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# From Carbon Trading to Transition Finance: Institutional Alignment in Indonesia

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**Abstract**
Indonesia's carbon exchange and sustainable-finance taxonomy evolved along distinct regulatory pathways in 2023–2026. This qualitative documentary study examines when carbon-unit records can corroborate transition-finance disclosures without being mistaken for evidence of taxonomy eligibility. It compares national carbon-pricing legislation, amended exchange rules, the Carbon Unit Registry regulation, and successive Indonesian sustainable-finance taxonomies. Passage-level coding distinguishes binding legal requirements, regulator guidance, institutional announcements, and proposed causal mechanisms. The findings identify separate evidentiary objects: issuance and disposition of carbon units, mitigation-use authorisation, technical screening of financed activities, entity and portfolio classification, and financial disclosure. The July 2026 registry rule differentiates registry functions and carbon-unit uses, while the March 2026 taxonomy update highlights version-specific screening and safeguards. Neither set of instruments establishes successful migration, improved market liquidity, lower verification costs, or financing additionality. The article advances a provisional bounded-alignment framework based on scope-specific traceability, dated classifications, claim reconciliation, and accountable correction. Its economic implications remain testable propositions rather than measured outcomes.

**Keywords:** carbon market, sustainable finance taxonomy, institutional governance, transition finance, Indonesia.

## INTRODUCTION

Carbon pricing instruments and sustainable finance classifications respond to related but different information problems. A carbon market creates a framework in which eligible carbon units can be issued, recorded and traded under specified rules. A sustainable finance taxonomy classifies economic activities and, in newer versions, provides additional assessment tools at the level of entities and portfolios. Both are relevant to a low-carbon transition, but their underlying objects are not identical. A transaction in a carbon unit is not the same event as financing a taxonomy-aligned production activity. Confusing these objects can turn administrative progress into an unsupported assertion of economic or environmental success.

This distinction matters for environmental economics. The climate problem involves external costs that are not necessarily reflected in market prices, while finance can be constrained by imperfect information about the sustainability characteristics of firms, activities and investments. Well-designed regulation may reduce these frictions through transparent standards and verifiable claims. Yet a multiplicity of standards can also raise compliance and interpretation costs, especially when the same institution plays several roles or when different databases measure different things. Consequently, the policy question is not simply whether Indonesia possesses a carbon exchange and a green taxonomy, but how the documentary rules of these instruments relate to one another, where they remain separate, and what information would be required to connect them credibly.

Indonesia presents a timely setting for examining this question. The Financial Services Authority (Otoritas Jasa Keuangan, OJK) issued Regulation No. 14 of 2023 to establish the governance of trading carbon units through a carbon exchange (Otoritas Jasa Keuangan [OJK], 2023). The Indonesia Carbon Exchange, operated by the Indonesia Stock Exchange, was launched in September 2023; the exchange announced the inauguration of international trading of Indonesian carbon units in January 2025 (Indonesia Stock Exchange, 2023, 2025). These dated events mark institutional development and market access announcements. They are not, without transaction-level evidence, proof of deep liquidity, valid emissions reductions for every traded unit, or widespread private-sector transition investment.

A second regulatory sequence emerged in 2025–2026. Presidential Regulation No. 110 of 2025 established a renewed national framework for carbon economic value instruments and greenhouse-gas management, superseding Presidential Regulation No. 98 of 2021 (President of the Republic of Indonesia, 2025). OJK Regulation No. 10 of 2026 amended the 2023 exchange rule, while OJK Board Member Regulation No. 6 of 2026 updated implementing provisions (OJK, 2026b, 2026c). In parallel, OJK published Version 3 of the Indonesia Taxonomy for Sustainable Finance (Taksonomi untuk Keuangan Berkelanjutan Indonesia, TKBI) in February 2026 and issued further updates on 31 March 2026 (OJK, 2026a). The taxonomy introduced additional technical screening criteria and approaches for sunsetting, grandfathering, and entity- or portfolio-level assessment. These are contemporaneous but analytically separate policy tracks.

A July 2026 legal development further specifies the relevant objects. Ministerial Regulation No. 10/2026 of the Ministry of Environment/Environmental Control Agency governs the Carbon Unit Registry (SRUK). Article 1 distinguishes the national climate-action information system (SRN PPI) from SRUK, which manages carbon-unit information. Articles 2–3 define the registry's purposes and functions, including recording units, transactions and use, supporting NDC objectives, preventing double counting and providing data interoperability. These provisions establish a legally specified registry function, not a finding that the system performed all functions without errors (Ministry of Environment/Environmental Control Agency, 2026).

The institutional challenge can be decomposed into five linked but non-identical units of observation: the carbon unit, the project or installation associated with that unit, the economic activity assessed under a taxonomy, the reporting entity, and the financial portfolio holding an exposure. Each unit answers a different question. A registry record may establish the type and recorded status of a unit; project documents may describe how reductions were validated; the taxonomy may classify an activity against technical criteria; and a financial disclosure may claim that a loan, bond or portfolio supports a transition. Moving from one level to another requires an explicit rule connecting identifiers, boundaries, dates and permitted uses. It is not logically sufficient to infer the sustainability of an entire borrowing firm from one carbon-credit transaction. This

distinction creates the empirical problem that the present study calls bounded institutional alignment.

The policy issue is economically relevant because information about environmental attributes can affect financing decisions even when it does not directly determine the underlying externality. Investors may require assurance about activity-level eligibility, transitional timetables and the treatment of past claims when screening criteria change. Carbon-market participants, by contrast, face questions about issuance, ownership, transfers and use or retirement of units. These information demands sometimes intersect around the same company or project, but they are neither perfectly substitutable nor necessarily governed by the same agency. A well-specified interface could reduce repeated due diligence; an overbroad interface could instead increase the risk of misleading environmental assertions. Both effects remain hypotheses requiring operational evidence rather than consequences demonstrated by the policy texts.

The cross-instrument problem is consequential because a carbon-unit claim concerns a defined environmental attribute associated with a unit, whereas a taxonomy claim may require evaluation of the activity being financed against multiple conditions, including its treatment of other environmental objectives and applicable safeguards. An entity could plausibly purchase an eligible carbon unit while engaging in activities that would not necessarily qualify under a given taxonomy assessment. Conversely, a taxonomy-aligned activity may be financed without generating any exchange-tradable unit. These examples are conceptual boundary cases, not empirical allegations about named Indonesian issuers or transactions. Their function is to reveal why an assertion of automatic equivalence would require explicit legal and methodological support.

The literature already addresses several parts of this field. Ostrom (2010) explains the potential of polycentric governance in responding to climate change; Berg et al. (2022) show the significance of variation in sustainability measurements; Inderst and Opp (2025) analyse the economic relationship between environmental policy and sustainable investment taxonomies. Flammer (2021) studies corporate green-bond signalling, while recent Indonesia-specific scholarship examines carbon-market governance (Pratomo et al., 2026) and the architecture of TKBI (Rialdi et al., 2026). These contributions rule out a general claim that institutional coordination, green classifications, or Indonesia's carbon market are unexplored. The present study instead reconstructs the specific 2023–2026 documentary interface between carbon-unit governance and taxonomy-based finance classification.

The research gap is limited and source specific. Pratomo et al. (2026) analyse regulatory implementation at IDXCarbon, and Rialdi et al. (2026) detail TKBI's architecture and intended role in sustainable finance. Inderst and Opp (2025) explain why a sustainable-investment taxonomy does not substitute for environmental regulation. What remains underdeveloped in the examined literature is a claim-by-claim diagnostic spanning the carbon-unit registry, exchange admission, emissions-accounting use and the dated screening of financed activities. Because this is purposive documentary research, no exhaustive claim of global novelty is made. The manuscript contributes a bounded analytical crosswalk rather than an empirically proven model.

Three research questions guide the article. RQ1 asks how official Indonesian instruments sequence the governance of carbon-unit trading and the classification of sustainable financial activities during 2023–2026. RQ2 asks which institutional boundaries and possible points of alignment are visible in the documented rules, including registries, eligibility, disclosures and responsibilities. RQ3 asks which claims about transition finance can be supported by public legal

and policy documents, and what evidence would be needed to validate environmental and financial outcomes. The article responds using a bounded institutional comparison rather than assuming that announcing or amending an instrument demonstrates policy effectiveness.

The paper makes three contributions. Empirically, it assembles a dated account of the revised carbon framework, exchange regulation and TKBI development. Conceptually, it differentiates carbon-unit integrity from activity-level finance classification and identifies a conditional form of institutional alignment. Practically, it supplies an evaluation agenda that separates legal authority and administrative readiness from verified environmental and financial performance. This limited but traceable approach fits the remit of applied economic policy and sustainable-finance analysis.

The contribution is consequently a claim-boundary model rather than a proposal to integrate carbon-unit and taxonomy databases. It asks when a carbon-unit record is relevant corroborating information, when it is irrelevant to a TKBI screening decision, and what additional documentary bridge would be necessary for a lender or issuer to make a precise transition-finance statement. This narrower framing avoids presenting two legitimate policy regimes as organisationally deficient merely because they are not interchangeable.

The contribution can also be situated more precisely in financial economics. Evidence that investors price corporate emissions exposure (Bolton & Kacperczyk, 2021) and equilibrium models of investors' sustainability preferences (Pástor et al., 2021) show why climate-related information may affect capital allocation, but neither finding implies that a purchased or retired carbon unit is a measure of a lender's taxonomy alignment. The theoretical bridge proposed here is an information-verification channel: lenders may need project, activity and unit records for distinct questions, yet they should not treat one type of evidence as a substitute for another. No Indonesian financing effect is estimated in this study.

## RESEARCH METHOD

The study employs an exploratory qualitative documentary design focusing on publicly accessible regulatory and institutional material. Documentary analysis is appropriate for identifying formal mandates, changing definitions, planned procedures and stated organisational responsibilities; it is less suitable for directly observing implementation or identifying causal effects on environmental outcomes (Bowen, 2009). The unit of analysis is the rule- or policy-level interface between Indonesia’s carbon-unit trading system and its sustainable finance taxonomy. The observation window runs from the establishment of formal exchange governance in 2023 through documents publicly available by 26 October 2026.

The sample was purposive rather than exhaustive. Included materials were issued by a competent Indonesian authority or identifiable institutional publisher, were dated, and addressed at least one research object: carbon-unit status and use; exchange trading; TKBI assessment; or financial claims. Primary documents included POJK 14/2023, Perpres 110/2025, POJK 10/2026, Permen LH/BPLH 10/2026, PADK 6/2026, and OJK TKBI versions 2–3 and the 31 March 2026 update. Public exchange releases and scholarly comparators served as contextual or interpretative sources, not operational validation. The sampling frame did not include transaction data, confidential lender files or independent interviews.

The sampling unit is a document or independently attributable passage, not a firm, participant or transaction. Primary materials were prioritised when they could establish the legal status of an instrument, the type of regulated object, a named institutional responsibility or the stated scope of taxonomy assessment. The decisive regulatory set includes Presidential Regulation No. 110/2025, OJK Regulation No. 14/2023 as amended by No. 10/2026, the OJK Board Member Regulation No. 6/2026, and OJK's TKBI Version 3 guidance as updated on 31 March 2026. Published earlier rules and taxonomy versions were consulted for chronology rather than assumed to remain unchanged. Official communications and publisher-hosted academic works provide context or theoretical challenge; they are not substitutes for an operative legal instrument.

Sources were classified as enacted legal instruments, regulator-issued taxonomy/guidance, dated institutional accounts or independent research. The official BPK register provides the title, status, promulgation date and published abstract for Ministerial Regulation No. 10/2026; the underlying complete 29-page legal text was located publicly, but a verified article-by-article extraction was not completed within this research pass. OJK's regulator pages directly confirm the validity dates and headline scope of POJK No. 10/2026 and PADK No. 6/2026. Version-level TKBI claims were checked against OJK's 31 March 2026 publication, not against an independently coded full set of technical screening annexes. These asymmetries are recorded as source limitations, not silently treated as equivalent evidence tiers.

The documentary corpus supports comparison of formal arrangements, not a forensic compliance audit. Legal-register entries and available provisions were checked against the underlying regulatory instruments where accessible. For the 29-page ministerial SRUK regulation, this revision additionally inspected the operative text of Articles 1–5 and 28–29, rather than relying exclusively on the official abstract. Other provisions and the full technical annexes of TKBI Version 3 have not undergone line-by-line dual review. This deliberately bounded examination is reported as selective provision-level validation, not complete legal concordance.

Retrieval prioritised the official OJK regulatory and sustainable-finance pages, the National Audit Board legal index, the Indonesia Carbon Exchange's institutional announcements and the ASEAN regional release. The research register records each source's title, issuing body, date, official URL, source genre, analytical use and limits. A publicly displayed abstract can directly establish the authority's published description and status of a rule, but should not automatically be treated as evidence that every provision of a longer annex has been individually audited. The present version provides source-level evidence and targeted document reading, not a claim to complete clause-by-clause legal exegesis.

Operational concepts were defined before interpretation. 'Unit integrity' refers to evidence about the existence, status, validation or use of a carbon unit, not to an independently proven environmental impact. 'Taxonomy alignment' refers to the outcome of an assessment against relevant criteria for a specified activity, entity or portfolio and applicable period; publication of criteria is not the same as a positive classification. 'Claim alignment' concerns whether an investor-facing statement identifies the object, time period and evidentiary basis supporting it. 'Institutional interoperability' refers to a documented means of linking information across organisational boundaries; it does not require a single shared database. Finally, 'transition finance' is treated as the financing context in which activity classifications and credible forward-looking claims may matter, not as a measured flow generated by either policy instrument.

The analytical procedure has four stages. First, source statements are located within a chronology that distinguishes regulations, amendments, operational guidance and institutional launches. Second, passages are classified into the categories of unit eligibility and integrity, recognition and registry infrastructure, activity-screening criteria, transition treatment, information disclosure, accountability, and claimed economic outcomes. Third, the categories are compared across instruments to identify documented links, functional complementarity and untested assumptions. Fourth, rival interpretations are examined—for example, whether a recognised carbon unit demonstrates taxonomy alignment, whether published criteria establish firm-level implementation, or whether opening a market demonstrates price discovery or emission reductions.

The coding template records an observation ID, source authority, publication and effective dates, legal or documentary genre, paragraph or article locator where available, governance object, actor responsible, code, possible contrary interpretation, allowable inference and unresolved evidence need. Four code families are used: C1—carbon-unit registration and market administration; C2—taxonomy classification and screening; C3—issuer or intermediary environmental claims; and C4—coordination, auditability and remedial accountability. A statement can be assigned more than one code, but its inference tier is not increased merely because several sources repeat the same official announcement. Changes were adjudicated temporally, with the 2026 amendments not projected backwards to the 2023 launch.

To make this distinction auditable, each claim is mapped to five attributes: the represented object (unit, project, activity, entity or portfolio); the document and version establishing its status; the observation date; the institution competent to make or verify the decision; and the strongest inference the evidence permits. Regulatory obligations are coded as rules; public statements of operation as institutional reports; normative crosswalks as proposed solutions; and measured outcomes only where transaction- or assessment-level results exist. This prevents an item of proof at one unit of observation from being promoted silently to a claim at another level. The companion audit workbook retains unresolved source-to-claim questions.

For each mechanism a structured challenge asked: (a) does a legally competent source require the conduct, merely announce it or document that it occurred; (b) does the source concern the carbon unit, activity, entity or portfolio actually claimed; (c) are the relevant date and document version identifiable; and (d) what observable evidence would falsify the proposed benefit? These questions distinguish a well-specified legal rule from a measured reduction in compliance costs, double counting or financing frictions. All coding and challenges in this manuscript were conducted within the authoring workflow; an independent second-coder exercise has not been claimed.

Evidence is assigned to a four-tier hierarchy: enacted law or formal regulatory status; regulator-issued technical framework or guidance; public institutional reports of events or intentions; and independent performance data. A regulatory text can establish that a responsibility or requirement exists, not whether participants complied with it. Similarly, a press release can demonstrate that an institution reported a launch but cannot validate transaction additionality, permanence, liquidity or environmental impact. The hierarchy prevents the mechanical promotion of announcements into outcome evidence. Where an inference is conceptual rather than documentary, the text identifies it as such.

The claim-permission protocol expressly distinguishes three possible documentary outcomes. A positively supported finding requires a verifiable source that addresses the precise object being described. A qualified finding is a credible statement about policy design or a reported event for

which implementation records remain absent. An open finding requires additional source material, such as a dated registry export, a completed taxonomy screening sheet, or an executed cross-agency data agreement. The same rules apply to propositions that appear favourable to the research argument and to contradictory observations. No numerical inter-coder reliability or research-team triangulation is reported because independent recoding has not been completed.

The approach is theory informed without assuming that all theories are equally appropriate. Polycentric governance provides a lens on coordination between environmental and financial institutions (Ostrom, 2010). Information economics and finance scholarship helps explain the importance of interpretable measurement, disclosure and signalling (Berg et al., 2022; Flammer, 2021). The taxonomy–environmental-policy distinction proposed by Inderst and Opp (2025) guides the assessment of whether finance classification is supplementary to environmental regulation rather than interchangeable with it. These frameworks generate questions for the evidence rather than predetermined empirical findings.

Negative-case testing focused on four rival propositions: regulatory coexistence could be deliberate rather than fragmented; a shared institution does not imply a shared legally operative assessment; improved carbon-unit traceability might reduce transaction uncertainty without affecting lending classification; and taxonomy uptake might change disclosure language without changing financing terms or emissions. These cases were searched for at the level of wording and decision responsibility, not assigned numerical confidence scores. The analysis was conducted as an auditable single-analyst documentary synthesis. No fieldwork, independent recoding, formal inter-coder reliability statistic or market-effect evaluation is claimed. A second reader can use the companion register to inspect whether each reported finding stays within the competence of its supporting document.

Credibility rests on traceable document dates, a tiered evidence hierarchy, comparison of overlapping official accounts and testing of rival interpretations. The study does not claim a systematic Scopus/Web of Science review, theoretical saturation, interviews, an independent second coder or a quantitative estimate of environmental and financial effects. It uses no private trading records, lender screening files or verified carbon-mitigation datasets. Consequently, its conclusions describe rules, documented institutional designs and bounded analytical propositions. Before submission, a second analyst may replicate a purposive sample of claim-to-source decisions using the companion audit protocol; that independent step is proposed, not reported as completed.

## RESULTS

The documentary findings reveal parallel institutional development with distinguishable objects of governance. In 2023, OJK Regulation No. 14 established a formal framework for carbon trading through a market operator. It addressed eligible units and exchange oversight, including licensing and operational governance (OJK, 2023). The exchange was launched in September of the same year (Indonesia Stock Exchange, 2023). This establishes a regulated market channel, but neither the text of the regulation nor the announcement alone quantifies trading depth or guarantees the integrity of individual units.

The earliest documentary separation is between the market infrastructure and the environmental object traded on it. POJK No. 14/2023 created the exchange-oversight framework, whereas official launch communications describe the opening of a trading venue. A trading venue has rules, operators and transactions, but its existence is not equivalent to verification of the underlying project's reductions or an allocation decision made by a financial institution. This is an important first boundary because statements about 'the carbon market' can refer to at least three distinct phenomena: legal authorisation, the availability of a platform, and evidence of actual trading. The initial official record supports the first two, but a defensible statement about transaction quality or net mitigation would require a separate evidentiary basis.

In January 2025, the Indonesia Stock Exchange announced the inauguration of international trading of Indonesian carbon units (Indonesia Stock Exchange, 2025). The dated press release supports the occurrence of the event and the institutional intention to expand market access. It does not establish the number of independently validated foreign counterparties, settled trades, retired units or corresponding adjustments. The announcement is therefore coded as a market milestone, not as evidence of realised international emissions-accounting integrity.

Presidential Regulation No. 110 of 2025 replaced the previous national regulatory instrument for carbon economic value, explicitly addressing carbon allocation, nationally determined contributions, the administration of carbon economic value instruments, a transparency framework, monitoring and evaluation, financing and steering arrangements (President of the Republic of Indonesia, 2025). This broad policy architecture creates a higher-level legal context for various carbon-related activities. The regulation’s legal status is directly supported by the official index, but the documentary record examined here does not establish that all implementing systems had completed migration to the updated regime during the case period.

The presidential text supplies a more discriminating distinction than a general claim that a registry has been established. Perpres No. 110/2025 defines the national climate-action registry (SRN PPI) in relation to mitigation and adaptation actions and identifies the Carbon Unit Registry System (SRUK) as the information system for carbon units in the administration of carbon-economic instruments. The text also differentiates emissions allowances and offset mechanisms, and specifies validation and verification steps relevant to the generation of certified units. Its provisions for recording units and traceable information express the architecture of an auditable market. They do not independently show that every historical unit has been migrated correctly, that registry databases are fully reconciled, or that every exchanged unit has produced additional emissions reductions (President of the Republic of Indonesia, 2025).

The ministerial regulation also makes the permitted use of a carbon unit analytically relevant. Article 28 distinguishes use for Indonesia's NDC, use for another country's NDC or international mitigation obligations, and other or voluntary mitigation purposes. In the specified cross-border NDC category, authorisation and a corresponding adjustment are required; the article distinguishes the voluntary category rather than assuming the same accounting route applies to every unit. These legal categories help specify a claim's purpose but do not prove that a particular transfer was correctly authorised, adjusted, settled or retired (Ministry of Environment/Environmental Control Agency, 2026).

OJK Regulation No. 10 of 2026, effective on 6 July 2026, amended Regulation No. 14 of 2023 to align exchange oversight with Presidential Regulation No. 110 of 2025. Its changes concern unit eligibility, reference to SRUK, provisions relating to foreign units, reporting to relevant ministries

and consumer protection (OJK, 2026c). These are regulatory conditions for market operation, not measured changes in market integrity or liquidity.

The amendment introduced a narrowly time-bound route for carbon units recorded in ministries' electronic systems to be facilitated through the exchange while SRUK became operational. This route could apply for no longer than three months after promulgation on 6 July 2026 (OJK, 2026c). The provision differentiates transitional legal permission from permanent registry design. It does not disclose the stock of migrated units, reconciliation outcomes or exceptional transactions.

The SRUK instrument establishes a distinct environmental-registry layer, effective 6 July 2026. Articles 2–3 concern carbon-unit information, recording, use, transactions and interoperability; Article 5 describes a decentralised and transparent network architecture as a design requirement. Articles 28–29 distinguish emissions-offset uses and their corresponding procedural conditions. This article-level reading strengthens the identification of formal governance responsibilities. It must not be described as independent verification of live-system architecture, cybersecurity effectiveness, record migration or completed corresponding adjustments (Ministry of Environment/Environmental Control Agency, 2026).

The implementing layer was updated on 24 July 2026. PADK No. 6/2026 sets out tradable-unit categories and rules governing exchange-operator capital, ownership, management, licensing, internal controls and reporting. The regulator states that it replaces Circular No. 12/SEOJK.04/2023 (OJK, 2026b). Together with the July POJK amendment, these rules demonstrate a formal reallocation and specification of administrative duties, but not increased liquidity, improved unit-integrity outcomes or investment additionality.

The three-month period is a legal limit on temporary recording arrangements, not an externally verified completion report. The official effective dates of the POJK amendment and the implementing PADK, 6 July and 24 July 2026 respectively, are ascertainable (OJK, 2026b, 2026c). Migration rates, unmatched records and system continuity remain unavailable in the public evidence assessed here.

The environmental-registry regulation and the exchange amendment assign responsibilities at different points in the unit lifecycle. The former governs recording, status and permitted use of carbon units; the latter governs the conditions under which an exchange operator may facilitate transactions. Alignment between the two requires traceable identifiers and compatible records, but their legal coexistence alone cannot prove that such compatibility works in practice.

PADK No. 6/2026 operationalises exchange oversight through rules on tradable units, capital, ownership suitability, management, internal controls, licensing, planning and reporting; it also supersedes Circular No. 12/SEOJK.04/2023 (OJK, 2026b). These are documented administrative requirements. Compliance rates, transaction throughput and investor outcomes would require operator or supervisory data not included in this documentary corpus.

The taxonomy sequence follows a different logic. OJK issued the second version of TKBI in February 2025, developing a phased classification of sustainable economic activities beyond the initial energy focus (OJK, 2025). Version 3 was introduced in February 2026 and supplemented in March. It expanded technical screening criteria into advanced agriculture, forestry and fishing, manufacturing, water- and waste-related activities, and enabling sectors including information and communication and professional and technical services (OJK, 2026a). It also set out sunsetting,

grandfathering, and entity- and portfolio-level assessment mechanisms. These elements concern screening rules and finance-related interpretability rather than admission of discrete tradable carbon units.

TKBI Version 3 uses a different evidentiary architecture. OJK's 31 March 2026 update added manufacturing technical screening criteria for basic chemicals; products based on recycled plastics and synthetic rubber; glass; textiles; apparel; footwear; and low-carbon gases, including hydrogen. It also clarified selected sector-agnostic decision-tree assessments and do-no-significant-harm (DNSH) treatment for enabling-sector activities, and provided guidance for certain consumer-finance reporting categories where productive-activity codes are inapplicable (OJK, 2026a). These are category-specific screening and reporting provisions, not fungible indicators of carbon-unit validity. The precise thresholds in the technical annexes were not independently applied to any entity in this study.

The introduction of entity- and portfolio-level assessment in Version 3 is consequential for financial intermediation. An institution that holds loans or securities across multiple borrowers must specify how the underlying assessment units enter any aggregated portfolio statement. The publication of an entity or portfolio methodology does not provide a denominator, exposure measure or realised classification for a particular bank. Likewise, the addition of sunsetting and grandfathering mechanisms recognises the practical conflict between the evolving environmental threshold and the temporal stability expected by issuers and investors. These mechanisms are policy design elements: they cannot be treated as evidence that a particular labelled security qualifies for any transitional exemption without checking the applicable technical criteria and its assessment history.

The legal status of the two instruments also differs. In its March 2026 publication, OJK describes TKBI as guidance for classifying sustainable economic activities and orienting capital allocation, while noting that its future implementation will move toward a regulatory framework. This published guidance should therefore not be presented as evidence that every supervised institution already performs mandatory Version 3 portfolio screening. The relevant empirical question is whether a specific reporting entity applied a documented TKBI criterion to the appropriate assessment object and period (OJK, 2026a).

The 31 March 2026 TKBI update makes version control essential. A citation to “TKBI 2026” without a release or update date may hide material differences in manufacturing criteria, DNSH guidance and reporting examples (OJK, 2026a). For a historical financing claim, an analyst must recover the version, assessment unit and applicable period rather than assume that a later classification framework automatically governs earlier disclosures.

The update also illustrates why taxonomy evidence cannot be assumed to travel automatically from one scale to another. An eligible activity does not necessarily imply that an entire firm, financial product or aggregated portfolio meets the relevant classification and disclosure rules. A reproducible claim should identify the activity or exposure, assessment method, version, applicable safeguards and date. The article proposes these fields as an audit checklist derived from the framework, not as a certification statement or as an empirical finding about practices already adopted by supervised firms.

ASEAN Taxonomy Version 4 was released in November 2025 as a regional reference for classifying sustainable activities (ASEAN Taxonomy Board, 2025). OJK explicitly identifies its own TKBI as informed by ASEAN taxonomy development and national policy priorities (OJK, 2026a).

This establishes a stated line of policy-reference alignment between classification approaches. It does not, without a verified technical mapping, establish one-to-one equivalence between every Indonesian criterion and an ASEAN, foreign or private label.

The source comparison reveals an asymmetry of required proof. A registry entry may provide an identifier and recorded ownership or status of a carbon unit; a taxonomy classification requires technical screening and possibly additional 'do no significant harm' and social considerations for an activity or financing assessment. Even where the underlying enterprise or project is identical, the claims are generated by different processes. Treating either instrument as a universal sustainability certificate would extend the implication beyond the administrative object that the instrument actually governs. The documents examined here do not establish a general legal rule stating that trading a registered carbon unit automatically qualifies a firm, project or portfolio under TKBI. This negative finding is bounded to the reviewed instruments and official version descriptions; it does not assert that no sector-specific operational linkage exists elsewhere.

A cross-object evidence test therefore yields four distinct questions. First, can a claimed carbon unit be associated with an authorised, dated issuance and valid current disposition? Second, does an activity meet the correct edition of the relevant TKBI technical screening criteria? Third, if a firm or portfolio is classified, is the aggregation rule and reporting boundary stated? Fourth, does public disclosure carefully attribute the respective evidence to the right claim? A positive answer at one level cannot be substituted for a missing answer at another. This is the most strongly supported documentary result, rather than a measured effect on capital formation.

The distinction can be illustrated with a deliberately hypothetical case. Suppose a manufacturer purchases and retires a carbon unit while also requesting transition finance for a new production line. The carbon record would be relevant to claims about that particular transaction and retirement. A credible statement that the new production line is taxonomy aligned would instead need evidence about the line's activity classification, technical screening and relevant safeguards. The carbon purchase could be disclosed alongside the financing decision, but it cannot logically replace the activity assessment. Conversely, a taxonomy screen of the financed line would not by itself establish that any stated purchased unit was properly issued or retired. The example is a conceptual test, not an observation of an Indonesian manufacturer or lender.

The governing instruments also emphasize distinct accountability questions. In the carbon-unit system, a researcher would need to inspect registry records, project identifiers, unit status, retirement history and trading or settlement logs to validate specific claims about units and transactions. For taxonomy assessments, one would need the technical screening evidence, sectoral thresholds, significant-harm evaluation where applicable, entity data and disclosure controls associated with the assessment. The published governance descriptions create a plausible basis for such checks; they do not furnish the underlying datasets for the observed period.

Tables 1–3 distinguish the dated legal chronology, the object-specific evidence requirements and the mechanisms that would need independent validation. Each table is a documentary or conceptual synthesis, not a tabulation of observed market performance.

**Table 1. Legal and taxonomy chronology, 2023–2026, with inference limits**

| Period | Primary record | Documentary finding | Limit |
|---|---|---|---|
| Aug–Sep 2023 | POJK 14/2023; IDX launch | Regulated exchange framework and public launch | Not liquidity or emissions outcomes |
| Jan–Feb 2025 | IDX international launch; TKBI v2 | International-market announcement and taxonomy expansion | Not settlement / capital allocation |
| Oct–Nov 2025 | Perpres 110/2025; ASEAN v4 | Renewed national carbon framework and regional taxonomy | Not complete interoperability |
| Feb–Mar 2026 | TKBI v3 (updated 31 Mar) | Additional sector TSC; entity/portfolio screening; transition mechanisms | Not verified borrower assessment |
| Jul 2026 | POJK 10/2026; PADK 6/2026 | Amended exchange rules and transitional ministry-record allowance | No evidence of completed registry migration |
| Jul 2026 | Permen LH/BPLH 10/2026 | SRUK unit-recording functions and differentiated use categories (Arts 1–5, 28–29) | Legal duties, not verified operational integrity |

Source: Author's coding of official sources listed in References. TSC = technical screening criteria.

**Table 2. Institutional objects, evidence requirements and decision boundaries**

| Domain | Object | Relevant record | Permitted conclusion |
|---|---|---|---|
| Carbon unit market | Eligibility and trade of identified units | POJK 14/2023 as amended; PADK 6/2026 | Trading and recorded status regulated; performance untested |
| National climate policy | Allocation and transparency of carbon instruments | Perpres 110/2025; Permen LH/BPLH 10/2026 Articles 1–5, 28–29 | Distinct SRN PPI / SRUK scope and carbon-use conditions in official law |
| Sustainable activity screen | Activities and technical classification criteria | TKBI v2–v3 | A published classification method exists |
| Regional consistency | Comparability of activity classification | ASEAN Taxonomy v4 | Regional reference architecture exists |
| Cross-instrument link | Equivalence and joint disclosures | No single automatic crosswalk located in reviewed summaries | Requires document-level and operational proof |
| Environmental unit registry | Unit issuance, tracking, status and integrity | Permen LH/BPLH 10/2026; Perpres 110/2025 | SRUK legal duties exist; operation and reconciliation untested |

Source: Author's bounded conceptual comparison; absence of a crosswalk in reviewed summaries is not proof that no linkage exists elsewhere.

**Table 3. Provisional bounded-alignment mechanism tests**

| Mechanism | Analytical proposition | Decisive additional evidence |
|---|---|---|
| M1: Unit traceability | Claims of carbon-unit issuance, ownership and use retain testable identifiers and dates | Article-specific SRUK records and issuance/use logs; dated identifiers and authorisation evidence |
| M2: Classification specificity | Taxonomy labels refer to the assessed activity, entity or portfolio and relevant TSC version | Version-specific TSC/DNSH and entity or portfolio assessment files |
| M3: Claims reconciliation | Disclosure keeps credit ownership distinct from financed-activity eligibility | Issuer claims, disclosure crosswalk and review decisions |
| M4: Assigned accountability | Responsibilities and error-correction routes are specified for each distinct decision | Rules, agreements, complaint and correction records |

Source: Author's theory-informed mechanism model; these are conditions to test, not independently validated operational results.

## DISCUSSION

The findings imply conditional complementarity, not substitutability, between carbon-unit governance and transition finance. A registry can specify the unit and its authorised use; a taxonomy can classify a financed activity with reference to a dated screening framework; and a financier can explain the scope of its claim. Combining such records could improve the information available for diligence only if the mapping of units, activities, time periods and legal permissions is explicit. The study demonstrates the distinct regulatory designs; it does not estimate financial gains from their coordination.

An institutional interpretation highlights three areas where alignment might add value. The first is recognition alignment: public actors should be able to identify which record or authority establishes a unit's identity, status and permissible use, and should state how this record is or is not relevant to finance disclosures. The 2026 transitional provision regarding registry compatibility provides documentary evidence that record architecture matters for exchange operations (OJK, 2026c). Yet it does not establish that carbon and taxonomy databases have already been connected. This is therefore a design implication based on an observed institutional boundary.

The second is claim alignment. A financial institution may seek to use carbon-market information when evaluating transition strategies or publicising climate-related products. The relevant claim could concern a firm's mitigation activity, a purchased credit, an emissions position or a financing portfolio, each requiring different denominators and supporting evidence. Berg et al. (2022) show that sustainability assessments can diverge through their coverage and measurement choices. Applied to the case, their finding supports the need to state explicitly what a carbon-unit statement proves, what a taxonomy assessment proves, and what neither proves. It does not establish that Indonesian institutions currently misuse such claims.

The third is accountability alignment. An assurance or dispute mechanism must be attached to the particular claim at issue. If the problem is duplicate use of a carbon unit, the relevant evidence lies in registry and retirement information. If the problem is incorrect activity screening, it lies in classification criteria and the data used in the assessment. If the problem is misrepresentation to investors, disclosure and supervisory practices become central. Combining the functions indiscriminately might create an appearance of harmonisation while obscuring responsibility.

Conversely, common identifiers and carefully scoped disclosure standards could help users reconcile separate pieces of environmental information without erasing their distinct legal significance.

A useful economic interpretation is to distinguish three categories of transaction cost. The first is verification cost: checking whether a carbon unit or activity assessment has the claimed attributes. The second is translation cost: reconciling unit-level records with project, entity and portfolio disclosures when systems use different identifiers or temporal boundaries. The third is contestation cost: correcting an error, resolving an ownership dispute or revising a classification after a threshold change. The two policy tracks can potentially reduce different components of these costs. Evidence that a regulation specifies registries or taxonomy criteria indicates an attempt to organise such information, not a measured reduction in any of the costs. A future study would need process-time records, assurance expenses or documented correction cases to quantify them.

The additional SRUK provisions strengthen the traceability proposition but do not close the outcome question. Requirements concerning information management, recorded use and system interoperability may create auditable links. Whether those links lower a lender's verification cost depends on system access, field comparability, user permissions and the need for independent technical screening. Separate records may be efficient because they protect different legal purposes; a universal combined database could instead create new coordination costs. The competing possibilities require process data and user-level evidence.

The contribution of this separation becomes clearer when confronted with transition finance. TKBI Version 3 introduces tools concerned with classification over time, such as sunsetting technical criteria and grandfathering financial instruments, as well as entity and portfolio assessment (OJK, 2026a). Those mechanisms recognise that an activity's treatment or an existing instrument's status may need to be understood dynamically. They should not be equated with a carbon unit's issuance or retirement life cycle. A carbon-market instrument and a taxonomy instrument can involve time-dependent properties, but the relevant boundaries, stakeholders and decision rules differ. A credible transition-finance narrative would need to show exactly which pathway is being evaluated.

This analysis gives conditional meaning to 'transition' labels. Transition classifications can be especially sensitive to time, because technological expectations and sector thresholds evolve. The addition of sunsetting and grandfathering within TKBI Version 3 makes the temporal dimension of screening explicit. In the carbon-unit system, relevant dates include the project crediting period, issuance, transactions and—where relevant—use or retirement; for an entity or portfolio, the material dates include reporting and classification periods. A credible combined disclosure should not place these dates into one undifferentiated indicator. A 2026 taxonomy-aligned portfolio share and a 2025 unit transaction may both be valid facts while failing to demonstrate the same period of avoided emissions. Temporal consistency is thus a testable dimension of institutional alignment, not an observed property of all current reporting.

The broader theoretical literature supports caution against easy equivalence. Inderst and Opp (2025) distinguish the functions of sustainable finance taxonomy from conventional environmental regulation and identify conditions under which a taxonomy can address financial-market frictions. That analysis implies that the existence of a carbon market does not remove all information problems in capital allocation, while classification alone cannot replace environmental policy. Flammer (2021) supplies evidence that verified green finance instruments can carry signalling value, but a carbon exchange's launch must not be interpreted as proof of a comparable causal

response among Indonesian investors. The article accordingly offers a context-specific analytical model rather than importing effect sizes from other markets.

This economic interpretation has a falsifiable alternative. Better registry traceability might reduce disputes about specific units without changing the pricing of transition loans because lenders already rely on emissions inventories, asset-level covenants or sectoral credit risk. Conversely, investors' perception of emissions risk might change financing terms even without an explicit taxonomy–registry interface (Bolton & Kacperczyk, 2021). Distinguishing these explanations requires comparisons of otherwise similar financing decisions with and without verifiable cross-object evidence, while accounting for borrower characteristics, sector policy and risk appetite. The present documentary analysis identifies the comparison that would be needed; it does not identify a treatment effect.

Polycentric governance offers another useful perspective. Indonesia's carbon-governance sequence involves the presidency, environmental agencies, OJK, the exchange and institutions responsible for registries and transactions; taxonomy development also involves OJK and multiple sectoral stakeholders. Polycentric systems may permit learning and multiple routes to coordination (Ostrom, 2010), but coordination costs and mandate boundaries remain relevant. The examined record establishes formal coexistence and partial interagency adjustment, not the existence of an integrated, continuously functioning supervision architecture spanning every instrument.

Polycentricity should not become an unfalsifiable compliment to having many regulators. The relevant empirical question is whether jurisdictional boundaries improve specialisation and accountability or instead create unresolved hand-offs. Three disconfirming cases are plausible: an effective carbon market without any taxonomy crosswalk; a reproducible TKBI classification without carbon-credit information; and a publicly traceable carbon unit that nevertheless supports a misleading portfolio-level climate statement. Any of these observations would limit the breadth of the proposed alignment mechanism. This study therefore treats cross-instrument linkage as selective and purpose dependent, not universally mandatory.

The closest contextual comparators also restrict the novelty claim. Pratomo et al. (2026) discuss regulatory obstacles and the effectiveness question for IDXCarbon. Rialdi et al. (2026) explain TKBI's structure and financial-sector use. The present article does not claim that Indonesia's carbon exchange or taxonomy has escaped academic investigation. Its incremental contribution is an object-specific matrix that asks which precise carbon-unit evidence can support which financial claim, and where authorisation, technical screening or outcome measurement must be obtained separately.

Several alternative explanations qualify the mechanism model. First, registries and taxonomies may legitimately have different purposes, so absence of a common database is not necessarily governance failure. Second, separating permissions may protect accountability and the different legal objects involved. Third, carbon-market volume, prices and participant activity can be driven by supply quality, demand or global pricing regardless of administrative alignment. Fourth, lending and sustainable-investment outcomes may depend on borrower risk, subsidy policy, industrial structure and market conditions rather than taxonomy rules alone. The available documents cannot rank these channels empirically.

A fifth rival possibility is temporal discontinuity: technical standards, unit status, and the accounting period of a financed asset may be misaligned even if each record is accurate at its own reporting

date. A sixth is incentives: issuers may improve disclosure quality because of investor scrutiny, market discipline or lender requirements unrelated to formal regulatory coordination. These rivals imply that empirical follow-up must compare similarly situated claims or transactions over time and specify an outcome that could fail to improve despite increased formal alignment.

The economic implications are testable. A future mixed-methods study might evaluate whether improved reconciliation of carbon-unit records and investment disclosures reduces due-diligence costs, improves information comparability or changes portfolio decisions. Administrative interviews could examine the practical division of roles among registries, supervisors, market operators and lenders. Issuer-level datasets could test whether TKBI assessment is associated with changes in financing terms while controlling for firm characteristics; registry and unit-retirement data could establish whether marketed environmental claims match recorded transactions. Such evaluations must guard against selection bias: firms adopting both a carbon-market strategy and taxonomy assessments may already differ from those that do not.

For empirical follow-up, the model can generate observable indicators at four nested levels. The first is unit traceability: the proportion of sampled unit claims that can be reconciled to valid issuance and disposition records. The second is classification reproducibility: the proportion of financed activities for which the relevant TKBI criteria, version date and supporting files can be recovered. The third is disclosure specificity: whether each sustainability statement distinguishes purchased units, financed operations and the use of proceeds. The fourth is correction capacity: documented time and steps required to resolve inconsistent identifiers or classifications. These are proposed measurement constructs, not data gathered by the present study; their operational definitions would need piloting and inter-reviewer checks.

One prospective evaluation design would preregister a sample of disclosures making explicit carbon-unit and taxonomy claims, classify each claim's object and reporting period, and have independent analysts recover the supporting records. Outcomes could include match rate, unresolved discrepancy rate, the median time to correct a misclassification and independent reviewer agreement. If financing data were accessible, analysts could assess whether verified, comparable information is associated with lending spreads or access conditional on borrower risk, without asserting causality from an uncontrolled association. Ethics and confidentiality safeguards would be essential where project documents, registry credentials or loan files are non-public.

Policy design should therefore prioritise a minimal evidence crosswalk rather than a universal sustainability label. Where lawful and feasible, a disclosure could identify the carbon unit or registry record, its status and use category, the project and reporting period, the relevant TKBI activity and version, and the institution responsible for each assessment. A credit purchase should be described as such, not recoded as proof of a green loan or realised emissions reduction. This is a proposed reporting protocol, not an existing legal requirement inferred from TKBI or SRUK.

A calibrated implementation agenda would therefore proceed by function rather than administrative merger. One possible first step is a voluntary evidence cross-reference that links a financed activity to relevant underlying project or carbon-unit information without conferring a new legal status. A second is version-controlled disclosure, where claims specify the particular taxonomy screening release and carbon-unit status at the reporting date. A third is an explicit separation of decision authority: the carbon registry or exchange confirms unit records within its remit, while the applicable taxonomy assessor evaluates activities or financial exposures against screening rules. Each

suggestion is conditional on existing legal permissions and institutional responsibilities; the reviewed documents do not themselves mandate this three-step interface.

The study's main limitation is asymmetric evidence: legal documents are strong evidence of formal responsibilities but weak evidence of field-level implementation. No comprehensive registry ledger, carbon-credit retirement sample, market microstructure data, project-verification record, loan portfolio or verified emissions series was analysed. Therefore this article cannot quantify double counting, greenwashing, compliance failures, market liquidity changes, transition-finance additionality, or distributional and environmental consequences. It identifies possible audit failures and research designs, not misconduct by any named institution.

The study relies on purposively selected official documents and theory-relevant published research. The official SRUK rule was assessed through its register and selected provisions, while TKBI Version 3 was examined using the OJK release, its stated update and selected technical summaries; the complete set of technical annex criteria was not exhaustively independently re-coded. This is not a systematic bibliometric review or a field evaluation. No underlying transaction ledger, portfolio files, contractual credit decisions or independent second-coder adjudication were available. Selection bias, time-sensitive criteria and uneven disclosure remain material limitations. The framework is consequently offered as a transparent diagnostic proposition rather than a validated explanation of measured financing effects.

## CONCLUSION

Indonesia's 2023–2026 record documents a regulated carbon exchange, a renewed national carbon-economy framework, a ministerial rule for the Carbon Unit Registry, and expansion of the sustainable-finance taxonomy. The available sources establish differentiated legal and classification instruments, not an automatic equivalence between a tradeable carbon unit and an activity, entity or portfolio screened under TKBI. A time-limited interim registration provision establishes a transition rule, not successful migration or system-wide compliance. Thus the principal finding is an institutional distinction among the objects and evidence needed for traceability, classification and disclosure.

The proposed bounded-alignment model distinguishes carbon-unit traceability, taxonomy-version specificity, cross-claim reconciliation and responsibility for correction. Its potential to improve disclosure quality or financial allocation remains an empirical question. Future tests should inspect real registry and taxonomy assessments, dated financing disclosures and independently reviewed decision records. These conditions help define a researchable interface between carbon markets and transition finance without treating one policy instrument as proof of the performance of another.

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