



The Potential for Greenwashing in Greenhouse Gas (GHG) Emission Offset Schemes in Indonesia's Forestry Sector

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ABSTRACT

The implementation of GHG emission offset schemes in the forestry sector carries inherent uncertainties due to its highly dynamic nature. These uncertainties may lead to greenwashing, driven by misinformation in data and the complex characteristics of the forestry sector. This study aims to provide insights into carbon trading and to serve as a reference for policymakers in responding to the potential risks of greenwashing in carbon trading through GHG emission offset schemes. This research identifies two primary issues contributing to the potential for greenwashing in carbon trading through GHG emission offset schemes in the forestry sector: manipulated claims and double counting. This research adopts a normative juridical approach, focusing on the analysis of laws and regulations, particularly those governing carbon trading in the forestry sector through GHG emission offset schemes. The mechanism for carbon trading through GHG emission offset schemes in Indonesia's forestry sector is regulated under Minister of Environment and Forestry Regulation Number 7 of 2023 regarding the Procedures for Carbon Trading in the Forestry Sector. The key issues giving rise to greenwashing potential in this context are manipulated claims during the planning and preparation of the Emission Reduction Result Document (DRAM), and double counting of emission reductions.

INTRODUCTION

The Government of Indonesia has demonstrated its commitment to addressing climate change by ratifying the Paris Agreement through Law Number 16 of 2016 regarding the Ratification of the Paris Agreement to the United Nations Framework Convention on Climate Change. This commitment obligates Indonesia to participate in efforts to reduce greenhouse gas (“GHG”) emissions. As a concrete step, the government issued Presidential Regulation Number 98 of 2021 regarding the Implementation of Carbon Economic Value for Achieving Nationally Determined Contribution Targets and Control of GHG Emissions in National Development (“PR No. 98/2021”). This regulation governs the Carbon Economic Value (“CEV”) as an instrument to achieve emission reduction targets in accordance with Indonesia's Nationally Determined Contribution (“NDC”).

One of the mechanisms under the CEV framework is carbon trading, particularly in the forestry sector. Indonesia's forest area, which spans approximately 125.76 million hectares, holds significant

potential for generating CEV through carbon sequestration processes.¹ Currently, Indonesian forests are estimated to have the potential to generate up to USD 565.9 billion or approximately IDR 8,000 trillion in CEV.² The GHG emission offset scheme is one form of implementing carbon trading within the forestry sector. According to Article 1 point 13 of Minister of Environment and Forestry Regulation Number 7 of 2023 regarding the Procedures for Carbon Trading in the Forestry Sector (“**MOEF Reg. No. 7/2023**”)³, GHG emission offset is defined as the reduction of GHG emissions carried out by a business and/or activity to compensate for emissions generated elsewhere. Within this transaction, the tradable instrument is the Greenhouse Gas Emission Reduction Certificate (*Sertifikat Pengurangan Emisi Gas Rumah Kaca / “SPE-GRK”*). Based on Minister of Environment and Forestry Regulation Number 21 of 2022 regarding the Regulatory Framework for the Implementation of Carbon Economic Value (“**MOEF Reg. No. 21/2022**”)⁴, the SPE-GRK is a formal certificate that proves emission reductions by a business and/or activity that has undergone Measurement, Reporting, and Verification and has been registered in the National Registry System for Climate Change Control (*Sistem Registri Nasional Pengendalian Perubahan Iklim / “SRN-PPI”*). SPE-GRKs may be obtained by business actors who successfully reduce GHG emissions through mitigation actions. Entities that obtain SPE-GRKs may claim the carbon sequestration from their mitigation projects based on the certified reductions. These certificates may then be sold to third parties seeking to compensate for their own emissions.

However, the implementation of GHG emission offset schemes in the forestry sector faces significant challenges related to measurement and accounting, which are inherently marked by uncertainty. All estimates of forest carbon sequestration are subject to potential miscalculation due to the dynamic nature of the sector, which is influenced by both natural and anthropogenic factors.⁵ Natural factors include risks arising from environmental disturbances such as wildfires, pest outbreaks, and plant diseases. On the other hand, anthropogenic factors refer to human-induced activities such as poor land management practices or political instability, which may reduce or even eliminate the carbon sequestration capacity of a given area.⁶

Stakeholders in the forestry sector must identify, minimize, and quantify the uncertainties associated with carbon sequestration measurement. This can be achieved through the application

¹ Coordinating Ministry for Economic Affairs Head of the Bureau of Communication, Information Services, and Economic Affairs Conferences, “Dorong Pemanfaatan Hutan Bagi Kemakmuran Rakyat, Menko Airlangga Ingatkan Pengelolaan Kehutanan yang Lestari dan Berdaya Saing - Kementerian Koordinator Bidang Perekonomian Republik Indonesia,” n.d., <https://ekon.go.id/publikasi/detail/5085/dorong-pemanfaatan-hutan-bagi-kemakmuran-rakyat-menko-airlangga-ingatkan-pengelolaan-kehutanan-yang-lestari-dan-berdaya-saing>. (accessed on 10 February 2025).

² *Ibid.*, Kepala B Head of the Bureau of Communication, Information Services, and Economic Affairs Conferences.

³ Ministry of Environment and Forestry of Indonesia, “Minister of Environment and Forestry Regulation Number 7 of 2023 regarding the Procedures for Carbon Trading in the Forestry Sector,” Ministry of Environment and Forestry of Indonesia, 2023, available at peraturan.bpk.go.id.

⁴ KemMinistry of Environment and Forestry of Indonesia, “Decree of the Minister of Environment and Forestry of the Republic of Indonesia Number SK.1027/MENLHK/PHL/KUM.1/9/2023 regarding the Roadmap for Carbon Trading in the Forestry Sector.

⁵ Charlene Watson, “Forest carbon accounting: overview and principles,” 2009, [https://www.interpol.int/content/download/5172/file/Guide to Carbon Trading Crime.pdf](https://www.interpol.int/content/download/5172/file/Guide%20to%20Carbon%20Trading%20Crime.pdf). (accessed on 7 November 2024).

⁶ Watson, *Op. Cit.*, p. 13.

of statistical analyses, published data, and expert assessments.⁷ Uncertainties within the variables and components of carbon accounting models can be captured either through simple error propagation or simulated using Monte Carlo analysis.⁸ This analytical method involves repeated random sampling from the probability distributions of individual contributing factors, based on probability density functions derived from statistical analysis or expert judgment.⁹ Through the use of such analytical methods, it is expected that uncertainties in carbon sequestration measurements in the forestry sector can be mitigated. Moreover, these uncertainties in emission accounting open up the risk of double counting and claim manipulation. Double counting occurs when two or more parties claim the same GHG emission reduction, thereby inflating the perceived environmental benefits.¹⁰

These vulnerabilities may result in misleading information, stemming from data uncertainty and the complexity of carbon sequestration measurement in the forestry sector. Such misinformation creates the conditions for greenwashing, a deceptive practice in which a company claims that its products, services, or brand are environmentally friendly without sufficient evidence, with the intent to mislead consumers and enhance profits.¹¹ Simply put, greenwashing refers to a company's efforts to appear environmentally responsible through dishonest, questionable, exaggerated, or misleading claims.¹² Information that is not properly verified may be difficult to detect, especially for consumers or stakeholders who lack direct access to independently validate the data. In the context of data uncertainty and the complexity of carbon sequestration accounting in the forestry sector, it is crucial to establish a transparent verification system and enforce strict regulatory oversight. These measures are necessary to ensure that only legitimate emission reductions are tradable and to reduce the potential for greenwashing practices.

Based on the foregoing background, this study focuses on the potential occurrence of greenwashing in carbon trading through GHG emission offset schemes in the forestry sector. It is expected that this research will contribute to the growing body of knowledge in the field of carbon trading and provide relevant considerations for policymakers in addressing the risks of greenwashing in carbon offset mechanisms. How is the mechanism of carbon trading through GHG emission offset schemes in the forestry sector regulated under Indonesia's positive law and What is the potential for greenwashing in carbon trading activities involving GHG emission offset schemes in the forestry sector.

⁷ Watson, *Op. Cit.*, p. 2.

⁸ *Ibid.*

⁹ Watson, *Op. Cit.*, p. 24.

¹⁰ Anggalia Putri dan Salma Zakiyah, "Madani Insight: Menakar Perdagangan Karbon dari Kacamata Keadilan Iklim," No. September (2023): 1–28, www.madaniberkelanjutan.id.

¹¹ Priyanka Aggarwal dan Aarti Kadyan, "Greenwashing: The Darker Side Of CSR," *Indian Journal of Applied Research* 4, No. 3 (2011): 61–66, <https://doi.org/10.15373/2249555x/mar2014/20>.

¹² Devona Valencia, Sabrina Oktaria Sihombing, dan Mien Mien, "Pengaruh Greenwashing Terhadap Ekuitas Merek Dan Niat Pembelian: Suatu Studi Empiris," *Jurnal Manajemen* 18, No. 1 (2021): 33–52, <https://doi.org/10.25170/jm.v18i1.2226>.

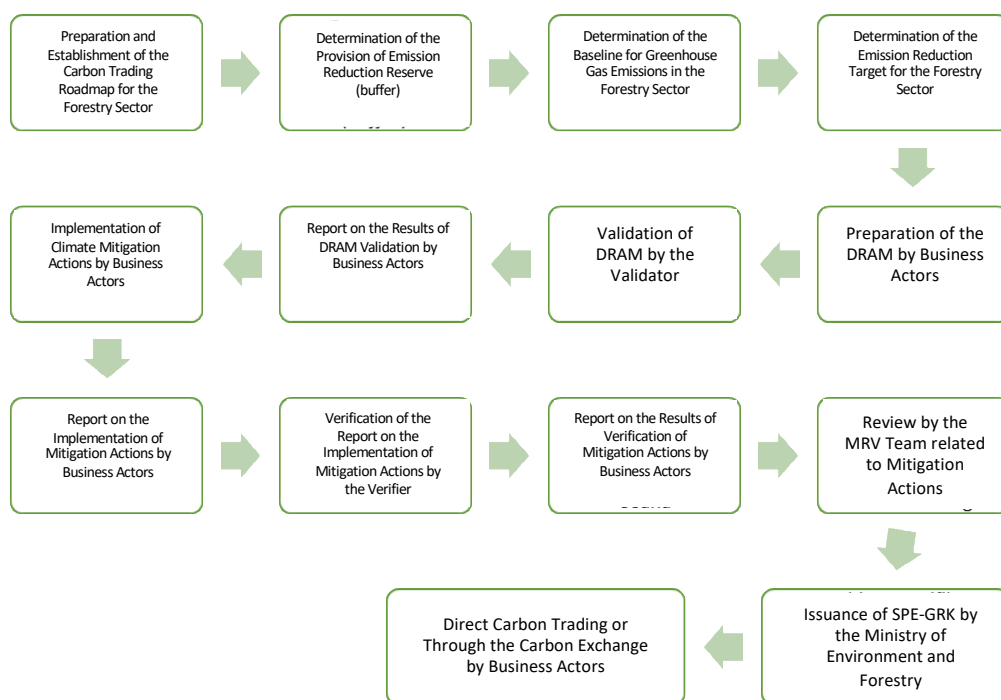
METHODS

This research constitutes a normative juridical study that focuses on the examination of laws and regulations, particularly concerning carbon trading in the forestry sector under the greenhouse gas emission offset scheme. The study employs secondary data, including primary legal materials, secondary legal materials, and tertiary legal materials. The method used for collecting secondary data is a literature review, with particular emphasis on the keyword "carbon trading." The collected data are then analyzed using a statute approach, specifically to examine primary legal materials. Additionally, a conceptual approach is employed to analyze the concept of greenwashing within the framework of legal doctrinal science. The research findings are subsequently organized and presented in a descriptive manner.

DISCUSSION

The mechanism of carbon trading under the GHG Emission Offset scheme in the positive law of Indonesia

Figure 1.
Offset GHG Emission



Source: Data processed by the author

Carbon pricing, also referred to as the CEV, is a system that compels emitters and polluters to pay when they produce greenhouse gases, particularly carbon dioxide.¹³ This mechanism offers

¹³ Hadijjah Ummini Elsa dan Rachmad Utomo, "Menimbang Kesiapan Penerapan Carbon Pricing di Indonesia dengan Studi pada Kanada, Britania Raya, dan Australia," *Jurnal Pajak Indonesia (Indonesian Tax Review)* 6, No. 2 (2022): 410–35, <https://doi.org/10.31092/jpi.v6i2.1866>.

emitters the choice to either cease their emission-generating activities, reduce their emissions, or continue emitting and pay the associated cost.¹⁴

The implementation of CEV in the forestry sector is further regulated under MOEF Reg. No. 21/2022. One of the methods for implementing NEK is through a carbon trading mechanism.¹⁵ According to PR No, 98/2021, carbon trading is defined as a market-based mechanism for reducing greenhouse gas emissions through the buying and selling of carbon units. Furthermore, provisions regarding the procedures for carbon trading specifically within the forestry sector are governed by MOEF Reg. No. 7/2021.

One of the carbon trading mechanisms in the forestry sector is the greenhouse gas (GHG) emission offset. A GHG emission offset is a mechanism for trading carbon units through the reduction of GHG emissions carried out by a business and/or activity to compensate for emissions generated elsewhere.¹⁶ The GHG emission offset in the forestry sector is implemented through the following stages:¹⁷

“a. Preparation and determination of the carbon trading roadmap for the forestry sector; b. Determination of the emission reduction buffer supply; c. Establishment of the GHG emission baseline for the forestry sector; d. Determination of emission reduction targets for the forestry sector; e. Preparation of the Mitigation Action Plan Document (Dokumen Rencana Aksi Mitigasi/ “DRAM”); f. Validation of the DRAM; g. Reporting of DRAM validation results; h. Reporting of the implementation results of climate change mitigation actions; i. Verification of the report on the implementation of climate change mitigation actions; j. Preparation of the report on the verification of climate change mitigation actions; k. Formation and review by the Measurement, Reporting, and Verification team; and l. Issuance of the SPE-GRK.”

The GHG emission offset mechanism in the forestry sector begins with the preparation and determination of the carbon trading roadmap by the Ministry of Environment and Forestry (“**MOEF**”) and regional governments in accordance with their respective authorities.¹⁸ The procedures for preparing and determining the roadmap are further regulated under the Decree of the Minister of Environment and Forestry Number SK.1027/MENLHK/PHL/KUM.1/9/2023 regarding the Carbon Trading Roadmap in the Forestry Sector. The preparation of the carbon trading roadmap consists of several stages, covering three main activities, namely:¹⁹

¹⁴ *Ibid.*

¹⁵ Presidential Regulation of the Republic of Indonesia No. 98 of 2021, “Presidential Regulation Number 98 of 2021 concerning the Implementation of Carbon Economic Value for Achieving the Nationally Determined Contribution Targets and Greenhouse Gas Emission Control in National Development, *Database Peraturan BPK* 10, no. 1 (2021): 279–88.

¹⁶ Ministry of Environment and Forestry of the Republic of Indonesia, “Decree of the Minister of Environment and Forestry of the Republic of Indonesia Number SK.1027/MENLHK/PHL/KUM.1/9/2023 regarding the Roadmap for Carbon Trading in the Forestry Sector.”

¹⁷ Ministry of Environment and Forestry of the Republic of Indonesia, “Regulation of the Minister of Environment and Forestry Number 7 of 2023 regarding Procedures for Carbon Trading in the Forestry Sector.

¹⁸ Ministry of Environment and Forestry of the Republic of Indonesia, “Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 21 Year 2022 regarding Procedures for the Implementation of Carbon Economic Value.

¹⁹ Ministry of Environment and Forestry of the Republic of Indonesia, “Decree of the Minister of Environment and Forestry of the Republic of Indonesia Number SK.1027/MENLHK/PHL/KUM.1/9/2023 regarding the Roadmap for Forestry Sector Carbon Trading.

"a. Analysis of data and information related to the implementation of the CEV, particularly through carbon trading mechanisms, at the national, sub-national, and sectoral levels; b. Review of existing and potential mitigation policies and action plans (including measures and technologies); and c. Evaluation of mitigation action plans and gap analysis in relation to NDC targets, as well as the associated impacts (emissions and socio-economic effects) and resource requirements."

The next stages involve the determination of the buffer and the establishment of the GHG emission baseline in the forestry sector. Pursuant to Article 7 of MOEF Reg. No. 21/2022, the buffer refers to the allocation of a certain amount of carbon units as a risk management measure to ensure the achievement of NDC targets, particularly in light of carbon trading activities conducted prior to 2030.²⁰ The volume of the buffer is determined and may be revised periodically based on the MOEF's evaluation of the annual NDC achievement reports.²¹

The subsequent stage is the determination of the baseline, or Business-as-Usual of GHG emissions level, for the purposes of GHG emission offsets. According to Article 1 point 15 of MOEF Reg. No. 21/2022, a baseline is defined as the estimated level and projected trajectory of GHG emissions in a given sector or activity over a specific time frame, assuming no intervention through mitigation policies and/or technologies.²² The preparation of the baseline may be proposed either by the MOEF or by business actors intending to engage in carbon trading.²³ The determination of the baseline must take into account the historical emission levels and be aligned with the applicable regulations governing the respective forest areas.²⁴ The methodology used for determining the baseline must adhere to international standards, particularly those established by the Intergovernmental Panel on Climate Change ("**IPCC**"), and/or national standards issued by the National Standardization Agency of Indonesia and/or the MOEF.²⁵

Upon the determination of the buffer and baseline, the government may proceed with the establishment of emission reduction targets for the forestry sector. These targets are detailed in the Decree of the Minister of Environment and Forestry No. 1027 of 2023 regarding the Carbon Trading Roadmap for the Forestry Sector ("**MOEF Decree No. 1027/2023**"), categorized by province throughout Indonesia.²⁶ According to Article 46(1) of MOEF Reg. No. 21/2022, the stages of preparing the roadmap, determining the buffer, establishing the baseline, and setting emission reduction targets must be recorded by the relevant government institutions in the National Registry System for

²⁰ Ministry of Environment and Forestry of the Republic of Indonesia, "Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 21 Year 2022 regarding the Procedures for the Implementation of Carbon Economic Value.

²¹ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

²² *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

²³ Ministry of Environment and Forestry of the Republic of Indonesia, "Decree of the Minister of Environment and Forestry of the Republic of Indonesia Number SK.1027/MENLHK/PHL/KUM.1/9/2023 concerning the Roadmap for Forestry Sector Carbon Trading."

²⁴ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

²⁵ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

²⁶ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

Climate Change Control (*Sistem Registri Nasional Pengendalian Perubahan Iklim/ "SRN-PPI"*).²⁷

Based on the data available on the SRN-PPI website, business actors may identify opportunities within the carbon trading market. This is because carbon trading incentivizes companies to reduce their carbon emissions in order to generate carbon credits, which can then be traded with entities that produce higher emissions. This creates a business opportunity that may increase company revenues.²⁸ Business actors participating in carbon trading may include individuals, cooperatives, state-owned enterprises ("**SoE**"), regionally-owned enterprises ("**RoE**"), private entities ("**PE**"), customary law communities, and communities holding land rights.²⁹ Business actors engaged in activities related to GHG emission offsets are required to meet the criteria set forth under Article 14(1) of MOEF Reg. No. 21/2022, which include:³⁰

"a. Not being subject to a GHG emission cap; b. Having a surplus of emissions, meaning that the achieved GHG emission reductions from climate change mitigation actions fall below the established target and GHG emission baseline; or c. Having an emission deficit, meaning that the achieved GHG emission reductions from climate change mitigation actions exceed the target but remain below the established GHG emission baseline."

The next step to be undertaken by business actors is the planning and preparation of the DRAM. This document serves as the primary basis for obtaining a SPE-GRK, which is a mandatory requirement in carbon trading. Pursuant to Article 40 of MOEF Reg. No. 7/2023, the data required for the preparation of the DRAM includes:

"1. A description of the proposed climate change mitigation action; 2. Application of an approved methodology as validated by the GHG methodology panel team; 3. Calculation of GHG emission reductions; 4. Environmental impact analysis; 5. Climate change resource identification; 6. Record of revisions to the DRAM; 7. Structure for monitoring implementation; 8. Documentation of the public consultation process and the results obtained; 9. Bibliography; and 10. Supporting annexes."

The DRAM submitted by business actors shall be validated by a validator accredited by the National Accreditation Committee, who possesses the necessary competence demonstrated by certification and at least two years of experience in handling climate change issues.³¹ The validation process must be completed within one month from the date the DRAM is received by the validator.³² Upon issuance and registration of the validation results in the SRN-PPI, the business actor may

²⁷ Ministry of Environment and Forestry of the Republic of Indonesia. "Ministry of Environment and Forestry of the Republic of Indonesia, "Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 21 Year 2022 Concerning Procedures for the Implementation of Carbon Economic Value."

²⁸ Desy Nur Pratiwi, "Implementasi Carbon Emission Disclosure di Indonesia," *Jurnal Ilmiah Akuntansi dan Bisnis* 13, no. 2 (2018): 101–12, <https://ojs.unud.ac.id/index.php/jiab/article/view/39495>.

²⁹ Ministry of Environment and Forestry of the Republic of Indonesia, "Decree of the Minister of Environment and Forestry of the Republic of Indonesia Number SK.1027/MENLHK/PHL/KUM.1/9/2023 Concerning the Roadmap for Carbon Trading in the Forestry Sector."

³⁰ Ministry of Environment and Forestry of the Republic of Indonesia, "Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 21 Year 2022 Concerning the Procedures for Implementing the Carbon Economic Value."

³¹ *Ibid.*, Ministry of Environmental and Forestry of Republic of Indonesia.

³² *Ibid.*, Ministry of Environmental and Forestry of Republic of Indonesia.

proceed with implementing the climate change mitigation actions as outlined in the DRAM.

During the implementation of such mitigation actions, the business actor is obligated to prepare an implementation report detailing the amount of GHG emissions and the achieved emission reductions based on actual absorption compared to the reduction targets.³³ Pursuant to Article 16 of MOEF Reg. No. 21/2022, this implementation report must be submitted and recorded in the SRN-PPI for each compliance period according to the sector characteristics determined by the MOEF throughout the duration of the DRAM implementation.³⁴

Subsequently, the mitigation implementation report must undergo verification by an accredited and competent verifier, as assessed by the National Accreditation Committee. According to Article 40 of MOEF Reg. No. 21 of 2022, the verification of the implementation report must comply with the following requirements:

"1. The eligibility criteria established in the methodology used have been adequately fulfilled; 2. The accuracy and credibility of the data utilized in monitoring the climate change mitigation actions; 3. There is no double registration under other certification mechanisms; and 4. There are no discrepancies in the implementation and monitoring of the climate change mitigation actions."

If the verifier identifies any non-conformities during the verification, the business actor must address the verifier's recommendations by submitting the required documentation within five working days from receipt of the verification results.³⁵ Once the verification is deemed satisfactory by the verifier and recorded in the SRN-PPI, the verifier may issue a statement of GHG emission reduction achievement to the business actor.

Upon fulfillment of the verified implementation report, the business actor may submit an application for the issuance of a SPE-GRK to the Director General of the Ministry of Environment and Forestry through the SRN-PPI, as regulated under Article 62 of MOEF Reg. No. 21/2022.³⁶ Following the application, a final review shall be conducted by the Measurement, Reporting, and Verification ("**MRV**") team appointed by the MOEF. This review covers the implementation report, verification report, DRAM, and validation report recorded in the SRN-PPI, as stipulated in Article 17 of MOEF Reg. No. 21/2022.³⁷ Pursuant to Article 58 of the same regulation, if the review results are deemed compliant, the SPE-GRK will be issued and recorded in the SRN-PPI with a unique code representing a reduction or increase in GHG absorption equivalent to 1 (one) ton of carbon dioxide equivalent.³⁸ The SPE-GRK serves as evidence of GHG emission reduction performance, a carbon trading instrument, and a payment tool for climate change mitigation results.³⁹

³³ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

³⁴ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

³⁵ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

³⁶ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

³⁷ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

³⁸ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

³⁹ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

Once the SPE-GRK is issued, the business actor may conduct GHG emission offset activities domestically and/or internationally, as provided in Article 47 of PR No. 98/2021.⁴⁰ According to Article 54 paragraph (1) of PR No. 98/2021, carbon unit trading reflected in the SPE-GRK may be conducted via carbon exchanges and/or direct trading.⁴¹ However, in the case of direct trading, the business actor is required to register the number of carbon units in the SRN-PPI.⁴² For carbon exchange trading, the carbon exchange operator is responsible for registering the transactions in the SRN-PPI, as stipulated in Article 46 of MOEF Reg. No. 21/2022.⁴³

Further, regulations related to direct trading mechanisms are not elaborated in detail within existing legislation. Meanwhile, the carbon exchange market mechanism is regulated under Financial Services Authority Regulation No. 14 of 2023 regarding Carbon Trading ("**OJK Reg. No. 14/2023**"). Presently, IDXCarbon serves as the primary carbon exchange platform in Indonesia, licensed and supervised by the Financial Services Authority (*Otoritas Jasa Keuangan* / "**OJK**"). To date, IDXCarbon operates carbon trading exclusively in the energy sector, with the forestry sector yet to be accommodated. IDXCarbon facilitates carbon trading through mechanisms such as auctions, marketplaces, negotiations, and regular trading.⁴⁴ As the central carbon exchange, IDXCarbon is also mandated to record all carbon trading activities conducted on the exchange, both domestic and international, in the SRN-PPI, in accordance with Article 46 of MOEF Reg. No. 21/2022.⁴⁵

In the context of greenhouse gas (GHG) emission offsets, carbon buyers may include business actors that exceed their carbon emission thresholds, as well as business entities or individuals who voluntarily support GHG emission reductions.⁴⁶ Buyers may purchase carbon units through the IDXCarbon platform, where they can access information on available carbon offerings. Additionally, to obtain more comprehensive information regarding the seller's profile, carbon pricing, and the status of carbon units, buyers may utilize the SRN-PPI (National Registry System for Climate Change Control) platform, as stipulated in Article 56 of MOEF Reg. No. 21/2022.⁴⁷ Thus, buyers are able to gain a more holistic understanding of GHG emission offset opportunities in the forestry sector, providing a solid basis for decision-making prior to purchasing carbon units.

⁴⁰ Presidential Regulation of the Republic of Indonesia Number 98 Year 2021, "Presidential Regulation Number 98 Year 2021 regarding the Implementation of Carbon Economic Value for Achieving the Nationally Determined Contribution Targets and Control of Greenhouse Gas Emissions in National Development."

⁴¹ Presidential Regulation Number 98 of 2021.

⁴² Ministry of Environment and Forestry of the Republic of Indonesia, "Minister of Environment and Forestry Regulation of the Republic of Indonesia Number 21 Year 2022 Concerning Procedures for the Implementation of Carbon Economic Value."

⁴³ *Ibid.*, Ministry of Environment and Forestry of the Republic of Indonesia.

⁴⁴ Further explanation regarding the carbon trading mechanism provided by IDXCarbon can be found on the official IDXCarbon website at <https://idxcarbon.go.id>.

⁴⁵ Ministry of Environment and Forestry of the Republic of Indonesia, "Minister of Environment and Forestry Regulation Number 21 of 2022 regarding the Procedures for Implementing the Carbon Economic Value."

⁴⁶ Deutsche Welle, "Pasar Karbon Indonesia untuk Siapa?," 2023, <https://www.dw.com/id/pasar-karbon-indonesia-untuk-siapa/a-67243508>.

⁴⁷ Ministry of Environment and Forestry of the Republic of Indonesia, "Minister of Environment and Forestry Regulation Number 21 of 2022 Concerning Procedures for Implementing the Carbon Economic Value."

The Potential for Greenwashing in Carbon Trading in the Forestry Sector through Greenhouse Gas Emission Offset Schemes

Carbon trading in the forestry sector under GHG emission offset schemes is highly susceptible to misleading information. This vulnerability arises from the fact that the object of carbon trading is fundamentally different from traditional trading, which typically involves tangible goods. Instead, carbon trading is based on a "legal ficti".⁴⁸ It means an intangible asset that confers ownership rights to the holder. The object of carbon trading, particularly in the forestry sector using the offset mechanism is the SPE-GRK, which is inherently based on estimates. This notion is supported by Dan Welch, a British journalist, who argued that "offsets are fictitious commodities created by subtracting what is expected to happen from what might have happened."⁴⁹ For example, GHG emission reductions are often calculated based on the estimated carbon sequestration by forests resulting from efforts to prevent deforestation and forest degradation. Such estimates remain speculative and uncertain, which inherently creates a risk of inaccuracy.

The uncertainty in carbon accounting is largely due to the complexity of the models used, which must consider various factors such as annual variations, human activity, and long-term climate change, each of which complicates the ability to make accurate emission estimates.⁵⁰ If these factors are incompletely inputted or rely on inaccurate assumptions, the precision of the carbon estimate may be further compromised, particularly when the parameters or data used do not fully represent the local context.⁵¹ Additional uncertainty arises from sampling methods, which only cover a portion of the population and thereby introduce statistical errors into key emission parameters such as emission factors and activity data. Furthermore, an incomplete understanding of ecosystems, including forest growth patterns and vegetation dynamics, contributes to even greater uncertainty.⁵² Such uncertainty has the potential to give rise to misinformation, which may lead to the occurrence of greenwashing.

The term greenwashing was first introduced by Jay Westerveld. According to his view, greenwashing is a misleading act that creates the impression of environmentally friendly management, thereby diverting attention from environmentally harmful activities.⁵³ However, over time, the definition of greenwashing has evolved. Based on a systematic review on the development of greenwashing conducted by Sebastião Vieira de Freitas Netto et al., greenwashing is classified into three categories: greenwashing as selective disclosure, greenwashing as decoupling, and signaling and corporate legitimacy theory.⁵⁴ The definition of greenwashing as selective disclosure refers to a

⁴⁸ Watson, "Forest carbon accounting: overview and principles", <https://www.interpol.int/content/download/5172/file/Guide%20to%20Carbon%20Trading%20Crime.pdf> (accessed on 7 November 2024).

⁴⁹ Nick Davies, "The inconvenient truth about the carbon offset industry | Environment | The Guardian," *The Guardian*, 2007, <http://www.guardian.co.uk/environment/2007/jun/16/climatechange.climatechange>.

⁵⁰ Watson, "Forest carbon accounting: overview and principles."

⁵¹ *Ibid.*, Watson.

⁵² *Ibid.*, Watson.

⁵³ Lian Pin Koh et al., "Wash and spin cycle threats to tropical biodiversity," *Biotropica* 42, no. 1 (2010): 67–71, <https://doi.org/10.1111/j.1744-7429.2009.00588.x>.

⁵⁴ Sebastião Vieira de Freitas Netto et al., "Concepts and forms of greenwashing: a systematic review," *Environmental Sciences Europe* 32, no. 1 (2020), <https://doi.org/10.1186/s12302-020-0300-3>, p. 6.

behavior in which positive information is presented while negative information about environmental performance is withheld.⁵⁵ TerraChoice explains that greenwashing is a misleading act toward consumers regarding a company's environmental practices or environmental performance, involving positive communication about environmental performance. In this context, TerraChoice's view on greenwashing may be categorized as greenwashing as selective disclosure. Based on this definition, the information is selectively presented to emphasize positive portrayals of environmental performance over negative ones.⁵⁶

Furthermore, greenwashing as decoupling is essentially understood as a behavior that separates statements from actions.⁵⁷ According to Siano et al., greenwashing is an effort to build an environmentally friendly image through statements aimed at diverting attention from environmental issues in order to satisfy stakeholders, without being followed by real actions.⁵⁸ Based on this definition, such conduct involves making statements or declarations to divert attention from environmental concerns, thereby concealing the actual negative behavior. In other words, there is a simultaneous separation of two types of actions: first, the actual, environmentally harmful actions, and second, symbolic or formal actions intended to meet expectations. These two actions result in a gap between the actual state of affairs and the perceived one, thus projecting an image that is either favorable or less damaging, and therefore seemingly environmentally friendly.

Lastly, the signaling and corporate legitimacy theory is based on the theory of corporate legitimacy, which is divided into three types: cognitive legitimacy, pragmatic legitimacy, and moral legitimacy.⁵⁹ First, cognitive legitimacy arises from widely accepted societal beliefs about the role of an organization, such that its presence and existence are perceived as natural or taken for granted.⁶⁰ Second, moral legitimacy depends on the public's moral judgment of the organization's behavior and values, specifically, whether these align with accepted norms and ethical standards.⁶¹ Third, pragmatic legitimacy results from self-interest and the perceived benefits obtained from the organization's activities, as well as the communication process involving stakeholders.⁶²

Furthermore, when contextualized within greenwashing practices in carbon trading, such practices are potentially driven by two main issues: manipulation of claims and double counting. Based on these issues, the discussion will be divided into the following two parts:

⁵⁵ *Ibid.*, de Freitas Netto et al.

⁵⁶ TerraChoice, "The sins of greenwashing: Home and family edition 2010: A report on environmental claims made in the North American consumer market.," *Terrachoice*, 2010, www.ulenvironment.com.

⁵⁷ de Freitas Netto et al., "Concepts and forms of greenwashing: a systematic review", *Loc. Cit*, p. 6.

⁵⁸ Alfonso Siano et al., "'More than words': Expanding the taxonomy of greenwashing after the Volkswagen scandal," *Journal of Business Research* 71 (2017): 27–37, <https://doi.org/10.1016/j.jbusres.2016.11.002>. p. 27–37.

⁵⁹ de Freitas Netto et al., "Concepts and forms of greenwashing: a systematic review." *Loc.cit*, p. 6.

⁶⁰ Peter Seele dan Lucia Gatti, "Greenwashing Revisited: In Search of a Typology and Accusation-Based Definition Incorporating Legitimacy Strategies," *Business Strategy and the Environment* 26, no. 2 (2017): 239–52, <https://doi.org/10.1002/bse.1912>.

⁶¹ *Ibid.*, Seele dan Gatti.

⁶² *Ibid.*, Seele dan Gatti.

a. Claim Manipulation

Claim manipulation in the context of greenwashing within carbon trading may occur when measurement processes are manipulated to falsely claim higher carbon sequestration than what is actually achieved.⁶³ According to the Guide to Carbon Trading Crime published by the International Criminal Police Organisation (Interpol), there are two main ways in which such manipulation may occur.⁶⁴ First, by exaggerating the projected emissions that would have occurred. Second, by fraudulently overstating the actual emission reductions achieved. Both forms of misconduct stem from misreporting the actual conditions, thereby distorting the information disclosed. These situations may arise through manipulative analytical practices, such as measuring only selected variables, selectively choosing data collection locations, or adopting certain assumptions during the calculation process.⁶⁵ As a result, a discrepancy emerges between the presented information and the actual facts, which has the potential to mislead stakeholders and constitutes a form of misinformation within the claimed outcomes.

Manipulative analytical practices, as previously described, may occur during the planning and preparation of the DRAM, which serves as the basis for obtaining SPE-GRK. The preparation of DRAM requires data on climate change mitigation actions, the application of approved methodologies, calculations of GHG emission reductions, environmental impact analyses, climate change data sources, records of DRAM revisions, and documentation of public consultation processes.⁶⁶ Manipulative claims may arise when carbon sequestration measurements are deliberately overstated. Such manipulation may occur through the selective inclusion of variables, biased selection of data collection sites, or the use of assumptions inconsistent with actual field conditions. As a result, there exists a discrepancy between field conditions and the information recorded in the DRAM, which can lead to the misrepresentation of environmental performance.

The risk of claim manipulation may be classified as an act of greenwashing, particularly within the framework of the signaling and corporate legitimacy theory, more specifically under pragmatic legitimacy. Claim manipulation through analytical distortion, such as using inappropriate data collection methods or invalid assumptions, results in data that lacks validity and reliability. Consequently, the information presented in the DRAM does not accurately reflect actual conditions. This false information may be used by interested parties to gain economic benefits. Beyond economic gain, such manipulation may also enable a company to earn public trust by creating the perception that it has successfully contributed to the achievement of targeted carbon emission reductions.

Efforts to prevent greenwashing in the preparation and implementation of DRAM include the mandatory validation and reporting requirements. DRAM must be validated by accredited validators who possess relevant experience and demonstrated competence in climate change issues. The qualification of these validators is intended to ensure that the data and methodologies presented in the DRAM have undergone rigorous quality control. Once validated, the DRAM must be registered in

⁶³ *Op. Cit.*, Watson, "Forest carbon accounting: overview and principles."

⁶⁴ *Ibid.*, Watson.

⁶⁵ *Ibid.*, Watson.

⁶⁶ *Ibid.*, Watson.

the SRN-PPI. Subsequently, the business actor is required to submit periodic implementation reports, which must detail actual GHG emissions and the achieved emission reductions in accordance with the set targets. This reporting obligation is monitored by the MOEF and serves as a form of transparency and accountability to the public regarding the information previously validated.

b. Double Counting

Double counting occurs when a recorded reduction in GHG emissions is used to support more than one claim of emission reduction achievement, with the aim of meeting multiple climate change mitigation targets.⁶⁷ This issue is addressed under Article 4.3 and Article 6.2 of the Paris Agreement, which impose obligations on all relevant parties to prevent the double counting of emissions reductions.⁶⁸

According to the Double Counting Guidelines issued by Gold Standard, double counting scenarios can be broadly categorized into two types⁶⁹, first, the sale of carbon units to third parties for financial gain, for use in Voluntary Emissions Reduction (“**VER**”) schemes, or to meet established mitigation targets. Second, the inclusion of emission reductions in an account or inventory to avoid the obligation to purchase Emission Reduction (“**ER**”) units within a regulated system.

In the context of carbon trading through GHG emissions offsetting in the forestry sector, the risk of double counting is particularly present when carbon mitigation projects involve buyers from different countries. Pursuant to Article 3 paragraph (3) of OJK Reg. No. 14/2023⁷⁰, the trading of foreign carbon units may be facilitated by carbon exchange operators in Indonesia. However, this opens up the potential for the same carbon unit to be claimed by two different parties for their respective emission reduction targets. These parties are not limited to the seller or buyer under the carbon trading scheme but may include any stakeholders or associated entities involved in the emissions reduction claims.

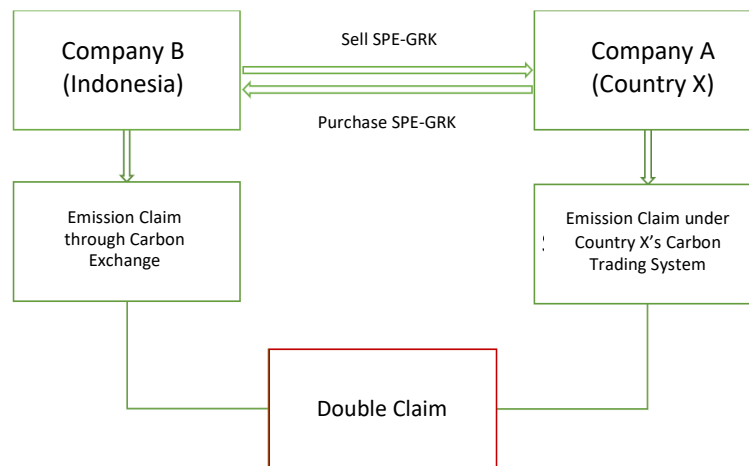
For example, Company A from Country X purchases carbon units from Company B in Indonesia, which has listed the units on the Indonesian carbon exchange and claims the associated emission reduction. However, Company A may also register the same certificate in the carbon trading system of Country X. As a result, the same carbon unit is claimed by two different entities, despite the emission reduction having occurred only once.

⁶⁷ Catatan Ringkas, Tentang Potensi, dan Pasar Karbon Domestik, “MEMBERI HARGA PADA KARBON: CATATAN RINGKAS TENTANG POTENSI PASAR KARBON DOMESTIK,” 2019, https://globalgoals.goldstandard.org/standards/PRE-GS4GG-Agriculture/2015_12_double_counting_guideline_published_v1_2.pdf.

⁶⁸ See completed version on *article 4.3* dan *article 6.2 Paris Agreement*

⁶⁹ Gold Standard Foundation, “Double Counting Guideline,” 2015, https://globalgoals.goldstandard.org/standards/PRE-GS4GG-Agriculture/2015_12_double_counting_guideline_published_v1_2.pdf.

⁷⁰ Financial Services Authority of the Republic of Indonesia, “Financial Services Authority Regulation Number 14 of 2023 regarding the Carbon Trading Through Carbon Exchange,” Financial Services Authority, 2023.

Figure 2. Double Counting Illustration

Source: Data processed by the Author

In addition, the issue of double counting within the GHG emissions offset scheme also poses a risk of occurring among domestic entities. In Indonesia, such double counting may arise when carbon sequestration from a single forestry project, such as REDD+⁷¹, is simultaneously claimed as a mitigation contribution and as the result of a GHG offset scheme. In such cases, double counting becomes likely because the two schemes follow distinct accounting and reporting pathways. This inconsistency between reporting systems increases the risk that a single mitigation activity is claimed twice.

Double counting in carbon trading constitutes a form of greenwashing when a company intentionally claims or conceals the fact that the same emission reduction has been counted more than once. Based on signaling and corporate legitimacy theory, particularly pragmatic legitimacy, such conduct exploits the positive perception of stakeholders to obtain legitimacy, despite the company's actual contribution being inconsistent with reality. Through efforts to project an exaggerated image of sustainability, companies may receive reputational and financial support, which risks misleading the public and undermining the integrity of the carbon market.

In the context of preventing double counting, the Government of Indonesia has implemented several precautionary measures. The MOEF is mandated to prepare a carbon economy roadmap for the forestry sector, which includes data analysis and information related to the implementation of the CEV, including carbon trading at various levels. This roadmap serves to identify and mitigate potential risks of duplicate claims on the same emission reductions across different levels of governance. This mandate aligns with Article 6 paragraph (2)(c) point 8 of MOEF Reg. No. 21/2022, which stipulates that the carbon trading roadmap must take into account the harmonization of various CEV mechanisms to ensure that double counting and double payment of emission reduction

⁷¹ Ministerial Regulation of the Ministry of Environment and Forestry of the Republic of Indonesia Number P.70/MENLHK/SETJEN/KUM.1/12/2017 Concerning Procedures for the Implementation of Reducing Emissions from Deforestation and Forest Degradation, the Role of Conservation, Sustainable Forest Management, and Enhancement of Forest Carbon Stocks (REDD+), 2017.

claims do not occur.

Furthermore, pursuant to Article 41 paragraph (2) of MOEF Reg. No. 21/2022, prior to the implementation of GHG emission offset trading, a verifier is tasked with ensuring that no double registration occurs under any other certification mechanism. Referring to Article 46 paragraph (1)(d) and paragraph (2)(a) of MoEF Reg. No. 21/2022, entities conducting GHG emission offset activities and carbon exchange operators are required to record the transfer of GHG Emission Reduction Certificates (SPE-GRK) both domestically and internationally at the time of the initial transfer. In addition, IDXCarbon, the carbon exchange platform, has been integrated with the SRN-PPI to streamline the administrative process of carbon unit transfers and to help prevent double counting.⁷² Through the SRN-PPI platform, buyers and the general public may verify information related to mitigation actions, project locations, scheme durations, registry numbers, and emission reduction achievements. This mechanism is intended to minimize the risk of double counting by enabling transparent monitoring by multiple stakeholders and to ensure consistency and integrity of the data.

CLOSING

The carbon trading mechanism using the GHG emission offset scheme in the forestry sector in Indonesia is regulated under the MOEF Reg. No. 7/2023. This mechanism encompasses several stages, namely: a. The preparation and determination of the carbon trading roadmap for the forestry sector; b. The determination of the emission reduction reserve (buffer); c. The establishment of the GHG emission baseline for the forestry sector; d. The setting of emission reduction targets for the forestry sector; e. The preparation of the DRAM; f. The validation of the DRAM; g. Reporting of the DRAM validation results; h. Reporting on the implementation of climate change mitigation actions; i. Verification of the preparation of verification reports on the implementation of climate change mitigation actions; j. Preparation of verification reports on the implementation of climate change mitigation actions; k. Formation and review by the Monitoring, Reporting, and Verification team; and l. Issuance of the SPE-GRK. Based on this mechanism, two main issues give rise to potential greenwashing in carbon trading activities with the GHG emission offset scheme in the forestry sector, namely claim manipulation and double counting. Manipulative analysis may occur during the planning and preparation process of the DRAM, which serves as the basis for obtaining the SPE-GRK. In the context of carbon trading through GHG emission offsets in the forestry sector, the potential for double counting arises because the same carbon unit may be accounted for by two different parties to fulfill their emission reduction targets. Nevertheless, these potential issues have been minimized by positive law. Efforts to prevent claim manipulation include the mandatory validation of the DRAM by accredited validators and periodic reporting on emission absorption, which is supervised by the MOEF. Subsequently, the prevention of potential double counting is pursued through verification by authorized verifiers.

⁷² Khairunnisa Rangkuti, "Masa Depan Nilai Ekonomi Karbon di Indonesia: Kondisi Terkini dan Langkah-Langkah Selanjutnya", *Environmental Policy Update*, No.2, Volume 1, 2023, p. 7.

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