremental information useful to futures prices. This is particularly relevant to Indonesia because KPN's physical CPO tenders can potentially function as a source of fundamental transaction information rather than as a competing institutional silo. The policy question is thus not necessarily whether a physical auction or a derivatives exchange should “win,” but how information and arbitrage can connect them.

The same principle explains why mature commodity benchmarks retain physical-delivery mechanisms even when most positions are financially closed before expiry. Bursa Malaysia's FCPO contract is physically deliverable and specifies a standardised contract size and maturity structure (Bursa Malaysia Derivatives, 2024). Physical deliverability disciplines the relationship between the paper market and the underlying commodity, while warehouse, tank-storage, inspection and logistics arrangements translate abstract contracts into economically enforceable obligations.

2.3 Clearing, Settlement and Counterparty Confidence

Market liquidity also depends on whether participants trust the post-trade architecture. Central counterparties (CCPs) interpose themselves between buyers and sellers, manage margin requirements and organise default resources. Vuilleme (2020) shows that central clearing can create economic value by reducing bilateral counterparty frictions, while Menkveld and Vuilleme (2021) emphasise that the benefits of clearing must be considered together with the concentration of risk inside the CCP. Berndsen (2021) similarly stresses the importance of robust default management, liquidity resources and governance.

The implication for Icomex is that clearing should not be treated as a technical appendix. A globally credible commodity market requires predictable initial and variation margins, settlement finality, transparent collateral rules, default waterfalls, stress testing and operational resilience. Schoenemann (2022) provides evidence that clearing arrangements can affect liquidity provision, while Richter (2021) and León, Mariño and Cadena (2021) highlight the interaction among central counterparties, liquidity and counterparty-risk reduction.

This point becomes particularly important during commodity-price shocks. Rapid price movements can generate large variation-margin calls and create liquidity pressures precisely when market participation is most fragile. Therefore, an exchange designed mainly for normal conditions but unable to manage extreme volatility will struggle to establish long-term credibility.

2.4 International Accessibility and Benchmark Network Effects

Commodity benchmarks display strong network effects. Once a contract is widely used by producers, refiners, exporters, trading houses, banks, investment funds and industrial buyers, switching becomes costly because hedging, financing and contractual systems have been built around that reference. This creates path dependence, while comparative evidence on energy hubs similarly shows that benchmark development depends on market integration, trading depth and the institutional architecture linking physical and financial markets (Hupka et al., 2023).

China's experience illustrates both the possibility and difficulty of developing new benchmarks. Liu and Lee (2021) document distinctive dynamics in China's crude-oil futures, while Shao and Hua (2022) find that Shanghai crude-oil futures contribute to price discovery but operate within an internationally connected system. Yu, Yang and Webb (2023) characterise the Chinese contract as an emerging Asian benchmark rather than an instant replacement for established international references. Shi and Zheng (2026) further demonstrate the central role of liquidity in shaping volatility and relative price-discovery contributions across Chinese and international crude-oil futures.

The lesson is important for Indonesia. Benchmark formation is evolutionary. Regulatory declaration may establish a market, but only repeated use can establish the price as an international reference. Global buyers must be able to participate; trading hours should overlap relevant commercial centres; foreign-exchange and capital-flow rules should be manageable; data should be distributed internationally; settlement must be reliable; and the contract must offer a better or complementary hedge for the physical exposure faced by users. Evidence from the internationalisation of Chinese commodity futures also shows that opening a market to foreign participation can improve market quality in some contracts but not in others, so access reforms should be evaluated commodity by commodity rather than treated as mechanically beneficial (Fan et al., 2020).

Bursa Malaysia's FCPO illustrates the cumulative advantage generated by these characteristics. The contract has operated since 1980, is physically delivered, is electronically accessible to global participants and is widely used for risk management by plantation companies, refiners, exporters, millers, fund managers and financial institutions (Bursa Malaysia Derivatives, 2024). Its strength therefore cannot be explained merely by Malaysia having introduced a futures market earlier. The benchmark's durability reflects accumulated liquidity, familiarity, deliverability, international access and widespread incorporation into commercial risk management.

2.5 CPO Price Relationships and International Integration

Palm-oil prices do not evolve in isolation. CPO competes with soybean oil and other vegetable oils, is affected by biodiesel demand, responds to exchange rates and energy prices, and is influenced by policies in producing and importing countries. Jeong et al. (2023) identify information flows between CPO and crude-oil futures, while Go and Lau (2021) demonstrate extreme-risk spillovers between CPO prices and exchange rates. Salisu and Sikiru (2021) likewise document the palm-oil price–exchange-rate nexus in Indonesia and Malaysia. Sarma, Tiwari and Rajib (2025) show broader connectedness within edible-oil and oilseed markets.

These interdependencies imply that an Indonesian CPO benchmark cannot be credible if it attempts to suppress external information. Instead, it must absorb global information while adding Indonesia-specific signals more efficiently. This is the essence of benchmark competition: an Indonesian contract need not make Bursa Malaysia irrelevant to become valuable. It may initially improve the determination of Indonesian basis differentials and subsequently gain a larger information share as liquidity and contractual adoption increase.

Indonesian evidence confirms considerable market integration. Gandhi et al. (2022) examine the efficiency of Indonesian spot and CPO futures markets before and during COVID-19, while Helbawanti, Bunda and Faqihuddin (2022) document integration in Indonesian CPO futures markets. Adyanti and Yafi (2024) find linkages between Indonesian and Malaysian CPO export prices. Hakim et al. (2026) similarly show that domestic producer prices are connected to broader economic factors. These findings suggest that benchmark sovereignty should be understood as stronger domestic participation in an integrated price-discovery network rather than detachment from it.

2.6 Palm-Oil Governance and the Distributional Dimension of Price Discovery

The effectiveness of a CPO exchange cannot be separated from the structure of the palm-oil sector. Indonesia's supply chain encompasses large private estates, state-owned enterprises, independent smallholders, plasma farmers, mills, refiners, biodiesel producers, exporters and numerous intermediaries. Oil-palm expansion has generated substantial economic transformation but has also produced differentiated welfare effects, environmental pressures and governance challenges (Purnomo et al., 2020; Chrisendo et al., 2021).

Mehraban et al. (2021) show that oil-palm cultivation can raise household welfare while also altering exposure to economic risk. Smallholders' ability to benefit from market opportunities depends on farm productivity, institutional access, market connectivity and bargaining power. Herdiansyah et al. (2020) similarly emphasise differences between prosperity and productivity outcomes among smallholders.

Sustainability governance further complicates commodity standardisation. Brandi (2021) analyses interactions between private and public sustainability governance in palm oil. Choiruzzad, Tyson and Varkkey (2021) show that Indonesian Sustainable Palm Oil certification contains governance ambiguities, while Dharmawan et al. (2021) identify structural, agrarian and cultural constraints affecting smallholder readiness to comply with sustainability standards. Large-sample evidence from Central Kalimantan likewise shows that independent smallholders face structural disadvantages in attaining sustainability certification, particularly where they lack prior organisational, extension and legal support (Watts et al., 2021). Susanti et al. (2021) further illustrate how knowledge, land-management conditions and livelihood structures affect smallholder adoption of alternative oil-palm production systems.

These issues matter for exchange design because quality and sustainability characteristics can eventually affect premiums and discounts. A benchmark that ignores increasingly relevant traceability or sustainability characteristics may become less representative of international trade. Conversely, excessive fragmentation into numerous narrowly specified "green" and conventional contracts can destroy liquidity. The appropriate architecture may therefore involve a sufficiently broad benchmark accompanied by transparent premium-discount schedules for verifiable quality, origin or sustainability attributes.

2.7 Price Transmission and What "Fair" Price Discovery Means

Fair price discovery should not be defined as a price that is systematically higher than the world price. Such a definition would confuse distributive objectives with market information. A fair benchmark is one generated through a transparent, competitive and auditable mechanism in which sufficiently diverse participants can express supply and demand and where manipulation is constrained.

The distinction becomes crucial when considering smallholders. International commodity-price movements are not transmitted uniformly to local producer markets. Emediegwu and Rogna (2024) show that international-to-local agricultural price transmission in developing countries depends on market institutions and frictions. In Indonesia, Nesti, Nadiyah and Fudholi (2026) identify incomplete price transmission along the independent-smallholder oil-palm supply chain, while Kartawinata et al. (2026) find asymmetric relationships within Indonesia's CPO chain. Putra and Patunru (2024), meanwhile, show that policy interventions intended to control CPO and cooking-oil prices can create trade-offs and unintended effects.

Consequently, a better Icomex price will not automatically increase smallholder incomes. The benchmark must be accompanied by institutional mechanisms that reduce information asymmetry, make benchmark prices publicly accessible, improve FFB quality measurement, strengthen cooperatives or aggregation mechanisms and provide transparent formulas connecting CPO values to farm-gate transactions.

2.8 Nickel and the Limits of a One-Size-Fits-All Exchange Model

Nickel demonstrates why commodity-exchange design must remain product-specific. Research shows strong international linkages among nickel and other metal markets, while geopolitical risk and speculation can produce nonlinear price effects (Chen, Huo and Cao, 2023; Wang et al., 2023). Zhou et al. (2023b) document the transmission of trade behaviour across the global nickel industrial chain, and Yu, Ma and Qian (2023) highlight resilience issues in the international nickel trade network. More recent mapping of physical and monetary nickel flows shows a concentrated and uneven global network in which intermediate products play a major role, reinforcing the importance of matching financial benchmarks to actual traded forms (Sun et al., 2024). Cagli (2023) and Ghosh et al. (2023) further demonstrate that nickel forms part of an increasingly interconnected energy-transition metals complex in which shocks can propagate between commodity and financial markets.

Indonesia's rapid expansion in nickel mining and processing increases its relevance to physical fundamentals, but this does not mean a single Indonesian nickel contract would automatically represent the entire market. Different nickel products have different chemical characteristics, conversion economics, users and deliverability, while Indonesia's downstream policies create material trade-offs across ore, Class 2 intermediates and battery-oriented products (Wasesa et al., 2026). Forecasting research also shows that nickel prices are characterised by complex nonlinear dynamics (Li et al., 2026). These characteristics strengthen the case for product-specific contract design and transparent basis relationships rather than a single administratively defined nickel price.

The LME experience is particularly instructive. Its post-2022 action plan focused on rebuilding nickel-market liquidity, increasing Class 1 deliverable supply, improving position reporting and strengthening risk controls. The LME explicitly sought to expand deliverable Class 1 brands—including output linked to China and Indonesia—while avoiding unnecessary fragmentation of the main benchmark (LME, 2023). For Indonesia, the lesson is that benchmark relevance requires careful alignment between the financial contract and the physical material it claims to represent.

3. Method

This study employs a qualitative literature review (QLR) with an integrative and interpretive orientation. It is explicitly not a systematic literature review and does not claim PRISMA compliance, exhaustive database coverage or statistical meta-analysis. A qualitative review is appropriate because the research problem spans several literatures that employ different theoretical perspectives, units of analysis and methodologies: market microstructure, commodity

futures, agricultural economics, central clearing, palm-oil governance, smallholder price transmission, critical minerals and regulatory institutional design.

The literature corpus prioritised peer-reviewed publications issued from 2020 onward. Searches were organised around thematic combinations including *commodity exchange*, *price discovery*, *commodity futures*, *benchmark formation*, *market liquidity*, *spot-futures relationship*, *physical auction*, *central counterparty*, *CPO futures*, *palm oil price transmission*, *smallholder palm oil*, *nickel futures*, *LME nickel*, *critical minerals* and *market microstructure*. Articles were selected purposively according to direct relevance, methodological credibility, explanatory contribution and their capacity to illuminate Indonesia's policy problem.

The final synthesis incorporates 62 peer-reviewed journal articles published from 2020 onward. International journals were prioritised for general theoretical and comparative claims, while Indonesian and regional peer-reviewed publications were retained where they offered context-specific evidence on CPO markets, producer prices, market integration or smallholder transmission that could not be substituted by global studies.

Institutional and regulatory materials were used separately from the academic literature. These included Indonesian legislation, OJK material, Bappebti documentation, exchange information from Bursa Malaysia and LME publications, as well as the initial policy-material compilation supplied for this study. The latter indicates that policymakers themselves recognise liquidity, participation, standardisation and market trust as prerequisites rather than assuming that an exchange automatically produces pricing power. It also identifies concerns surrounding transaction transparency, transfer pricing and under-invoicing as part of the policy rationale for the proposed exchange.

The analysis proceeded through iterative thematic coding. Evidence was initially classified into five broad analytical domains: (1) mechanisms of price discovery; (2) institutional conditions of successful commodity exchanges; (3) Indonesia's CPO market and governance structure; (4) distributional and price-transmission issues; and (5) lessons from nickel and international benchmark development. A second coding stage identified recurring mechanisms such as liquidity concentration, contract standardisation, international accessibility, physical deliverability, clearing, information transparency, market surveillance and contractual benchmark adoption.

The final synthesis does not treat all evidence as equivalent. Peer-reviewed empirical research is used for general relationships, official regulatory materials are used for current institutional facts, exchange publications are used to describe contract architecture, and policy materials are used to frame contemporary Indonesian objectives. This source hierarchy reduces the risk of treating policy aspiration as empirical proof.

Because the review is qualitative and purposive, it does not claim exhaustive coverage or statistically representative inference across all commodity markets. Its conclusions should therefore be interpreted as an analytically triangulated institutional synthesis, and they remain subject to the rapid evolution of Indonesia's BMKS regulatory framework and market design during 2026.

4. Results: Thematic Findings

4.1 Theme I: Production Dominance Is a Necessary but Insufficient Condition for Pricing Power

The first and most consistent finding is that **physical market share cannot substitute for market architecture**. A country may produce a large share of a commodity while another jurisdiction hosts the dominant reference price because benchmark power is generated through transactions, information aggregation and contractual use. The exchange where market participants are willing to concentrate trading becomes the location where marginal information is most rapidly incorporated into observable prices.

This helps explain the apparent Indonesian paradox. The contemporary policy agenda identifies the challenge as converting market share into pricing power rather than merely expanding production. Yet such conversion cannot be achieved by instructing the market that an Indonesian price should be the benchmark. China's experience with agricultural and crude-oil futures illustrates that price-discovery influence grows gradually as market participation, trading quality and international integration improve (Yang et al., 2021; Liu and Lee, 2021; Shao and Hua, 2022; Yu, Yang and Webb, 2023; Shi and Zheng, 2026).

This leads to a crucial conceptual separation among **producer power**, **market power** and **benchmark power**. Producer power arises from control over physical supply. Market power refers to the ability of actors to influence trading conditions. Benchmark power arises when a market-generated price becomes sufficiently credible and convenient that unrelated economic actors use it to value contracts. Indonesia is already exceptionally important in the first dimension for CPO and increasingly important for nickel; Icomex should be designed to strengthen the third.

Before proceeding to the Indonesian case, Figure 1 summarises how those different dimensions can be connected. The figure emphasises that benchmark development is cumulative: each stage creates conditions for the next, while market integrity, clearing and regulatory credibility support the entire chain.

Figure 1. From Production Power to Credible Benchmark Power

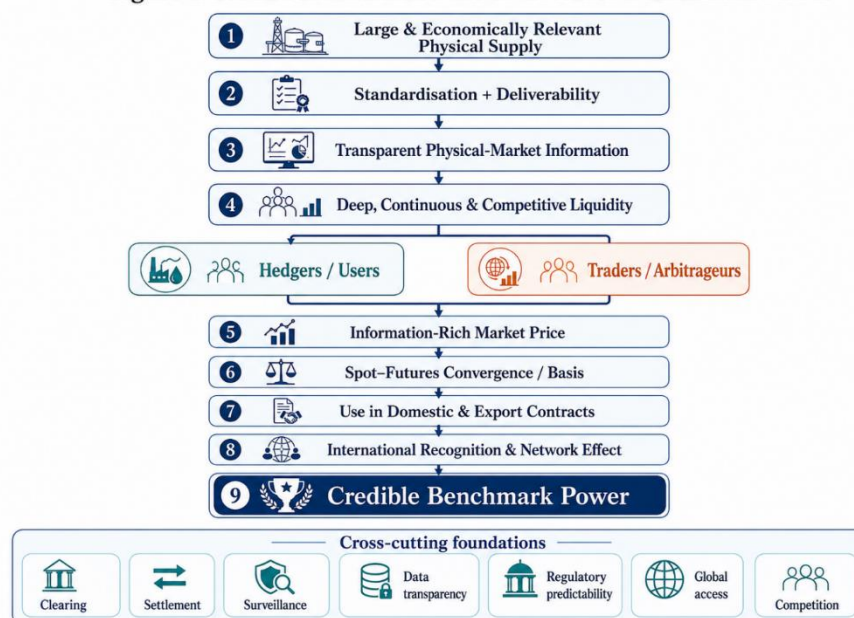


Figure 1. From Production Power to Credible Benchmark Power

Source: Authors' synthesis based on Bohl et al. (2020), Hu et al. (2020), Yang et al. (2021), Kim and Linn (2022), Fernandez-Perez et al. (2023) and Zhou et al. (2023a).

Figure 1 implies that Indonesia should evaluate Icomex not by the date on which the platform becomes operational but by whether it progresses through this chain. A venue with excellent technology but negligible trading volume is not a benchmark. Likewise, a mandatory transaction venue with volume but limited participant diversity may generate a price that lacks international informational credibility. The ultimate test is **contractual adoption**: exporters, importers, refiners, banks and other market participants must find it economically useful to reference the price.

4.2 Theme II: Indonesia Already Possesses Important CPO Price-Discovery Assets

Indonesia is not beginning from zero. Its CPO ecosystem already contains several components required for more sophisticated price discovery. KPNB provides physical transaction information; ICDX possesses derivatives, trading, and clearing experience; large plantation companies and refiners provide significant potential physical volume; and Indonesia's scale in exports means international buyers have strong incentives to monitor domestic fundamentals.

Bappebti formally approved ICDX as the organiser of the physical CPO exchange in October 2023. The exchange's trading architecture included a market-driven Dutch-auction mechanism intended to produce transparent, fair and accountable prices (Bappebti, 2023a). Earlier ICDX experience with CPO derivatives also means Indonesia already possesses institutional knowledge concerning futures trading and risk management.

However, the existence of these assets has not yet produced international benchmark dominance. Empirical Indonesian studies continue to demonstrate close relationships with external CPO markets and global economic variables (Gandhy et al., 2022; Helbawanti et al., 2022; Adyanti and Yafi, 2024; Hakim et al., 2026). This is not evidence that domestic price discovery is impossible; rather, it indicates that the current Indonesian price-discovery ecosystem has not yet generated the network depth required to displace or significantly rebalance established references.

Figure 2 illustrates the opportunity. Instead of treating KPNB, ICDX and Icomex as competing institutional brands, Indonesia can conceptualise them as components of a wider price-information architecture.

Figure 2. An Integrated Indonesian CPO Price-Discovery Ecosystem

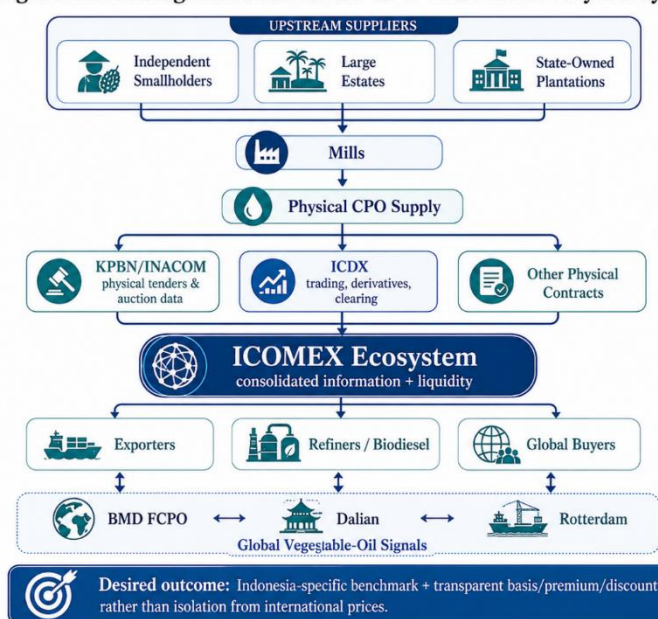


Figure 2. An Integrated Indonesian CPO Price-Discovery Ecosystem

Source: Authors' synthesis based on Indonesian institutional arrangements and the reviewed CPO literature.

Figure 2 does not prescribe a legal merger. Rather, it identifies **functional integration** as the objective. Physical-auction information could enrich the informational base of exchange trading; clearing infrastructure could support derivatives; export transactions could contribute depth; and international benchmarks could remain arbitrage references. The design problem is how to ensure that these information and trading flows reinforce one Indonesian order book instead of dispersing them across incompatible venues.

4.3 Theme III: Liquidity Fragmentation Is the Principal Institutional Risk

One of the strongest findings from both theory and the Indonesian material is that **fragmented liquidity can prevent benchmark formation even when the underlying commodity is economically large**. An exchange benefits from positive network externalities: traders choose the venue where others trade because execution costs and price impact are lower. Dividing similar transactions across several thin venues can therefore make each venue less informative. This is especially relevant because the policy materials contemplate the relationship between Icomex and the existing ICDX, including possible institutional integration. The same material warns that multiple institutions with divided volumes could leave Indonesia with several domestic exchanges while the meaningful benchmark continues to be determined abroad.

A decision to establish Icomex should therefore be preceded by a **market-function mapping exercise**. For every proposed CPO or nickel contract, policymakers should identify: the existing domestic contract or price source; the expected physical sellers; intended buyers; likely daily volume; potential market makers; clearing arrangements; delivery points; international substitutes; and expected basis relationship to established benchmarks. A new contract should not be introduced simply because a new institution requires products.

Figure 3 contrasts the two strategic possibilities.

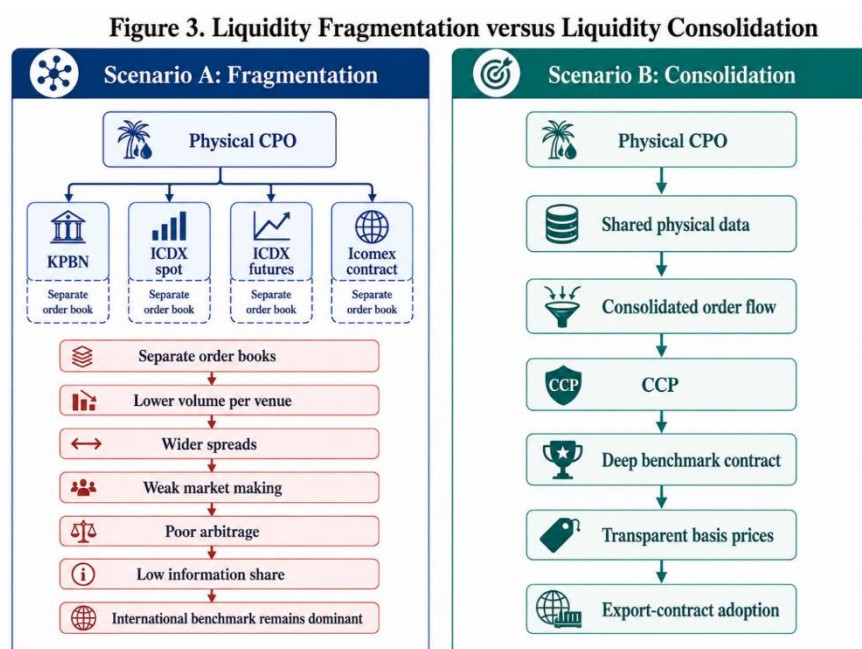


Figure 3. Liquidity Fragmentation versus Liquidity Consolidation

Source: Authors' synthesis based on market-microstructure and network-effect literature.

The consolidated model does not necessarily require a monopoly organisation. Competition can exist in technology, brokerage, data services, clearing innovation or complementary products. What should be avoided is **unnecessary duplication of economically identical benchmark contracts** when the domestic pool of participants is still developing. The early objective should be concentration of liquidity sufficient to create credible price discovery; product diversification can follow once the benchmark has achieved critical mass.

4.4 Theme IV: Physical Anchoring and Contract Design Are as Important as Trading Technology

The success of Icomex will depend on whether its contracts accurately correspond to economically significant physical flows. A CPO benchmark needs clear quality specifications, delivery locations, timing, quantity, storage requirements and dispute-resolution rules. Delivery ports such as Dumai or other major Indonesian logistics centres can provide physical anchoring, but the selection of delivery points affects freight differentials and therefore the representativeness of the benchmark.

Physical-market information is valuable because it constrains purely financial pricing. Fernandez-Perez et al. (2023) demonstrate that spot-auction data can contribute incremental information to commodity price discovery. For Indonesia, KPBN's tender information could therefore become a strategic input rather than an institutional rival. An integrated market-data framework could disseminate transaction quantities, successful bid ranges, quality, delivery location, inventory conditions and other non-confidential information in machine-readable form. For CPO, standardisation is technically feasible because the commodity already has established commercial quality conventions. The more difficult task is determining whether sustainability attributes should be embedded in the benchmark or represented through premiums and discounts. Bursa Malaysia requires sustainability criteria for physical deliveries under FCPO, demonstrating that sustainability and a liquid benchmark are not necessarily incompatible (Bursa Malaysia Derivatives, 2024). Indonesia could similarly connect traceability and certification information to deliverable CPO while avoiding excessive proliferation of separate contracts.

Nickel is more difficult. The product underlying a benchmark must be physically or economically deliverable; otherwise the relationship between the exchange price and Indonesia's actual nickel industry may be weak. Creating separate futures for every intermediate could fragment liquidity, but creating one broad "nickel" contract whose specifications match only a small segment of Indonesian output could generate substantial basis risk.

The LME's response to the 2022 nickel disruption is therefore instructive. Its strategy included fast-tracking additional Class 1 nickel brands, extending trading availability, strengthening OTC reporting and assessing new deliverable forms with the explicit aim of increasing available material and supporting liquidity (LME, 2023). Indonesia should undertake detailed industrial-chain mapping before designing nickel contracts rather than assuming that production scale alone determines the appropriate benchmark.

4.5 Theme V: International Participation Is a Prerequisite, Not a Threat to Price Sovereignty

A benchmark intended for international trade cannot be built exclusively by domestic participants. Global commodity trading houses, processors, importers, financial institutions, market makers and arbitrageurs are not merely consumers of the final price; their orders contribute information to its formation. Restrictions that discourage foreign participation may therefore paradoxically reduce Indonesian pricing power.

This point is consistent with empirical evidence on emerging benchmarks. The evolution of Chinese futures markets shows that domestic scale can create substantial price-discovery capacity, but international integration remains important for information transmission and benchmark relevance (Yang et al., 2021; Shao and Hua, 2022; Yu, Yang and Webb, 2023). At the same time, the effects of internationalisation are commodity-specific: Fan et al. (2020) find improvements in market quality for one Chinese commodity contract but deterioration in another after market opening. Commodity prices are connected across jurisdictions precisely because arbitrageurs respond to price differentials, so Indonesia should combine international access with contract-specific safeguards and careful monitoring.

Bursa Malaysia provides an instructive comparison. FCPO combines physical deliverability with electronic global access, and market participants include producers, commercial users, financial institutions and investment managers (Bursa Malaysia Derivatives, 2024). Indonesia therefore needs a similarly open architecture. Requirements should include internationally intelligible documentation, English-language market data, appropriate trading hours, efficient onboarding, predictable taxation of derivatives, transparent foreign-exchange arrangements and recognition of qualified foreign intermediaries.

This is not inconsistent with national economic interests. The objective is not to exclude foreign traders from Indonesian price formation; it is to ensure that when they trade Indonesian physical exposure, a significant portion of their price-discovery activity occurs in an Indonesian-regulated market whose data can be observed and supervised domestically.

4.6 Theme VI: Market Integrity Requires More Than Transaction Transparency

Transparency is necessary but insufficient because transparent markets can still be manipulated if positions become highly concentrated or if economically important exposures remain outside regulatory visibility. Market integrity therefore requires position monitoring, large-trader reporting, surveillance of related accounts, coordination between physical and derivatives regulators and authority to respond to disorderly market conditions.

The nickel experience provides a severe warning. Research finds that nickel prices respond to speculation, geopolitical shocks and network effects within transition-metal markets (Wang et al., 2023; Cagli, 2023; Ghosh et al., 2023). During severe stress, the interaction of concentrated positions, short covering, margin calls and constrained liquidity can produce extreme movements. Following the 2022 disruption, the LME introduced daily price limits, enhanced risk controls and OTC position reporting and reopened Asian trading hours as part of a broader market-strengthening programme (LME, 2023). Evidence from other commodity futures markets also indicates that regulation can impair arbitrage if margin and position constraints are calibrated too rigidly, suggesting that surveillance and resilience should be strengthened without unnecessarily suppressing legitimate liquidity (Fan and Zhang, 2020).

For Icomex, market surveillance should therefore be designed at launch rather than retrofitted after a crisis. The regulator should be able to consolidate exposures across brokers, identify beneficial owners, observe large OTC positions where legally justified, monitor warehouse inventories and analyse suspicious trading patterns in real time.

At the same time, overly restrictive controls can reduce liquidity. The objective should be to prevent manipulation without removing legitimate speculative capital. Literature on commodity futures demonstrates that informed speculative participation can improve price discovery (Bohl et al., 2020; Bohl, Pütz and Sulewski, 2021). The appropriate regulatory principle is consequently **controlled openness**, not speculative prohibition.

4.7 Theme VII: Clearing and Settlement Are Central to Market Credibility

A new benchmark will struggle to attract international participants if settlement risk is uncertain. Icomex therefore requires a CCP with adequate capital, transparent risk models, resilient payment arrangements and rules that market participants understand before trading.

Vuilleme (2020) and Menkveld and Vuilleme (2021) show why central clearing can lower bilateral frictions while simultaneously concentrating systemic responsibilities within the CCP. Berndsen (2021) emphasises robust governance and default resources, while Schoenemann (2022) shows that clearing arrangements can influence liquidity provision. Richter (2021) and León et al. (2021) likewise indicate that counterparty and liquidity risk are interconnected.

For commodities, the clearing system must also coordinate with physical settlement. Failed deliveries, off-specification materials, storage disputes or logistics interruptions can become financial exposures. Accredited warehouses, tank-storage facilities, assayers and logistics providers should therefore form part of the exchange ecosystem. Indonesia's evolving regulatory architecture similarly envisages an integrated market infrastructure rather than a stand-alone electronic order book, reinforcing the need to align exchange, clearing and physical-settlement governance from the outset (Government of Indonesia, 2026; OJK, 2026).

4.8 Theme VIII: Better Exchange Prices Do Not Automatically Produce Fairer Smallholder Prices

An important distributional finding is that the benefits of better price discovery can remain concentrated among firms with superior information, financing and trading access. The initial Indonesian material explicitly warns that large traders and companies may capture exchange benefits more quickly than smallholders because they control transaction volume, information, finance and market networks.

This concern is supported by the smallholder literature. Mehraban et al. (2021) show that oil palm affects both welfare and risk exposure. Nesti et al. (2026) find incomplete price transmission in the independent-smallholder value chain, while Kartawinata et al. (2026) identify asymmetric transmission within Indonesia's broader CPO chain. Structural constraints affecting smallholder certification and market participation have also been documented by Dharmawan et al. (2021), Choiruzzad et al. (2021) and Susanti et al. (2021).

The relevant policy objective should therefore be **transparent transmission**, not direct participation of every farmer in futures trading. Expecting millions of smallholders to trade derivatives would create inappropriate risk. Instead, exchange-generated benchmark prices should become visible inputs into FFB pricing formulas; producer cooperatives should receive market information; quality measurement should be auditable; and cooperatives or mills could eventually use aggregation mechanisms to hedge price exposure on behalf of members.

Figure 4 explains the transmission chain.

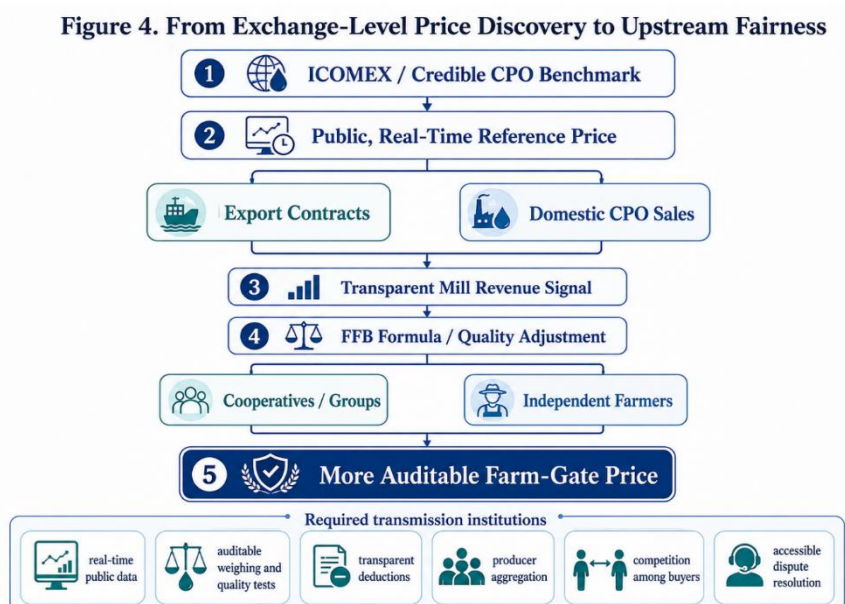


Figure 4. From Exchange-Level Price Discovery to Upstream Fairness

Source: Authors' synthesis based on Emediegwu and Rogna (2024), Nesti et al. (2026), Kartawinata et al. (2026) and the Indonesian palm-oil governance literature.

Figure 4 highlights that a benchmark is only one component of distributional fairness. If local mills possess monopsony power, quality deductions are opaque or farmers cannot choose alternative buyers, even a perfectly transparent national benchmark may transmit incompletely. Commodity-exchange reform should therefore be connected to competition policy, agricultural-market information and smallholder institution building.

4.9 Theme IX: CPO and Nickel Require Different Contract Architectures

The analysis reveals that a universal exchange template would be inappropriate. CPO and nickel differ substantially in physical standardisation, storage, logistics, downstream conversion, ESG attributes and benchmark structure.

Figure 5 summarises the contrast.

Figure 5. CPO and Nickel as Different Price-Discovery Problems

 Dimension	 CPO	 Nickel
 Physical homogeneity	Relatively high	Lower
 Core quality standards	Established	Product-specific
 Storage	Tanks	Warehouses/forms vary
 Main use chain	Food, oleochemicals, biodiesel	Stainless steel, batteries, alloys
 Global benchmark	BMD FCPO + physical references	LME + regional/product references
 Deliverability problem	Manageable	More complex
 Basis-risk challenge	Location/quality	Grade + product form + conversion economics
 ESG attributes	Certification/traceability	Carbon intensity, mining origin, responsible sourcing
 Contract-design priority	Concentrate liquidity around core CPO	Avoid mismatch between financial contract and physical nickel

Figure 5. CPO and Nickel as Different Price-Discovery Problems

Source: Authors' synthesis based on CPO and nickel literature and exchange documentation.

For CPO, a plausible strategy is to concentrate liquidity in a core physically anchored benchmark and use transparent location, sustainability or quality differentials around it. For nickel, policymakers must first determine which physical exposure is sufficiently standardised and economically important to support a benchmark. An Indonesian nickel price that represents only one intermediate product cannot automatically be used to value all nickel-bearing commodities.

This differentiated approach is supported by the nickel literature. Chen et al. (2023) show international price linkages; Zhou et al. (2023b) demonstrate interdependence along the industrial chain; Yu, Ma and Qian (2023) highlight trade-network resilience; and Wang et al. (2023) document the importance of geopolitical risk and speculative behaviour. Sun et al. (2024) show that global nickel trade is strongly structured around particular material flows, while Wasesa et al. (2026) demonstrate that Indonesia's downstream policy choices produce different economic and environmental outcomes across nickel-product categories. Li et al. (2026) further demonstrate the complex nonlinear nature of nickel-price formation. Accordingly, Icomex should develop commodity-specific benchmark committees rather than impose uniform contract architecture across CPO, nickel, coal and other strategic commodities.

4.10 Theme X: The Proper Role of Government Is to Build the Market, Not Predetermine the Price

Government has a legitimate and important role in exchange development. It can create the legal framework, enforce contract integrity, mandate reporting, improve infrastructure, facilitate standardisation and ensure competition. State-owned commodity producers can also contribute legitimate anchor liquidity if transactions occur under transparent market rules.

However, there is a boundary between **building conditions for price discovery** and **administering the discovered price**. The initial policy material itself cautions that excessive intervention could undermine market confidence if transactions cease to reflect genuine demand and supply.

Putra and Patunru (2024) demonstrate the complexity and potential unintended consequences of policy interventions in Indonesian CPO and cooking-oil markets. Frequent changes in export rules, domestic market obligations, levies or pricing formulas can alter expectations and basis relationships. Regulatory unpredictability raises the risk premium for market participants and may discourage longer-term positions.

Therefore, if certain categories of strategic commodity transactions are initially required to be reported or routed through an exchange to improve transparency, policymakers should distinguish **transaction-location requirements** from **price controls**. Orders should still interact competitively, the benchmark methodology should be public, and unsuccessful auctions or price disagreements should not automatically trigger administrative replacement of the market price.

5. Discussion and Analysis

5.1 Reframing "Price Sovereignty"

The findings suggest that the term *price sovereignty* should be used cautiously. Absolute national control over globally traded commodity prices is neither realistic nor necessarily desirable. CPO prices reflect global vegetable-oil substitution, inventories, weather, biodiesel policies, crude-oil conditions, currency movements and international demand (Go and Lau, 2020a; Go and Lau, 2021; Salisu and Sikiru, 2021; Jeong et al., 2023; Sarma et al., 2025). Nickel prices similarly

reflect global stainless-steel demand, battery investment, inventories, energy-transition expectations and geopolitical risk (Chen et al., 2023; Wang et al., 2023; Cagli, 2023; Ghosh et al., 2023).

A more economically meaningful conception is **price-discovery sovereignty**: the capacity to ensure that information originating in the producing country participates effectively in global benchmark formation. Under this interpretation, success does not require Indonesian and Malaysian CPO prices to diverge permanently. In an efficient integrated market they should often move together. Success means that Indonesian transactions increasingly contribute information, that Indonesian basis differentials are transparent and that international contracts are willing to reference the domestic benchmark.

This interpretation changes the relevant performance metric. Instead of asking, “Did the Indonesian price rise above the foreign benchmark?”, policymakers should ask, “How much information does the Indonesian market contribute to the common efficient price?” The same principle applies to nickel.

5.2 Benchmark Power Is a Self-Reinforcing Equilibrium

Benchmark formation resembles a coordination equilibrium. Liquidity attracts liquidity. A trader prefers the contract with narrow spreads and reliable execution. Market makers prefer venues where customer flow is substantial. Hedgers choose contracts that minimise basis risk. Banks prefer benchmarks that are observable and difficult to manipulate. Once many actors converge on one reference, the benchmark becomes embedded in contracts, lending agreements and risk systems.

This explains the persistence of mature benchmarks and why new exchanges often struggle despite strong national policy support. Hollstein et al. (2021), Yang et al. (2021), Kim and Linn (2022) and Yu, Yang and Webb (2023) collectively show that informational leadership is dynamic but deeply affected by market maturity and liquidity. The lesson for Indonesia is that the first objective should be reaching a minimum viable liquidity threshold, not launching the maximum possible number of commodities.

For CPO, Indonesia already possesses a favourable initial condition: a large and continuous physical market. What is missing is the concentration of enough representative transactions, market makers, hedgers and global buyers around a common domestic benchmark. The institutional problem should therefore be treated as one of coordination rather than infrastructure alone.

5.3 Icomex Should Be a Liquidity-Consolidation Project

The analysis supports a strong proposition: Icomex should be judged primarily by its capacity to consolidate price-relevant liquidity rather than by its institutional novelty. This criterion shifts attention from the formal creation of an exchange toward the market functions that determine

whether participants regard its price as a usable benchmark, including integration, depth and reliable risk transfer (Hupka et al., 2023; Fan et al., 2020).

The existing Indonesian ecosystem contains complementary capabilities. KPBN contributes physical-auction information, while ICDX possesses exchange and clearing experience. OJK has a new supervisory mandate for the mineral and strategic commodity exchange under Law No. 4 of 2026, supported by preparatory regulatory and supervisory work (Government of Indonesia, 2026; OJK, 2026). Large producers can supply anchor physical transactions, and exporters and international buyers can provide commercial flow.

The best architecture may therefore be an integrated or federated system rather than parallel duplication. The specific legal form requires further institutional analysis, but the economic principle is clear: identical CPO liquidity should not be divided unnecessarily across KPBN-like physical tenders, ICDX contracts and a new Icomex contract with separate order books and incompatible clearing.

Integration could occur through shared market data, common contract standards, interoperable clearing, recognised physical-delivery infrastructure or an explicit allocation of roles. For example, KPBN data could strengthen the physical-information layer, while a consolidated exchange contract provides continuous trading and hedging. The benchmark should then be disseminated internationally and incorporated progressively into export and domestic contracts.

5.4 Building Liquidity without Manufacturing Artificial Prices

Liquidity cannot be ordered into existence, but policy can help overcome the initial coordination problem. State-owned plantation companies and major commodity enterprises could act as transparent anchor sellers. Large refiners, biodiesel producers and international buyers could be encouraged to route representative transactions through the exchange. Market-maker programmes could compensate intermediaries for maintaining two-sided quotations subject to minimum depth and spread requirements.

However, anchor participation should not become an administrative cartel. If state-linked entities coordinate to defend a predetermined price instead of submitting economically genuine orders, the exchange may generate volume without genuine price discovery. International buyers would then continue using external benchmarks to assess value, leaving the domestic exchange informationally secondary.

This distinction is critical. A mandatory reporting rule can improve transparency; a requirement that eligible transactions use a regulated market can potentially increase liquidity; but a policy that requires the market to clear at a politically chosen price can undermine benchmark credibility.

5.5 Internationalisation Should Begin Early

Indonesia should not wait for a “fully mature” domestic exchange before opening it internationally. International participation is itself a source of maturity because global buyers and arbitrageurs bring information and liquidity.

A credible internationalisation programme should address foreign membership, collateral acceptability, currency arrangements, tax treatment, electronic access, English-language documentation, market-data licensing and trading hours. The exchange should distribute real-time and historical data through major international information channels. Hedging effectiveness and basis statistics should be published so that commercial users can evaluate whether Icomex contracts reduce risk more effectively than alternatives.

The goal should be to make an Indonesian contract economically convenient, not patriotically obligatory. In practice, such convenience requires reliable execution, manageable collateral and currency arrangements, low access frictions and a hedge that closely tracks users’ physical exposure; internationalisation should therefore be designed around commodity-specific market quality rather than openness for its own sake (Fan et al., 2020; Yu, Yang and Webb, 2023).

5.6 CPO: Use Physical Information to Build Financial-Market Credibility

The CPO case offers a potentially powerful pathway because Indonesia possesses abundant physical-market information. The reviewed literature demonstrates that physical-auction data can improve price discovery (Fernandez-Perez et al., 2023). KPBN therefore represents an institutional asset.

A possible sequence would be to standardise and publish anonymised physical transaction data across major locations; map the basis between those transactions and the exchange contract; concentrate representative deliverable supply around a core standard; and encourage commercial participants to hedge basis exposure through the exchange. As the relationship becomes reliable, exporters could begin quoting contracts as the Indonesian benchmark plus or minus transparent quality and freight differentials.

Over time, the relevant success measure would be the percentage of Indonesian CPO export volume whose pricing formulas explicitly reference the domestic benchmark. A second measure would be whether price changes in Indonesia begin leading, rather than merely following, external benchmarks during periods when Indonesia-specific information arrives.

5.7 Nickel: Start with Deliverability and Basis before “Price Sovereignty”

For nickel, Indonesia should adopt greater caution. Because Indonesian production encompasses multiple products, benchmark design must start with a mapping of physical conversion economics. Policymakers should identify which product class has sufficiently standardised quality, recurring transaction volume, storage feasibility and a diversified buyer-seller base.

A premature “Indonesian nickel price” could create an illusion of representativeness while producing substantial basis risk for users whose physical product does not match the contract. International experience after the LME nickel disruption shows why deliverability, inventories, position concentration and liquidity must be analysed together (LME, 2023). Recent evidence on global nickel flows and Indonesia’s downstream system further indicates that material form and conversion pathways are economically consequential, making basis design a central rather than peripheral issue (Sun et al., 2024; Wasesa et al., 2026).

Environmental attributes also deserve attention. The attached policy material highlights traceability, assurance and learning from mechanisms such as LME-linked traceability systems. For Indonesia, verified carbon intensity, mine origin and responsible sourcing could eventually influence nickel premiums or discounts. Nevertheless, the market should avoid launching a proliferation of narrow contracts before sufficient liquidity exists.

5.8 A Four-Phase Development Roadmap

The literature and comparative evidence support a phased strategy rather than a “big bang” benchmark launch. Figure 6 summarises the recommended progression.

Figure 6. Four-Phase Roadmap for Building an Indonesian Commodity Benchmark



Figure 6. Four-Phase Roadmap for Building an Indonesian Commodity Benchmark

Source: Authors’ synthesis.

Phase I should establish institutional clarity, commodity specifications, delivery infrastructure, data governance, clearing and market surveillance. Phase II should focus almost exclusively on liquidity rather than adding numerous products. Phase III should encourage the benchmark’s incorporation into physical contracts, financing and producer-price formulas. Phase IV should deepen international participation and benchmark recognition.

The sequence is important. Promoting an “international benchmark” before creating liquid domestic price discovery reverses causality. International recognition should be the outcome of credibility, not its administrative substitute.

6. Policy Framework for an Effective Indonesian Commodity Exchange

The policy synthesis points first to institutional consolidation and benchmark readiness. Icomex’s relationship with ICDX and KPBN should be defined before economically equivalent contracts are duplicated, because liquidity concentration is more valuable at an early stage than institutional proliferation. Initial commodities should be selected according to the depth and standardisation of their physical markets, with CPO offering a comparatively mature starting point and nickel requiring prior product-specific studies of deliverability and basis risk. A high-quality physical-market data layer should connect transaction prices, volumes, quality, location, inventories and logistics information, while standardised core contracts should preserve transparent premiums and discounts for commercially relevant differences (Fernandez-Perez et al., 2023; Sun et al., 2024).

Market credibility must be supported by robust post-trade and integrity infrastructure. Clearing arrangements should combine transparent margining, stress testing and credible default resources with operational links to warehouses, tank storage, assayers and logistics providers, because physical settlement failures can become financial exposures (Vuilleme, 2020; Menkveld and Vuilleme, 2021; Berndsen, 2021). Surveillance should consolidate large positions, related accounts, warehouse inventories and relevant OTC exposures while preserving legitimate speculative participation; evidence that overly rigid margins and position limits can distort liquidity and arbitrage reinforces the need for proportionate rather than maximal constraints (Fan and Zhang, 2020). A professional market-maker programme and genuinely market-priced participation by major state-owned and private producers, refiners and exporters can then help establish two-sided order flow without converting the exchange into an administrative pricing mechanism.

Internationalisation and regulatory predictability should be treated as core design features rather than later-stage additions. Qualified foreign buyers, commodity trading houses, financial institutions and hedgers need workable access through clear membership, collateral, taxation, foreign-exchange and data arrangements, but the impact of opening should be evaluated contract by contract because internationalisation can improve market quality in some commodities while weakening it in others (Fan et al., 2020). Regulatory changes affecting exports, transaction routing or benchmark methodology should follow transparent processes, and benchmark governance should be operationally independent from short-term price objectives. These safeguards increase the likelihood that international participants will treat the resulting price as an informative reference rather than a policy-administered quotation.

An effective exchange architecture must also transmit information beyond large traders. Public dashboards, mobile dissemination, cooperative information systems, auditable weighing and quality measurement, and transparent FFB pricing formulas can connect CPO benchmark information to upstream producers, while producer aggregation can improve bargaining and risk-management capacity without requiring individual farmers to trade derivatives directly (Emediegwu and Rogna, 2024; Nesti et al., 2026; Kartawinata et al., 2026). Sustainability and traceability should be incorporated without fragmenting liquidity: verified characteristics can inform deliverability criteria or transparent premiums and discounts, while smallholder inclusion requires institutional support because certification barriers are unevenly distributed and often structural (Watts et al., 2021; Dharmawan et al., 2021).

Finally, the exchange should be assessed with published performance indicators that measure market function rather than institutional activity alone. Relevant metrics include daily traded volume, open interest, bid-ask spreads, order-book depth, participant concentration, foreign participation, physical-delivery convergence, hedging effectiveness, the share of export and domestic contracts referencing the benchmark, and transmission to upstream prices. These indicators should be tracked by commodity and maturity over time because benchmark leadership can migrate as liquidity and information conditions change (Hollstein et al., 2021; Zhou et al., 2023a). A staged evaluation framework would allow policymakers to expand products only after existing contracts demonstrate sufficient depth, convergence and commercial adoption.

7. Conclusion

Indonesia has strong economic reasons to increase its contribution to global commodity-price discovery. Its exceptional physical importance in CPO and nickel provides an unusually favourable foundation, but production scale alone cannot create a benchmark. The central challenge is institutional: transforming physical market share into concentrated, information-rich and internationally credible trading liquidity.

The experience of CPO demonstrates both Indonesia's opportunities and constraints. KPBN offers valuable physical-auction information, ICDX has developed exchange and clearing capabilities, and the domestic industry generates substantial physical flows. Yet established benchmarks retain their influence because they possess accumulated liquidity, international participation, deliverability, hedging usefulness and network effects. The appropriate policy response is therefore not to ignore those benchmarks but to build an Indonesian market sufficiently useful that commercial actors increasingly choose to reference it.

The proposed Icomex should consequently be conceived as a **market ecosystem rather than a new institutional building**. Its core functions must encompass physical standardisation, transparent information, trading, clearing, settlement, warehouse and logistics infrastructure, market surveillance and global accessibility. Equally important, policymakers should prevent avoidable fragmentation between Icomex, ICDX and existing physical-price mechanisms.

CPO provides the strongest near-term candidate for developing this architecture because of its relatively standardised physical market and Indonesia's substantial transaction base. Nickel requires a more differentiated strategy because product heterogeneity, conversion economics and deliverability create greater basis risk. The experience of the LME nickel market demonstrates that even a long-established benchmark can become vulnerable when liquidity, concentrated positions, physical deliverability and risk management diverge.

The concept of fair price discovery should also be defined carefully. A fair benchmark is not one guaranteed to produce higher prices for Indonesia. It is one that incorporates relevant information through transparent competition, is resistant to manipulation and provides an auditable reference for commercial transactions. Distributional fairness requires an additional transmission architecture so that benchmark information reaches mills, cooperatives and smallholders rather than remaining an advantage available mainly to large traders.

Indonesia should therefore pursue price-discovery influence through market credibility rather than administrative price sovereignty. A phased strategy—beginning with institutional consolidation and physical-market foundations, followed by liquidity creation, contractual adoption and internationalisation—offers a more realistic route to becoming a credible price maker. The ultimate evidence of success will not be the inauguration of Icomex, nor the declaration of an Indonesia Reference Price, but the willingness of independent domestic and international actors to use that price voluntarily when they trade, hedge, finance and value Indonesian commodities.

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