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Indonesian Carbon Market Governance Under Presidential Regulation No. 98/2021: Effectiveness, Legal Gaps, And Indigenous Right

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ABSTRACT: This article examines the governance of Indonesia's carbon market under Presidential Regulation No. 98/2021 concerning the Implementation of Carbon Economic Value, focusing on three interconnected dimensions: legal effectiveness in achieving emission reduction objectives, structural gaps in the regulatory framework, and the protection of Indigenous rights within carbon trading mechanisms. Using normative legal research methodology with statutory and case study approaches, this analysis reveals that while Presidential Regulation No. 98/2021 has successfully established foundational infrastructure for carbon trading including the creation of IDX Carbon and sectoral implementing regulations, significant deficiencies persist in ensuring inclusive and equitable participation. The most critical legal gaps concern the non-recognition of Indigenous communities as rights-holders entitled to benefit from carbon stored in their traditional territories, the absence of mandatory Free, Prior, and Informed Consent (FPIC) mechanisms, and undefined benefit-sharing provisions that create vulnerabilities to exclusion and exploitation. These governance gaps raise profound climate justice concerns, as communities least responsible for historical emissions including Indigenous peoples, small farmers, and traditional forest guardians face potential marginalization from carbon market benefits while bearing disproportionate climate impacts. The article concludes that realizing Indonesia's potential as a leader in equitable carbon markets requires systematic reforms: accelerated legal recognition of Indigenous territories, explicit rights acknowledgment in carbon regulations, mandatory consent requirements, equitable benefit-sharing standards, and sustained capacity-building for community participation. Without such reforms, carbon trading risks replicating historical patterns of extractive governance rather than delivering on its promise of just and sustainable climate mitigation.

KEYWORDS: Economic Value of Carbon**,** Carbon Market, Legal Effectiveness, Indigenous Rights, Climate Justice, Prepres No.98/2021.

I. INTRODUCTION

Climate change has emerged as the most pressing global challenge of the twenty-first century, demanding concrete and measurable mitigation efforts from both developed and developing nations. As the urgency to reduce greenhouse gas emissions intensifies, market-based mechanisms have gained prominence as instrumental policy tools. Among these, carbon trading represents an innovative approach that assigns economic value to carbon emissions, creating financial incentives for emission reduction activities.

Indonesia, as one of the world's largest emitters of greenhouse gases and home to the third-largest tropical forest area, occupies a critical position in global climate governance. The country's forests span approximately 101 million hectares, storing vast amounts of carbon and providing livelihoods for millions of people, including Indigenous communities who have managed these ecosystems for generations. In response to international commitments under the Paris Agreement, Indonesia has developed a comprehensive regulatory framework centered on Presidential Regulation No. 98 of 2021 concerning the Implementation of Carbon Economic Value to Achieve Nationally Determined Contribution Targets and Control Greenhouse Gas Emissions in National Development.

The establishment of the Indonesian Carbon Exchange (IDX Carbon) in September 2023 marked a significant milestone, positioning Indonesia as an emerging player in the global carbon market. However, the rapid development of carbon trading infrastructure raises fundamental questions about who benefits from this new economic regime and whether the legal framework

adequately protects the rights of vulnerable groups, particularly Indigenous peoples who serve as traditional guardians of forest ecosystems.

However, the legal and institutional framework raises questions about its effectiveness in practices. On the other hand, establishment of IDX Carbon in 2023 represent a milestone in climate policy and finance. On the other hand, critical legal gaps remain, particularly in relation to indigenous peoples and local communities, who are constitutionally recognized as rights-holders but largely absent from the operational framework of Presidential Regulation No. 98/2021.

This article examines the governance of Indonesia's carbon market under Presidential Regulation No. 98/2021 through three interconnected analytical lenses: legal effectiveness in achieving emission reduction objectives, structural gaps in the regulatory framework, and the protection of Indigenous rights within carbon trading mechanisms. The central thesis argues that while Presidential Regulation No. 98/2021 establishes a foundational architecture for carbon trading, significant legal gaps persist regarding Indigenous participation and benefit-sharing, potentially undermining both climate justice and the long-term sustainability of carbon mitigation efforts.

This paper therefore investigates:

1. How effective is Presidential Regulation No. 98/2021 in achieving carbon governance objective?
2. What are the legal and philosophical shortcomings, particularly concerning indigenous rights?
3. How do carbon market trends in IDX Carbon reflect the regulation's actual performance?

II. THEORETICAL FRAMEWORK

2.1 Environmental Constitutionalism

The Indonesian Constitution recognizes the right to a good and healthy environmental (Article 28H) and the principles that natural resources must be controlled by the state and utilized for the people's prosperity (Article 33 (3)). This create a constitutional duty for the state to balance economic mechanism with social justice.

2.2 Legal Effectiveness Theory

Legal effectiveness theory examines the extent to which legal norms achieve their intended objectives in practice. According to this framework, effective legislation requires not merely formal enactment but also adequate implementing regulations, institutional capacity for enforcement, and behavioural compliance from regulated subjects. In the context of environmental governance, effectiveness encompasses both procedural dimensions (stakeholder participation, transparency) and substantive outcomes (emission reductions, benefit distribution). This study employs legal effectiveness theory to assess whether Presidential Regulation No. 98/2021 has created functional mechanisms for carbon trading that deliver promised environmental and economic benefits.

2.3 Climate Justice Framework

Climate justice extends traditional environmental justice concerns by addressing the disproportionate impacts of climate change on marginalized communities and the equitable distribution of benefits from climate mitigation activities. The framework recognizes that communities least responsible for historical emissions—including Indigenous peoples, small farmers, and traditional fishers—often bear the heaviest burdens from both climate impacts and climate policies . Key principles include procedural justice (meaningful participation in decision-making), distributive justice (fair allocation of benefits and burdens), and recognition justice (respect for diverse cultural values and knowledge systems). This framework guides the analysis of Indigenous inclusion in Indonesia's carbon market governance.

2.4 Indigenous Rights and Land Tenure Theory

Indigenous rights theory emphasizes the collective rights of Indigenous peoples to self-determination, cultural integrity, and traditional territories. Within the Indonesian context, this framework must contend with the constitutional classification of forest areas as state-controlled, which has historically marginalized Indigenous claims to ancestral lands . The 2012 Constitutional Court (Keputusan MA No. 35/PUU-X/2012) ruling recognizing Indigenous forests as distinct from state forests represented a significant jurisprudential development, yet implementation remains constrained by the absence of comprehensive implementing legislation. Land tenure security emerges as a prerequisite for meaningful Indigenous participation in carbon markets, as unclear rights create vulnerabilities to displacement and benefit expropriation.

2.5 Carbon Market Governance Theory

Carbon market governance theory addresses the institutional arrangements necessary for functioning emission trading systems. Key elements include robust measurement, reporting, and verification (MRV) mechanisms, transparent registry systems, avoidance of double counting, and safeguards against greenwashing. The theory distinguishes between compliance markets (mandatory cap-and-trade systems) and voluntary markets (offset-based transactions), each with distinct governance challenges. Indonesia's hybrid approach, incorporating both compliance elements for certain sectors and voluntary mechanisms for forestry-based offsets, requires careful institutional design to ensure environmental integrity.

III. RESEARCH METHOD

3.1 Research Approach

This study employs normative legal research methodology, which focuses on the analysis of legal norms, principles, and doctrines as embodied in positive law. Normative legal research examines law as a system of rules and seeks to identify inconsistencies, gaps, and interpretative challenges within the regulatory framework. The approach is appropriate for evaluating the structural adequacy of Presidential Regulation No. 98/2021 and its implementing regulations in governing carbon trading while protecting Indigenous rights.

3.2 Types and Sources of Legal Materials

The research utilizes both primary and secondary legal materials:

a. Primary Legal Materials: Presidential Regulation No. 98 of 2021 concerning Implementation of Carbon Economic Value: Law No. 16 of 2016 regarding Ratification of the Paris Agreement: Constitutional Court Decision No. 35/PUU-X/2012 concerning Indigenous Forests: Financial Services Authority Regulation No. 14 of 2023 concerning Carbon Trading through Carbon Exchange; Minister of Environment and Forestry regulations implementing carbon trading mechanisms.

b. Secondary Legal Materials: Academic literature on carbon trading and climate governance; Peer-reviewed journal articles examining Indonesian environmental law; Reports from civil society organizations including Indonesian Center for Environmental Law (ICEL), WALHI, and AMAN; Policy analyses from international institutions; Media coverage and expert commentaries

3.3 Legal Analysis Methods

The research employs three complementary analytical approaches:

Statutory Approach: Systematic examination of relevant legislation to understand the normative content, structural relationships between different regulations, and the hierarchy of legal norms governing carbon trading. Case Study Approach: Analysis of specific instances where carbon trading policies intersect with Indigenous territories, including examination of pilot projects and documented conflicts. This includes review of the Bukit Panjang Rantau Bayur (Bujangraba) community forest management initiative in Jambi Province as an example of Indigenous-led forest governance with carbon implications. Comparative Approach: Brief consideration of how other jurisdictions (particularly Global South countries with significant forest cover) have addressed similar challenges in carbon market governance and Indigenous rights protection, drawing lessons for Indonesia.

3.4 Analytical Framework

Legal materials are analyzed through the theoretical lenses described in Section II, with particular attention to: The completeness and coherence of implementing regulations: Mechanisms for Indigenous participation and consent: Benefit-sharing provisions and their enforceability: Consistency with constitutional and international human rights standards; Gaps between regulatory design and implementation capacity

IV. RESULT AND DISCUSSION

4.1 The Architecture of Carbon Governance Under Perpres No. 98/2021

Presidential Regulation No. 98 of 2021 establishes the foundational framework for Indonesia's carbon economic value system. The regulation defines carbon economic value as the value assigned to each unit of greenhouse gas emissions generated from human activities and economic activities. This conceptualization transforms carbon from an environmental externality into a tradable commodity, creating financial incentives for emission reduction activities.

The regulatory architecture encompasses several key mechanisms. First, the regulation establishes methodological standards for carbon calculation and certification, requiring verifiable emission reductions based on approved methodologies. Second, it creates institutional arrangements for carbon trading, including the designation of authorities responsible for different sectors. Third, it provides for the establishment of registry systems to track carbon units and prevent double counting.

Implementation has progressed through subsequent regulations. Financial Services Authority Regulation No. 14 of 2023 operationalized carbon trading through the Indonesia Stock Exchange, creating IDXCarbon as the official trading platform. The exchange was officially launched in September 2023, enabling domestic carbon credit transactions initially focused on the energy sector. Ministry of Environment and Forestry regulations have further elaborated requirements for forestry sector carbon trading, limiting participation to entities with documented land ownership rights or those engaged in social forestry schemes.

The forestry sector occupies a central position in Indonesia's carbon strategy, reflecting the sector's designation as responsible for 55% of Indonesia's emission reduction burden under the Nationally Determined Contribution . Forestry-based carbon trading encompasses both avoided deforestation (reducing emissions from forest degradation) and reforestation/ afforestation activities that enhance carbon sequestration.

4.2 Legal Effectiveness Assessment

Since the launch of IDXCarbon in September 2023, the market has recorded growing but still limited transaction, dominated by state-owned enterprises and large private corporations. By mid-2025, trading volume remain relatively modest compared to regional counterparts (e.g., Singapore's carbon services market). Key challenges are: 1) limited participation of local communities and indigenous groups; 2) Market centralization in Jakarta, excluding rural stakeholders; 3) Unclear pricing benchmarks and voluntary or mandatory scheme overlaps.

Evaluating the legal effectiveness of Perpres No. 98/2021 requires examination of both institutional development and practical implementation outcomes. On institutional dimensions, the regulation has successfully established basic infrastructure for carbon trading. The creation of IDXCarbon provides a centralized trading platform, while the development of registry systems enables basic tracking of carbon units. Sectoral implementing regulations have been issued, providing operational guidance for specific industries.

However, significant effectiveness gaps emerge upon closer examination. The regulatory framework remains heavily oriented toward corporate participation, with limited accessibility for community-based initiatives. The technical complexity of carbon measurement, verification requirements, and certification processes creates substantial barriers for Indigenous communities and smallholder forest managers who lack technical capacity and financial resources.

Monitoring and enforcement mechanisms remain underdeveloped. While the regulatory framework contemplates oversight by multiple authorities (Financial Services Authority, Ministry of Environment and Forestry, Ministry of Energy and Mineral Resources), coordination mechanisms remain ambiguous. The absence of independent auditing requirements for benefit distribution to local communities raises concerns about whether financial flows reach intended beneficiaries.

Perhaps most significantly, the effectiveness of carbon trading in achieving actual emission reductions remains unproven. The risk of "greenwashing"—where carbon credits are sold without corresponding atmospheric benefits—is heightened when verification systems are weak. Some projects reportedly conduct only a single survey over five years, despite rapid potential changes in forest conditions due to illegal logging or wildfires. If credits sold do not reflect actual carbon absorption, the mechanism fails both environmental and social objectives.

4.3 Legal Gaps in Indigenous Rights Protection

The most significant legal gaps in Presidential Regulation (Perpres) No. 98/2021 concern the recognition and protection of Indigenous rights. Despite Indonesia's constitutional recognition of Indigenous peoples and the 2012 Constitutional Court ruling that Indigenous forests should be classified separately from state forests, implementing legislation remains absent. This legal vacuum creates fundamental uncertainties for Indigenous participation in carbon markets.

Non-Recognition of Indigenous Carbon Rights. The regulatory framework does not explicitly recognize Indigenous communities as rights-holders entitled to benefit from carbon stored in their traditional territories. While social forestry schemes provide some access pathways, these programs continue to classify Indigenous forests as state forests, contradicting

the Constitutional Court's ruling. This classification means that even when Indigenous communities manage forests sustainably, the carbon rights may be claimed by the state or allocated to corporate concession holders.

Exclusion from Participation. Research examining stakeholder inclusivity in carbon trading regulations reveals that community participation, particularly from vulnerable groups such as Indigenous peoples, remains suboptimal . The regulatory framework lacks mandatory consultation requirements that would ensure Indigenous communities have meaningful input into carbon projects affecting their territories. Free, Prior, and Informed Consent (FPIC)—a fundamental principle of Indigenous rights under international law—is not explicitly incorporated into carbon trading procedures.

Benefit-Sharing Ambiguity. Where Indigenous participation is contemplated, benefit-sharing mechanisms remain undefined. The regulatory framework does not establish minimum requirements for revenue distribution to local communities. This ambiguity creates situations where Indigenous peoples may serve as contract labor in conservation projects without ownership rights over carbon certificates or access to long-term income streams. Intermediaries—including NGOs and consultants—may capture disproportionate shares of project revenues, leaving minimal benefits for forest-dependent communities.

Discrepancy in Rights Recognition. A troubling pattern emerges in the differential treatment of corporate and community rights. While business licenses for forestry sector carbon trading are processed relatively quickly, official recognition of Indigenous territories and customary forests proceeds at a glacial pace. During the decade of the Joko Widodo administration, only 1.1% of customary forests—approximately 265,250 hectares—received formal recognition, despite independent registration of 30.2 million hectares of Indigenous territories. This discrepancy systematically advantages corporate actors over Indigenous communities in accessing carbon market opportunities.

4.4 Climate Justice Implications

The governance gaps identified above have profound climate justice implications. Indigenous communities, who have historically served as effective forest guardians, face paradoxical exclusion from benefit flows generated by the ecosystem services they provide. Research indicates that while Indigenous peoples comprise only 6.2% of the global population, they protect 80% of the world's remaining biodiversity and maintain one-third of remaining natural forests. Yet under current Indonesian carbon governance, these contributions may go unrecognized and unrewarded.

The concept of "green grabbing" emerges as a central concern. Green grabbing refers to the displacement of Indigenous peoples from their territories for conservation purposes, or the appropriation of benefits from ecosystem services without corresponding recognition of community rights. Carbon trading mechanisms, if implemented without adequate safeguards, risk replicating historical patterns of resource extraction where Indigenous peoples receive minimal benefits or are excluded entirely.

The distributional consequences of carbon trading extend beyond Indigenous communities to encompass other vulnerable groups. Small farmers, traditional fishers, and women face differential vulnerabilities in climate governance structures. Research documents that women in communities affected by drought must travel kilometers to obtain water, while changing agricultural patterns disrupt traditional food systems. These groups are least responsible for greenhouse gas emissions yet bear disproportionate burdens from both climate impacts and climate policies.

International comparisons reveal that Indonesia is not alone in facing these challenges. Research examining carbon market laws in Colombia, Malaysia, and Liberia identifies similar patterns: extractive industries positioned to benefit from carbon markets while community rights receive merely rhetorical recognition. In Colombia, mining corporations have substantially reduced carbon tax payments by purchasing credits, depriving the state of revenue while community rights violations persist in forest carbon projects. These cross-national patterns suggest systemic challenges in carbon market governance that require fundamental reforms.

4.5 Philosophical Implications

From a Pancasila-based legal philosophy, carbon governance should balance economic rationality (efficiency) with social justice (equality, distributive fairness). However, current regulation reflect a market-first paradigm, where economic instruments overshadow human rights protections

4.6 The Path Toward Inclusive Governance

Despite the significant gaps identified, emerging developments offer potential pathways toward more inclusive carbon governance. The Ministry of Forestry has announced preparations to enable social forestry holders, including Indigenous

communities with customary forest designations, to participate in carbon trading. Minister of Forestry Raja Juli Antoni has indicated that revisions to Presidential Regulation No. 98 are being finalized to enable independent participation in voluntary carbon markets, ensuring that not only large corporations benefit from carbon trading but also forest farmer groups and Indigenous communities.

These developments reflect growing recognition that Indigenous participation is not merely a matter of justice but also of effectiveness. Indigenous communities possess traditional knowledge and management systems that have proven effective in forest conservation. Their meaningful inclusion could enhance both the environmental integrity and social sustainability of carbon trading.

Successful examples of community-based forest management demonstrate the potential. The Bukit Panjang Rantau Bayur (Bujangraba) landscape in Jambi Province provides an instructive case. Five villages successfully obtained village forest management permits covering 7,291 hectares, which communities utilize according to local values, strengthening customary land rights and expanding protected zones . Community forest management includes enrichment planting, production enhancement, water source protection, and prevention of illegal logging—activities that maintain forest carbon stocks while supporting local livelihoods.

Translating such localized successes into systematic governance reform requires addressing the structural gaps identified above. First, legal recognition of Indigenous territories must be accelerated, with clear procedures for verifying and registering customary forests. Second, carbon trading regulations must explicitly recognize Indigenous communities as rights-holders entitled to benefit from carbon stored in their traditional territories. Third, mandatory Free, Prior, and Informed Consent requirements should be incorporated into project approval processes. Fourth, minimum benefit-sharing standards should ensure that communities receive equitable returns from carbon transactions. Finally, capacity-building programs should enable Indigenous communities to participate effectively in carbon measurement, verification, and negotiation processes .

V. CONCLUSION AND RECOMMENDATION

This article has examined the governance of Indonesia's carbon market under Presidential Regulation (Perpres) No. 98/2021 through the lenses of legal effectiveness, regulatory gaps, and Indigenous rights protection. The analysis reveals a regulatory framework at a critical juncture—possessing foundational architecture for carbon trading yet exhibiting significant deficiencies in ensuring inclusive and equitable participation. Presidential Regulation No. 98/2021 has provided a much-need regulatory framework for Indonesia’s carbon governance and aligned the country with global climate commitments. Yet, in practice, it remains market-centric, normatively fragmented, and legally insufficient in protecting indigenous economic rights.

Presidential Regulation No. 98/2021 has successfully established basic institutional infrastructure for carbon trading, including the creation of IDXCarbon and the development of sectoral implementing regulations. These achievements represent important steps toward operationalizing Indonesia's climate commitments under the Paris Agreement and positioning the country within emerging global carbon markets. However, the framework's effectiveness in achieving actual emission reductions remains unproven, with verification weaknesses creating risks of greenwashing and environmental integrity failures.

The most significant legal gaps concern the recognition and protection of Indigenous rights. The regulatory framework does not explicitly acknowledge Indigenous communities as rights-holders entitled to benefit from carbon stored in their traditional territories. Procedural mechanisms for meaningful participation, including Free, Prior, and Informed Consent, are absent. Benefit-sharing provisions remain undefined, creating situations where communities may be excluded from financial flows generated by their forest stewardship. The discrepancy between rapid corporate licensing and glacial Indigenous territory recognition systematically disadvantages traditional forest guardians.

These governance gaps have profound climate justice implications. Communities least responsible for historical emissions—including Indigenous peoples, small farmers, and traditional fishers—face potential exclusion from carbon market benefits while bearing disproportionate climate impacts. The risk of "green grabbing" looms large, with carbon trading potentially replicating historical patterns of resource extraction that marginalize Indigenous communities.

Emerging policy developments offer hope for more inclusive governance. Ministry of Forestry commitments to enable Indigenous participation in voluntary carbon markets signal growing recognition that effectiveness and justice are intertwined. The Indigenous Peoples Bill, pending in parliament since 2009 and prioritized for 2025, could provide long-overdue legal recognition of Indigenous land tenure while offering investor certainty for carbon projects . Realizing this potential requires

systematic reform: accelerated territory recognition, explicit rights acknowledgment, mandatory consent requirements, equitable benefit-sharing standards, and sustained capacity-building.

Indonesia stands at a crossroads in carbon market governance. The choices made in implementing and revising Presidential Regulation No. 98 will determine whether carbon trading becomes a mechanism for genuine climate mitigation that benefits all stakeholders, or another iteration of extractive governance that excludes those most essential to forest protection. The path toward effective, just, and sustainable carbon governance requires not merely regulatory refinement but fundamental commitment to the principles of climate justice and Indigenous rights.

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