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Effectiveness of Implementing Carbon Trading Regulation in Indonesia's Carbon Exchange (Idxcarbon): Opportunities and Challenges

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ABSTRACT: This article evaluates the effectiveness of Indonesia's carbon trading policy implementation in the context of the newly established Indonesia Carbon Exchange (IDXCarbon). Despite the potential of carbon markets to support climate goals and economic transformation, early developments in Indonesia's carbon exchange show signs of stagnation, limited participation, and unclear regulatory coordination. Furthermore, this article employs a multi-dimensional environmental justice framework assessing distributive, procedural, and recognition-based justice to critically examine whether the policy's design and implementation not only facilitate market efficiency but also ensure equitable outcomes for all stakeholders, including indigenous communities, private sectors, and civil society. By situating Indonesia's experience within global carbon market discourses and comparative international mechanism, this study offers insights that relevance to other developing economies seeking to leverage carbon trading as a tool for just and sustainable development. This paper explores the institutional, regulatory, and market-based factors contributing to the slow progress as specially on IDXCarbon. It also analyses policy opportunities and recommends strategic improvements for enhancing transparency, participation, and carbon market growth.

KEYWORDS: Carbon market governance, IDXCarbon's performance, policy implementation, climate justice, regulatory challenges.

INTRODUCTION

Climate change has emerged as one of the most urgent global challenges of the 21st century. As nations strive to meet their commitments under the Paris Agreement (2015)[1] and reduce their greenhouse gas (GHG) emissions, carbon trading—a market-based mechanism to control carbon emissions has gained international prominence. Carbon trading allows countries or entities to buy and sell emission allowances, thus incentivizing emissions reductions in the most cost-effective manner (Stavins, 2008)[2]. Indonesia's commitment to combat climate change is underscored in its Enhanced Nationally Determined Contribution (NDC)[3] submitted in September 2022, which targets a 31.89% unconditional and 43.2% conditional reduction in GHG emissions by 2030 (MoEF, 2022)[4]. To achieve these targets, the Government of Indonesia (GoI) introduced several regulatory frameworks, most notably Presidential Regulation No. 98/2021 on Carbon Economic Value (NEK) and OJK Regulation No. 14/POJK.04/2023

[1] United Nations. (2015). Paris Agreement. [Conference Decision]. United Nations Framework Convention on Climate Change (UNFCCC). https://unfccc.int/sites/default/files/english_paris_agreement.pdf. Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104.

[2] Stavins, R. N. (2008). A Meaningful U.S. Cap-and-Trade System to Address Climate Change. Harvard Environmental Law Review, 32(2), 293–371.

[3] Republic of Indonesia. (2016). First Nationally Determined Contribution Republic of Indonesia. UNFCCC. Retrieved from https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Indonesia%20First/First%20NDC%20Indonesia_submitted%20to%20UNFCCC%20Set_November%20%202016.pdf

Indonesia's Enhanced NDC (2022 Update): Reference: Republic of Indonesia. (2022). Enhanced Nationally Determined Contribution Republic of Indonesia. UNFCCC. Retrieved from https://unfccc.int/sites/default/files/NDC/2022-09/23.09.2022_Enhanced%20NDC%20Indonesia.pdf Republic of Indonesia. (2016). First Nationally Determined Contribution Republic of Indonesia. UNFCCC. Retrieved from https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Indonesia%20First/First%20NDC%20Indonesia_submitted%20to%20UNFCCC%20Set_November%20%202016.pdf Indonesia's Enhanced NDC (2022 Update): Reference:
Republic of Indonesia. (2022). Enhanced Nationally Determined Contribution Republic of Indonesia. UNFCCC. Retrieved from https://unfccc.int/sites/default/files/NDC/2022-09/23.09.2022_Enhanced%20NDC%20Indonesia.pdf.

[4] Republic of Indonesia. (2022). Enhanced Nationally Determined Contribution Republic of Indonesia. Ministry of Environment and Forestry. United Nations Framework Convention on Climate Change (UNFCCC). https://unfccc.int/sites/default/files/NDC/2022-09/23.09.2022_Enhanced%20NDC%20Indonesia.pdf.

governing carbon exchange mechanisms. The launch of IDXCarbon[5] in September 2023 marked a significant milestone, positioning Indonesia as the first Southeast Asian nation to implement a national carbon trading platform (Jakarta Globe, 2023). In its initial month, the platform recorded over 456,000 tons of carbon units traded, primarily from the forestry and energy sectors. In this context, Indonesia, as one of the world's most biodiverse nations and a major emitter due to deforestation and land-use change, has begun implementing a domestic carbon market through the establishment of the Indonesia Carbon Exchange (IDXCarbon) in 2023. Indonesia officially launched its carbon exchange (IDXCarbon), as part of its broader climate policy to reduce greenhouse gas (GHG) emissions and reach net-zero targets by 2060 or sooner. The exchange is expected to serve as a platform for voluntary and compliance-based carbon trading involving sectors such as energy, forestry, industry, agriculture and waste. However, nearly a year after its launch, market activities have remained minimal, with limited trading volumes and low participation from both the private and public sectors.

Despite this progress, several legal, institutional, and technical challenges hinder the effective implementation of Indonesia's carbon trading policy. These include regulatory fragmentation, limited private sector readiness, lack of robust monitoring, reporting, and verification (MRV) systems, and uncertainties regarding land tenure especially in forest areas where carbon projects are concentrated. The current regulatory framework remains scattered across ministerial decrees, sectoral laws, and pilot initiatives, raising concerns about coherence and enforceability (Butt, 2014; Safitri, 2010). Moreover, Indonesia's decentralized governance structure has led to overlapping authority between central and regional governments in issuing environmental permits, creating legal ambiguity for project developers.

From a market perspective, low liquidity, absence of pricing benchmarks, and insufficient participation from industrial emitters pose additional obstacles. Many companies remain unfamiliar with carbon credit mechanisms, and there is no mandatory emissions cap yet in place to compel high-emitting sectors to participate in the market. Unlike the EU Emissions Trading System (EU ETS)[6] or China's national carbon market, which are built on cap-and-trade models, Indonesia currently operates under a more fragmented approach, combining voluntary offsets, bilateral cooperation (Article 6 of the Paris Agreement), and limited sectoral mandates (Voigt & Ferreira, 2016; Newell & Bumpus, 2012).[7]

Furthermore, the legitimacy and transparency of carbon credits traded in IDXCarbon require further scrutiny. Without a centralized and harmonized MRV system, the risk of greenwashing or issuance of non-additional credits remains high. Past experiences with REDD+ projects in Indonesia have shown that the absence of rigorous safeguards and community consultation can lead to social conflicts, elite capture, and the marginalization of indigenous peoples (Dooley et al., 2012; Sikor et al., 2014). As such, ensuring that carbon trading policies not only promote environmental effectiveness but also uphold climate justice and social equity is a pressing concern.

Nevertheless, Indonesia also has significant opportunities to leverage its natural capital and policy innovations to develop a credible, high-integrity carbon market. With over 120 million hectares of forest and vast renewable energy potential, the country could become a major exporter of high-quality carbon credits. The government's collaboration with international standards such as Verra's Verified Carbon Standard (VCS) and the Gold Standard, along with Article 6 pilot partnerships with Switzerland and Japan, reflects growing international confidence in Indonesia's potential carbon market (WRI Indonesia, 2023). Moreover, the development of a national registry (SRN-PPI) and the integration of digital technologies for MRV signal a move toward more transparent and accountable carbon governance.

This article aims to analyze the effectiveness of Indonesia's carbon trading policy implementation by evaluating key legal instruments, institutional design, market operation, and stakeholder participation. It seeks to answer the following questions:

1. To what extent has the legal and policy framework for carbon trading in Indonesia aligned with international best practices?
2. What are the main institutional and technical challenges facing the carbon exchange platform?

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[5] OJK Regulation No 14 of 2023 concerning Carbon Trading through Carbon Exchange (POJK No 14/2023), art 1. OJK Regulation No 14 of 2023 concerning Carbon Trading through Carbon Exchange. Link: https://ojk.go.id/id/regulasi/otoritas-jasa-keuangan/peraturan-ojk/Pages/POJK-Nomor-14-POJK.04-2023.aspx

[6] European Union. (2003). Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC. *Official Journal of the European Union, L 275, 25/10/2003 P. 0032 - 0046..

[7] Voigt, C., & Ferreira, F. (2016). 'Dynamic Differentiation': The Principles of CBDR-RC, Progression and Highest Possible Ambition in the Paris Agreement. Transnational Environmental Law, 5(2), 285–303. https://doi.org/10.1017/S2047102516000212. Relevance to your sentence: This article helps explain the tension inherent in Article 6. While it creates a framework for international cooperation (carbon trading), it must do so within the Paris Agreement's principle of Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC). This means the rules and mandates for cooperation are not uniform and must account for different national circumstances, potentially leading to the "limited" or complex mandates you refer to. 2. Newell & Bumpus (2012)
This paper is a critical analysis of the global political economy of carbon markets, examining how they function in practice and who benefits. Reference: Newell, P., & Bumpus, A. (2012). The Global Political Ecology of the Clean Development Mechanism. Global Environmental Politics, 12(4), 49–67. https://doi.org/10.1162/GLEP_a_00141,. Although written about the Kyoto Protocol's Clean Development Mechanism (CDM), this article is highly relevant to Article 6. It provides a critical lens for understanding the challenges that Article 6.4 (the new sustainable development mechanism) aims to overcome. The authors discuss how sectoral approaches and market mechanisms can be shaped by existing power dynamics, often leading to uneven distribution of benefits and limited effectiveness—issues that directly inform critiques of "limited sectoral mandates."

3. What strategies and reforms are needed to improve the credibility, efficiency, and justice orientation of Indonesia's carbon market?

By addressing these questions, the study contributes to the broader discourse on climate policy effectiveness in developing countries, and the role of law and regulation in shaping equitable and sustainable carbon governance. It employs a qualitative doctrinal approach combined with policy analysis and case studies from carbon trading practices in Indonesia and comparative jurisdictions. The findings are expected to offer insights for policymakers, legal scholars, and market actors aiming to strengthen the architecture of carbon markets in Indonesia and the Global South.

This study employs a qualitative socio-legal research design with a focus on doctrinal legal analysis and policy evaluation. It seeks to critically examine the effectiveness of Indonesia's carbon trading policy by analyzing the regulatory frameworks, institutional structures, and operational mechanisms associated with the Indonesia Carbon Exchange (IDXCarbon). The research is exploratory in nature and aims to generate insights into both the legal underpinnings and practical implementation challenges of carbon market governance in Indonesia. The study draws from the normative approach of legal research, which examines laws as normative systems consisting of written regulations, policies, and legal principles. At the same time, the analysis integrates a policy-oriented approach to understand how these laws function in practice, especially within the context of environmental and climate governance (Yin, 2018; Creswell & Poth, 2018).

The analysis is conducted through a three-layered evaluative framework adapted from the World Bank (2023)[8] and OECD (2021)[9] criteria for carbon market assessment, with the following dimensions:

1. Legal and Regulatory Coherence
    a. Clarity of rules and mandates
    b. Consistency across sectors and legal institutions
    c. Legal enforcement and sanctions
2. Institutional and Operational Effectiveness
    a. Capacity and coordination of implementing agencies (e.g., OJK, KLHK, IDXCarbon)
    b. Functionality of MRV systems and registries (e.g., SRN-PPI)
    c. Private sector readiness and compliance mechanisms

This framework allows the study to critically assess how well Indonesia's carbon trading policies translate from law into practice, while also exploring the opportunities and risks for achieving environmental and economic objectives.The study utilizes secondary data as its main source of information. The data are collected from the following sources: Primary legal documents, including:

a. Presidential Regulation No. 98/2021 on Carbon Economic Value (NEK)
b. Regulation of the Financial Services Authority (OJK) No. 14/POJK.04/2023 on Carbon Exchange
c. Ministerial Decrees from the Ministry of Environment and Forestry (MoEF) related to MRV and carbon trading
d. Legal texts on emission trading and environmental law.

DISCUSSION

1. Carbon Trading is built by Market-Based Environmental Regulation

The implementation of carbon trading systems as part of global climate governance has generated an extensive body of academic literature across the fields of environmental law, economics, and policy studies. This chapter synthesizes relevant theoretical frameworks, international experiences, and previous studies related to the effectiveness of carbon market governance, with particular attention to legal, institutional, and policy dimensions. It also highlights key debates on climate justice, carbon market integrity, and the role of developing countries in the evolving global carbon regime.

Carbon trading is grounded in the theory of market-based environmental regulation, particularly the cap-and-trade system. This framework is built upon the idea that allocating a limited number of emission allowances and enabling trading among emitters can achieve emissions reduction targets more efficiently than command-and-control approaches (Stavins, 2008; Tietenberg, 2006)[10]. The efficiency of carbon markets hinges on three conditions: clear legal property rights over emissions allowances, effective regulatory oversight, and active market participation.

The literature has identified two main types of carbon markets:

1) *Compliance or regulatory markets*, regulated by law (e.g., EU ETS, California Cap-and-Trade), and
2) *Voluntary carbon markets* (VCMs), where participants purchase carbon offsets beyond legal requirements, often certified by non-state actors like Verra or Gold Standard (Newell & Paterson, 2010).

[8] World Bank. (2023). State and Trends of Carbon Pricing 2023. Washington, D.C. https://openknowledge.worldbank.org/handle/10986/39555.

[9] Organisation for Economic Co-operation and Development. (2023). OECD Economic Outlook, Volume 2023 Issue 2. OECD Publishing. https://doi.org/10.1787/7a5f73ce-en

[10] Stavins, R. N. (2008). A Meaningful U.S. Cap-and-Trade System to Address Climate Change. Harvard Environmental Law Review, 32(2), 293–371. Tietenberg, T. H. (2006). Emissions Trading: Principles and Practice (2nd ed.). Resources for the Future.

In both systems, the effectiveness of carbon trading depends not only on market liquidity and price signals but also on robust Monitoring, Reporting, and Verification (MRV) systems and enforcement mechanisms.

Legal scholars emphasize that carbon trading systems must be grounded in clear and enforceable legal frameworks to ensure market integrity and environmental effectiveness. Voigt and Ferreira (2016)[11] argue that carbon trading operates at the intersection of public international law, national environmental law, and private contractual arrangements. As such, weak or fragmented legal structures can lead to regulatory loopholes, market manipulation, and undermining of environmental goals.

Institutional design is equally critical. Effective carbon markets require regulatory agencies with clear mandates, operational independence, and sufficient resources. In many developing countries, institutional challenges such as overlapping jurisdictions, capacity limitations, and corruption risks—have limited the performance of carbon pricing mechanisms (Carbon Market Watch, 2021).[12] In the Indonesian context, Safitri (2010)[13] and Butt (2014)[14] point to the ongoing tensions between statutory law and customary (adat) rights in forest governance, which complicates land-based carbon project development.

2. Lessons from International Experiences

International experience with carbon trading offers valuable insights for assessing Indonesia's policy framework. The European Union Emissions Trading System (EU ETS) remains the most developed carbon market, covering over 11,000 installations across 30 countries. Studies have shown that the EU ETS has achieved moderate emissions reductions but faced challenges related to overallocation, price volatility, and lack of early ambition (Ellerman et al., 2010; Bayer & Aklin, 2020). In contrast, China's national ETS, launched in 2021, has taken a phased approach, starting with the power sector before expanding to other high-emitting industries. Its design emphasizes centralized MRV and compliance enforcement, yet analysts warn of transparency gaps and political interference in emission data reporting (Qi et al., 2022).

Voluntary carbon markets have also expanded rapidly, especially in forest-rich developing countries. However, numerous critiques have emerged regarding non-additionality, double-counting, and social justice issues (Dooley et al., 2012; Cames et al., 2016). For example, REDD+ projects in Southeast Asia have faced criticism for failing to meaningfully include indigenous communities and for conflicts over land rights.

3. Effectiveness Criteria in Carbon Market Governance

Drawing from the above literature, several criteria can be used to assess the effectiveness of a carbon trading system:

1. *Legal Coherence and Clarity*: Are the rules governing carbon trading legally binding, unambiguous, and aligned across sectors and jurisdictions?
2. *Institutional Capacity*: Are the regulatory agencies equipped to enforce carbon trading rules, oversee MRV, and handle disputes?
3. *Market Transparency and Integrity*: Are emissions data and credit issuance subject to independent verification? Are carbon credits credible and traceable?
4. *Environmental and Social Outcomes*: Does the market result in actual, additional emissions reductions? Are affected communities consulted and protected?

[11] Voigt, C., & Ferreira, F. (2016). The Warsaw REDD+ Framework: Promoting Transparency, Participation and Accountability? Carbon & Climate Law Review, 10(1), 65–77.

[12] Carbon Market Watch. (2021). A New Hope – Recommendations for the Article 6 Rulebook. or a similar policy briefing. Relevance: Carbon Market Watch is known for its critical stance on carbon markets, highlighting risks like: Greenwashing: Companies or countries using low-quality carbon credits to avoid making real, deep emissions cuts at source. Lack of Additionality: Funding projects that would have happened anyway, meaning no real emission reduction is achieved. Social and Environmental Harms: The negative impacts of carbon offset projects (e.g., renewable energy dams, forestry projects) on local communities and Indigenous Peoples' rights. Weak Rules: Advocating for strong regulations in carbon market mechanisms like Article 6 of the Paris Agreement to ensure environmental integrity. How to use it in the Indonesian context: You would use Carbon Market Watch's framework to critically evaluate Indonesia's carbon market initiatives (like the IDX Carbon Exchange or potential Article 6 projects). It provides the international normative standards against which you can assess Indonesian policies. For example: "While Indonesia is developing its domestic carbon exchange, concerns raised by watchdogs like Carbon Market Watch (2021) regarding transparency and community participation remain highly relevant..."

[13] Safitri, M. A. (2010). Hukum Hutan: Era Desentralisasi & Keadilan Lokal [Forestry Law: The Decentralization Era and Local Justice]. Bogor: Sajogyo Institute. Relevance: Safitri's work is foundational for understanding the historical and legal context of land conflict and forest governance in Indonesia. Her research covers: The historical marginalization of adat communities and their land rights.; The complex and often contradictory legal frameworks governing forests (state control vs. customary rights); The challenges of implementing decentralization and recognizing community-based forest management. Safitri (2010) to establish the pre-existing conditions on the ground. Before carbon markets can even function, the fundamental question of "who owns the carbon?" must be answered. Is it the state, the private concession holder, or the local community whose livelihood depends on the forest? Safitri's work shows that land tenure is often insecure and contested, which is a major risk for carbon projects that require clear ownership.

[14] Butt, S. (2014). Traditional Land Rights Before the Constitutional Court. Law, Environment and Development Journal, 10(1), 1-16. OR his book The Constitutional Court and Democracy in Indonesia. Relevance: Butt analyzes how law actually functions in Indonesia's political system. His work is crucial for understanding the gap between law-on-the-books and law-in-practice. Key themes include: The role of the Constitutional Court (e.g., in recognizing adat rights in decisions like the hutan adat case). Legal uncertainty and weak enforcement; Corruption and the influence of powerful political and business interests. We refer Butt (2014) to explain the implementation challenges. Even if Indonesia has good laws and regulations for its carbon market (on paper), Butt's research would lead you to question how effectively they will be enforced. Will the rules be applied consistently, or will powerful actors manipulate them? Will the courts protect the rights of communities if they are harmed by a carbon project?

5. *Economic Efficiency and Participation*: Is the market attracting broad participation, competitive pricing, and investment in low-carbon technologies?

These benchmarks have been used by scholars and institutions such as the World Bank, OECD, and UNFCCC[15] to evaluate national carbon pricing efforts (World Bank, 2023; OECD, 2021).

While much has been written about carbon markets globally, there remains a knowledge gap concerning the early-stage implementation of carbon trading in Southeast Asia, particularly in Indonesia. Most studies on Indonesian carbon governance have focused on REDD+ pilot projects, forest governance, and climate finance, with limited attention to domestic carbon market regulation, especially following the establishment of IDXCarbon in 2023.

4. Scope and Limitations

The research focuses on the period from 2021 to 2024, corresponding to the formal legal initiation of carbon pricing regulations in Indonesia and the launch of IDXCarbon. The geographical focus is national, but some comparative insights are drawn from international carbon trading systems such as the EU ETS, China ETS, and REDD+ initiatives in Southeast Asia. Key limitations of this study include:

1. Lack of long-term empirical data from IDXCarbon, as it is still in early development stage
2. Limited transparency in some government reporting and corporate disclosures
3. Absence of interviews or fieldwork, due to the reliance on secondary data and legal documents

However, these limitations are mitigated by triangulating across multiple credible sources and focusing on structural and institutional analysis rather than direct market performance metrics.

5. Ethical Considerations

As the research relies exclusively on publicly available and official documents, academic publications, and institutional reports, no primary human subject research was conducted. Ethical standards were maintained in the proper citation of sources, objective presentation of facts, and avoidance of plagiarism.

6. Policy and Regulatory Background

Indonesia's carbon market framework is grounded in:

1. Law No. 32/2009 on Environmental Protection and Management (with subsequent regulations on carbon pricing and emission limits),
2. Presidential Regulation No. 98/2021 on Carbon Pricing,
3. OJK and IDX regulations for financial instrument supervision and transaction mechanisms,
4. Integration with carbon offset standards (e.g., Verra, Gold Standard) for verification and integrity.

However, the overlapping authorities (Ministry of Environment and Forestry, Ministry of Energy and Mineral Resources, OJK, and others) have led to fragmented implementation. The lack of a centralized regulatory authority specifically dedicated to carbon market oversight has made it difficult to create a coherent, enforceable roadmap.

7. Regulatory Fragmentation and Uncertainty

Before examining the regulatory fragmentation and legal uncertainty surrounding carbon market governance, it is essential to understand how the absence of harmonized legal standards has led to systemic vulnerabilities across both national and international frameworks. As carbon trading mechanisms continue to evolve, particularly in the Global South, including Indonesia, the lack of consistent, enforceable, and ethically grounded regulations has contributed to market confusion, loopholes for exploitation, and divergent interpretations by state and non-state actors. This section explores how such legal and institutional fragmentation undermines trust, distorts carbon pricing, and creates barriers to achieving climate justice and transparent environmental governance. The main issues include:

a. Multiple ministries issue overlapping regulations without unified enforcement.
b. No clear incentives or penalties under the compliance scheme; ambiguity deters participation.
c. Lack of integration between national and international carbon standards.

8. Market Immaturity and Limited Participation

a. Most carbon credit offerings remain within a small circle of state-owned enterprises or government pilot projects.
b. Private sector lacks clarity on how participation benefits them financially or legally.
c. Limited buyer-seller dynamics and liquidity; the market lacks depth.

9. MRV and Certification Constraints

a. Verification standards (MRV: Measurement, Reporting, and Verification) remain underdeveloped.

[15] United Nations Framework Convention on Climate Change (UNFCCC). (2015). Adoption of the Paris Agreement, 21st Conference of the Parties, Paris: UNFCCC. FCCC/CP/2015/L.9/Rev.1

b. Indonesia's domestic verification system is not yet internationally recognized, limiting cross-border trade.
c. Limited role and transparency of certification institutions like Verra or Gold Standard in the national ecosystem.

10. Absence of Carbon Pricing Signals

a. Without a functioning cap-and-trade or carbon tax mechanism with robust enforcement, there is no strong price signal.
b. No visible carbon price floor or market-based incentive.

11. Opportunities and Strategic Levers

11.1 Potential Integration with International Markets

a. Linkage with Article 6 of the Paris Agreement could allow Indonesia to sell excess credits.
b. Aligning domestic MRV systems with international standards (e.g., Verra, Gold Standard) will enable more credible offsetting.

11.2 Leveraging Forestry and Nature-Based Solutions

a. Indonesia holds one of the world's largest carbon sinks through its forests and peatlands.
b. REDD+ projects, if regulated transparently, can supply high-quality offsets to global buyers.

12. Strengthening Institutional Governance

a. Establishing a dedicated Carbon Regulatory Authority to consolidate market supervision.
b. Enhancing the role of third-party verifiers and ensuring their credibility.

13. Driving Corporate Participation

a. Mandating large emitters (energy, mining, cement) to either offset or reduce emissions.
b. Providing fiscal incentives or tax deductions for carbon neutrality efforts.

14. Why is the Market Stagnant?

Despite Indonesia's policy ambition, the stagnation of IDXCarbon can be traced to:

a. Policy ambiguity: Investors are reluctant to engage in a market with unclear legal consequences and unstable pricing mechanisms.
b. Technical bottlenecks: The absence of strong MRV frameworks hinders trust.
c. Low demand: Without enforceable compliance obligations or carbon caps, the incentive to buy carbon credits remains low.
d. International disconnect: Local credits are not yet integrated with global standards, limiting export or high-value trade.

CLOSING

The implementation of carbon trading in Indonesia through the launch of IDXCarbon marks a pivotal step in the country's environmental and climate governance. As one of the first nations in Southeast Asia to operationalize a carbon exchange, Indonesia demonstrates its commitment to a low-carbon economy and its Nationally Determined Contribution (NDC) targets under the Paris Agreement. The analysis throughout this article has revealed both promising advancements and persistent legal-institutional challenges.

1. Conclusion

First, the current legal framework for carbon trading in Indonesia—primarily derived from Law No. 32/2009 on Environmental Protection and Management, Presidential Regulation No. 98/2021, and other derivative policies—shows foundational alignment with global climate objectives. However, it remains fragmented and lacks a dedicated **Carbon Law** that could consolidate principles, enforcement mechanisms, and sanctions for non-compliance. The absence of explicit legal definitions and standard procedures for MRV (Measurement, Reporting, Verification) contributes to regulatory uncertainty and potential market manipulation.

Second, institutional gaps persist due to overlapping mandates between ministries (notably the Ministry of Environment and Forestry and the Financial Services Authority), limited coordination between central and regional governments, and the lack of a unified carbon registry that ensures transparency and traceability of emissions credits and offsets.

Third, the initial performance of IDXCarbon (as of its launch in September 2023) reflects modest progress. Only a few state-owned enterprises (SOEs) and private actors have participated, mostly for voluntary carbon units. Market liquidity remains low, and prices have yet to reflect the social cost of carbon. Nonetheless, this platform offers the infrastructure needed to stimulate green finance, provided that reforms are enacted.

In short, Indonesia's carbon market has significant potential, but realizing it requires:

1. Regulatory coherence across ministries and institutions,
2. Strengthening MRV and certification processes in line with global standards,
3. Creating enforceable compliance pathways, especially for high-emission industries,
4. Promoting public-private partnerships and incentivizing innovation in carbon project development.

The success of Indonesia's carbon market is not only a domestic policy imperative but also a crucial step toward positioning the country as a leader in global climate governance.

2. Suggestion

To improve the effectiveness of Indonesia's carbon trading regime and ensure its long-term credibility, the following recommendations are proposed:

a. For the National Government

1. Draft and Enact a Standalone Carbon Law: Integrate all carbon market elements, including compliance mechanisms, MRV standards, registry systems, and legal accountability.
2. Establish a Centralized Carbon Regulatory Authority: This agency should oversee the carbon market, mediate between ministries, and ensure investor protection and environmental integrity.
3. Strengthen MRV and Sanction Mechanisms: Adopt globally recognized MRV systems (e.g., ISO 14064, IPCC Guidelines) and introduce legal sanctions for misreporting or fraud in carbon transactions.
4. Ensure Market Integrity: Prevent greenwashing and speculative trading through strong compliance monitoring, due diligence standards, and clear offset criteria.

b. For IDXCarbon and Financial Regulators

1. Increase Market Liquidity and Accessibility: Expand participation from SMEs, local governments, and regional enterprises; offer incentives and technical assistance for compliance.
2. Establish a Price Floor: Consider setting a minimum price for carbon to reflect the true cost of emissions and prevent undervaluation.
3. Integrate ESG Reporting Requirements: Link participation in IDXCarbon with ESG disclosure obligations for publicly listed companies.

c. For Civil Society and Academia

1. Enhance Transparency and Public Participation: Promote civic engagement and watchdog roles in monitoring environmental projects and carbon credit issuance.
2. Develop Research and Capacity Building: Universities should support the legal-economic analysis of carbon markets, behavioral incentives, and policy experimentation.

d. For International Partners and Certifiers

1. Harmonize Standards: Align domestic carbon credit systems with global standards such as Verra and Gold Standard to enhance exportability.
2. Support Technical Cooperation: Encourage joint programs for capacity building, technology transfer, and pilot projects with multilateral agencies.

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