Journal of Law and Legal Reform
Vol. 6 Issue 4 (2025) 2293–2332
DOI: https://doi.org/10.15294/jllr.v6i4.20009
Online since: October 30, 2025

https://journal.unnes.ac.id/journals/jllr

Legal Reform on Indonesia's Carbon Trading Regulation: Implementation and Harmonization of International Law

Siciliya Mardian Yoel [a] ✉, **F.X. Joko Priyono** [b], **F.X. Adji Samekto** [b], **Erlis Nurbani** [c]

[a] Faculty of Law, Universitas Islam Kadiri, Indonesia
[b] Faculty of Law, Universitas Diponegoro, Indonesia
[c] School of Law, University of New England, Australia

✉ corresponding email: siciliya@uniska-kediri.ac.id

Abstract

Carbon trading is a system where companies can buy and sell carbon credits, with each credit allowing the emission of a specific amount of greenhouse gases. The Indonesian government has introduced new regulations to support carbon trading, but these need to fit seamlessly with existing international regulations due to Indonesia's active participation in the carbon trading agreement. This research has two goals: first, to examine how comprehensive Indonesia's carbon trading regulations align with international frameworks such as the Paris Agreement and the Kyoto Protocol. And second, to identify and assess challenges and opportunities in harmonizing Indonesian laws with these global standards. This research uses normative legal research by assessing primary, secondary, and tertiary legal materials, such as international agreements, Indonesia's laws, previously published works in the areas, and other legal documents. This method is combined with case studies from different countries. This approach will help identify successful strategies and pitfalls in carbon trading, offering valuable insights into what works and what does not. The expected outcome is a comprehensive understanding of how Indonesia's carbon trading regulations align with international standards. It will also assess

the efficacy of the current system works and suggest improvements to enhance its effectiveness. Indonesia's approach to incorporating international treaties into national law is not entirely clear-cut, exhibiting elements of both monism and dualism. However, there is a tendency towards dualism, where international treaties must be transformed into national regulations to be effectively applied and used as a legal basis in judicial decisions. While carbon trading is a key mechanism in international climate agreements, it faces significant criticisms and challenges, particularly regarding environmental justice.

Keywords

Carbon Trading, International Law, Indonesia's National Implementation.

HOW TO CITE:

Chicago Manual of Style Footnote:

[1] Siciliya Mardian Yoel, F.X. Joko Priyono, F.X. Adji Samekto, Erlis Nurbani, "Strengthening The Coordination Function of The Forestry Ministry: Legal Reform in The "Merah Putih" Cabinet For Modern Bereaucracy," *Journal of Law and Legal Reform 6*, no 4 (2025): 2293-2332, https://doi.org/10.15294/jllr.v6i4.20009.

Chicago Manual of Style for Reference:

Yoel, Siciliya Mardian, F.X. Joko Priyono, F.X. Adji Samekto, Erlis Nurbani. "Strengthening The Coordination Function of The Forestry Ministry: Legal Reform in The "Merah Putih" Cabinet For Modern Bereaucracy." *Journal of Law and Legal Reform 6*, no 4 (2025): 2292-2332. https://doi.org/10.15294/jllr.v6i4.20009.

Introduction

Climate change has become an environmental issue of global concern in the last decade.[1] Climate change is suspected to be the result of global warming.[2] Nonetheless, in the meantime, the Earth has entered the era of global boiling, which has replaced global warming. After confirmation, the Secretary General of the United Nations (UN), Antonio Guterres, stated that July 2023 would be the month with the hottest temperature in the last 120,000 years.[3]

Global boiling can be interpreted as a term that describes a period on Earth with very high temperatures that have not been encountered in previous periods.[4] Global boiling is an advanced phenomenon of global

---

[1] Muhammad Khalid Anser et al., "Beyond Climate Change: Examining the Role of Environmental Justice, Agricultural Mechanization, and Social Expenditures in Alleviating Rural Poverty," *Sustainable Futures* 6, no. 1 (December 1, 2023): 1–17, https://doi.org/10.1016/j.sftr.2023.100130. p. 2

[2] Pedro Piris-Cabezas, Ruben N. Lubowski, and Gabriela Leslie, "Estimating the Potential of International Carbon Markets to Increase Global Climate Ambition," *World Development* 167, no. 1 (July 1, 2023): 1–14, https://doi.org/10.1016/j.worlddev.2023.106257. pp. 2-3

[3] The UN Secretary-General made the statement after receiving confirmation from the World Meteorological Organization (WMO) and the EU's Copernicus Earth observation programe, that the Earth 's temperature in July 2023 will be the hottest ever and will rise about 1.5°C higher than in the decades before industrialization. See UN News, UN News, "Hottest July Ever Signals 'Era of Global Boiling Has Arrived' Says UN Chief," accessed October 1, 2023, https://news.un.org/en/story/2023/07/1139162., see also Ajit Niranjan, "Era of Global Boiling Has Arrived,' Says UN Chief as July Set to Be Hottest Month on Record," accessed October 1, 2023, https://www.theguardian.com/science/2023/jul/27/scientists-july-world-hottest-month-record-climate-temperatures.,

[4] Global boiling" is a relatively new term that has gained attention in the context of climate change discussions. It is used to describe a period marked by extremely high global temperatures, considered more severe than what is typically referred to as "global warming"—highlighting an escalation in the climate crisis and its impacts. The term "global boiling" was popularized by United Nations Secretary-General António Guterres in July 2023, who stated, "The era of global warming has ended; the era of global boiling has arrived," to emphasize the urgency and severity of recent climate events. It is used in media, scientific commentary, and advocacy to stress the immediate risks and catastrophic consequences of unchecked climate change, such as extreme heatwaves, biodiversity loss, and threats to human health. See Ilham

warming. Global warming is a broader concept of climate change. The term is applied specifically to the consistent increase in the average temperature of the Earth's surface due to greenhouse gas (GHG) emissions from human activities.[5]

Greenhouse gases (GHG) are side effects caused by human activity. These GHGs absorb solar energy entering the Earth's atmosphere, warming the Earth's temperature and making it conducive to habitation at natural levels. The problem then arises because too much GHG is being produced. GHGs increased sharply after the Industrial Revolution in 1750, which resulted in global temperatures rising at a rate of 0.2°C per decade.[6] If left unchecked, this condition will increase the Earth's surface temperature by 1.5°C above pre-industrial levels by 2030, making the Earth less conducive to human habitation and increasing the risk of severe climate impacts.[7]

The rise in Earth's surface temperature has created climate change, potentially harming life and humanity. These include the increase in sea levels and food insecurity.[8] Initially, the climate was considered to have no significant role in humans. Still, this assumption has finally changed because the changing environment due to climate change will affect humans in the future.[9] Climate change is a global challenge that must be addressed nationally and internationally. In principle, climate change is an environmental problem that requires joint handling through

Choirul Anwar, "Apa Itu Global Boiling Dan Bedanya Dengan Global Warming?," 2023, https://tirto.id/apa-itu-global-boiling-dan-bedanya-dengan-global-warming-gRK6.

5 Davira Syifa Rifdah Suwatno, "Ratifikasi Terhadap Traktat Persetujuan Paris (Paris Agreement) Sebagai Wujud Implementasi Komitmen Indonesia Dalam Upaya Mitigasi Dan Adaptasi Perubahan Iklim," *Jurnal Pendidikan Kewarganegaraan Undiksha*, vol. 10, 2022, https://ejournal.undiksha.ac.id/index.php/JJPP. pp. 329-330

6 Suwatno. p. 330

7 Suwatno. p. 331

8 International Development Law Organization, "Climate Justice: A Rule Of Law Approach For Transformative Climate Action" (Rome, Italy, 2021). p. 5.

9 Piris-Cabezas, Lubowski, and Leslie, "Estimating the Potential of International Carbon Markets to Increase Global Climate Ambition." p. 1

international cooperation.[10] International cooperation can be carried out through international treaties, customs, and other actions that aim to reach a consensus and agreement.[11]

The United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement are sources of international law in the form of international agreements that contain mechanisms to address climate change and its impacts through international cooperation. One such mechanism is carbon trading. The Kyoto Protocol provides a basis for industrialized GHG-emitting countries (which are grouped in the agreement as Annex I countries) to reduce their overall GHG emissions by 2012, approximately 5 per cent from 1990 emissions. In addition to each country's efforts, the Kyoto Protocol also produces three market-based cooperation mechanisms, namely Joint Implementation (JI), Emissions Trading (ET), and Clean Development Mechanism (CDM).[12]

The Kyoto Protocol's three working mechanisms are considered the forerunners of carbon trading regulations. Carbon trading is a market-based mechanism that allows for negotiating and exchanging greenhouse gas emission rights. A carbon trading scheme has a mechanism for trading transactions between businesses with emissions exceeding the specified GHG emission threshold.[13] The assigned amount unit (henceforth AAU) will provide information on the number of emission units a country allows. Countries with carbon emissions exceeding the AAU value can purchase "emission rights" not used by countries whose emissions value is below the AAU.[14] In the context of carbon trading, what is traded is not carbon or gases/pollutants in the air,

---

[10] James Harrison, "Significant International Environmental Law Developments: 2022-2023," *Journal of Environmental Law* 35, no. 3 (2023): 467–79, https://doi.org/10.1093/jel/eqad028. p. 467

[11] Harrison.

[12] Takeshi Kuramochi et al., "Supporting the Paris Agreement through International Cooperation: Potential Contributions, Institutional Robustness, and Progress of Glasgow Climate Initiatives," *Npj Climate Action* 3, no. 1 (2024): 1–10, https://doi.org/10.1038/s44168-024-00106-4. Pp. 1-2

[13] Rossi Margareth Tampubolon, "Perdagangan Karbon: Memahami Konsep Dan Implementasinya," *STANDAR: Better Standard Living* 1, no. 3 (2022), https://legal-planet.org.

[14] Tampubolon.

but all efforts made by the subject to reduce or control GHG emissions.[15] The object of carbon trading is a carbon credit certificate that contains evidence of GHG emission reduction projects or activities to reduce emissions in the air.

As the biggest archipelagic country globally, with numerous large and small islands, Indonesia is experiencing the negative impacts of climate change. These include a downward trend in rainfall, which leads to drought and crop failure, and rising sea levels, which threaten islands and coastlines.[16] To prevent severe consequences of climate change, Indonesia, as part of the international community, must actively participate in efforts to avoid the increasing concentration of GHGS in the atmosphere that causes climate change. It is necessary to ratify three international legal instruments related to climate change, Therefore, with this consideration, Indonesia's government ratified several international agreements on climate change, among others the UNFCC with Law Number 6 of 1994 concerning the Ratification of the United Nations Frameworks Convention on Climate Change, Kyoto Protocol with Law Number 17 of 2004 concerning the Ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the Paris Agreement with Law Number 16 of 2016 concerning Ratification of the Paris Agreement to the United Nations Framework Convention on Climate Change.

Indonesia possesses significant potential in the carbon economy, especially within the forestry, energy, and coastal ecological sectors, including mangroves and seagrass meadows. In September 2023, Indonesia inaugurated the Indonesia Carbon Exchange, leading to a burgeoning domestic carbon trading market characterized by rising transaction values and increased company participation.[17] Nonetheless, after 2024, the effectiveness of Indonesia's carbon market, including

---

[15] Tampubolon.

[16] Nur Azizi MJ, Akbar Kurnia Putra, and Bernard Sipahutar, "Perdagangan Karbon: Mendorong Mitigasi Perubahan Iklim Diantara Mekanisme Pasar Dan Prosedur Hukum," *Jurnal Selat* 10, no. 2 (May 27, 2023): 91–107, https://doi.org/10.31629/selat.v10i2.4853.

[17] Sarjan Lahay, "Perdagangan Karbon: Solusi Atau Ilusi Atasi Krisis Iklim," mongabay.co.id, 2023, https://www.mongabay.co.id/2023/09/09/perdagangan-karbon-solusi-atau-ilusi-atasi-krisis-iklim/.

trading volume, competitive carbon pricing, and its contribution to national emission reduction objectives, is deemed suboptimal.[18] A primary obstacle is the lack of confidence and sufficient regulatory harmonization, which frequently obstructs the implementation of carbon trading at both the regulatory and technical levels. Although Indonesia has ratified the main international agreements on climate change, its national implementation requires subsequent mechanisms for them to be applicable.

Therefore, Indonesia should promptly implement legal reforms to enhance the governance of its domestic carbon market and ensure its integration and alignment with international norms and mechanisms as outlined in the Paris Agreement and the Kyoto Protocol. The investigation into legal reform and the harmonization of carbon regulations is crucial. Indonesia's ability to establish a credible and inclusive carbon trading ecosystem will directly influence the attainment of Nationally Determined Contribution (NDC) targets.[19] The enhancement of green investment and Indonesia's strategic position in mitigating global climate change.

The consequence of ratifying an international agreement is that the country becomes bound and must comply with its contents.[20] In addition to ratifying the UNFCCC, Kyoto Protocol, and Paris Agreement, Indonesia must conduct legal reform by establishing legislation about carbon trading to comply with the Kyoto Protocol, demonstrating its recognition of the right to the environment and its commitment to preventing the impacts of climate change. Challenges and issues in executing carbon trading in Indonesia require substantial attention to ensure the policy yields tangible environmental and societal benefits. In addition to the ratification instruments of international

---

[18] Diah Ayu Rahmawati et al., "Carbon Trading and Environmental Justice : A Juridical Examination of Fairness in Indonesia ' s Emissions Reduction Initiative," *West Science Law and Human Rights* 2, no. 04 (2024): 429–36.

[19] Nationally Determined Contribution or NDC is a national climate action plan outlining a country's commitments to reduce its greenhouse gas emissions and adapt to the impacts of climate change.

[20] Abdurrahman Al-fatih Ifdal, "Diplomacy and Treaty Governance by Indonesia as Norm- Shaping Practices to Align National Interests of Indonesia," *Jurnal Hubungan Luar Negeri* 9, no. 2 (2024): 139–56. pp. 140-141

conventions above, the Indonesian government has introduced new regulations to support carbon trading. However, these need to fit seamlessly with existing international regulations. This means the rules must be integrated with current regulations on environmental protection, economic activities, and corporate responsibilities. Getting this balance is crucial for making the carbon market work effectively.

Thus, this article has two objectives: first, to evaluate the legal reform conducted by the Indonesia government and the alignment of Indonesia's carbon trading regulations with international frameworks such as the Paris Agreement and the Kyoto Protocol; second, to identify and assess the challenges and opportunities in reconciling Indonesian laws with these global standards. The research seeks to elucidate Indonesia's strategy within the broader worldwide framework and identify avenues for enhancement.

Research that discusses carbon trading practices in Indonesia has been conducted by several previous researchers, for example, by Wilda Prihatiningtyas et al., titled Justice Perspective in Carbon Trading Policy in Indonesia as an Effort to Address Climate Change (*Perspektif Keadilan dalam Kebijakan Perdagangan Karbon di Indonesia sebagai Upaya Mengatasi Perubahan Iklim*). The results of this study show that justice in the context of carbon trading must be interpreted as a balance of ecological, social, and economic aspects. Justice extends beyond today's circumstances (intra-generational justice) but must also ensure that this carbon trading mechanism is fair for future generations (inter-generational justice). Although we discuss carbon trading in Indonesia, the distinction of this research is that it outlines how Indonesia practices implementing and harmonizing international agreements governing carbon trading with Indonesian laws and regulations.

Another study that discusses carbon trading practices in Indonesia was conducted by Nur Azizi MJ et al. The research titled Carbon Trading: Promoting Climate Change Mitigation Between Market Mechanisms and Legal Procedures (*Perdagangan Karbon: Mendorong Mitigasi Perubahan Iklim Diantara Mekanisme Pasar Dan Prosedur Hukum*). The research discusses carbon trading as a form of market-based mechanism for mitigating and adapting to the impacts of climate change. The results show that carbon pricing is crucial in reducing GHG emissions globally. The provision of carbon pricing is a tool to calculate

the external cost of GHG emissions. Carbon pricing is a form of compensation that emitters (polluters) must pay to society. Therefore, further regulation from the Paris Agreement can be legally binding and contain a global carbon pricing mechanism so that the target of reducing GHG emissions as a form of adaptation and mitigation of global climate change through carbon trading can be achieved. If the study above emphasizes carbon pricing regulation more, then this study will focus on the implementation of international agreements on carbon trading in Indonesian legislation.

Furthermore, Majid Asadnabizeh and Espen Moe conducted a study on carbon trading implementation entitled A Review of Global Carbon Markets from Kyoto to Paris and Beyond: The Persistent Failure of Implementation. The study concluded that the implementation of carbon trading by Asian countries such as China, India, and Japan adopted a more market-based approach. As the world's largest emitter, China has an emissions trading scheme demonstrating the country's ambition for sustainable development.[21] Like China, India, and Japan, they also have rules on carbon trading that seek to balance economic growth with environmental responsibility. Furthermore, this study also discusses the failure of widespread implementation of carbon trading due to the inadequate market mechanism design under the Kyoto Protocol, the lack of consensus reached among countries during negotiations, and the lack of transparency and cooperation, especially between developed and developing countries. The research conducted by Asadnabizeh and Moe, when compared to the study conducted by the author, both examine the implementation of carbon trading; the difference lies in the countries' location. The research conducted by the author focuses more on legal reforms carried out by the Indonesian government, especially on regulations on carbon trading after ratifying the Kyoto Protocol and the Paris Agreement.

Raul P. Lejano et al. conducted further research on implementing carbon trading, titled "The Hidden Disequities of Carbon Trading:

---

[21] Majid Asadnabizadeh and Espen Moe, "A Review of Global Carbon Markets from Kyoto to Paris and beyond: The Persistent Failure of Implementation," *Frontiers in Environmental Science* 12, no. July (2024): 1–13, https://doi.org/10.3389/fenvs.2024.1368105.

Carbon Emission, Air Toxics and Environmental Justice." This study used the state of California as a sample. The study concludes that although California's cap-and-trade mechanism is essential in dealing with climate change, it raises other issues related to environmental justice.[22] While California is trying to achieve carbon neutrality, it makes vulnerable communities, namely those living in oil refinery areas, suffer from air pollution. To prevent this from worsening and creating environmental injustice, California should implement carbon trading by prioritizing the health and well-being of all its residents, especially those in marginalized areas, by promoting transparency, fair distribution of benefits, and good emissions monitoring. This research emphasizes the side effects of environmental injustice from implementing carbon trading. In contrast, the author's research emphasizes the legal reforms undertaken by Indonesia in implementing carbon trading.

In addition, the author also uses a study entitled Reform of the National Legal System Regarding the Ratification of International Treaties in the Protection of Constitutional Rights (*Pembaharuan Sistem Hukum Nasional Terkait Pengesahan Perjanjian Internasional dalam Perlindungan Hak Konstitusional*) by Erlina Maria Christin Sinaga and Grenata Petra Claudia as a comparative study. This article does not discuss Carbon Trading, but it does discuss the reform of Indonesia's national legal system regarding the ratification of international treaties to protect constitutional rights. The article argues that it is essential to ensure that Indonesia can manage its international relations constitutionally and equitably, and avoid public harm from agreements that are not closely monitored.[23] This article provides a theoretical basis, constitutional, positive law, as well as practical studies in the context of the implementation of international agreements on carbon trade that have been ratified by Indonesia so that it can be used in

---

[22] Raul P. Lejano, Wing Shan Kan, and Ching Chit Chau, "The Hidden Disequities of Carbon Trading: Carbon Emissions, Air Toxics, and Environmental Justice," *Frontiers in Environmental Science* 8, no. 1 (November 10, 2020): 1–6, https://doi.org/10.3389/fenvs.2020.593014.

[23] Erlina Maria Christin Sinaga and Grenata Petra Claudia, "Pembaharuan Sistem Hukum Nasional Terkait Pengesahan Perjanjian Internasional Dalam Perlindungan Hak Konstitusional," *Jurnal Konstitusi* 18, no. 3 (2022): 677, https://doi.org/10.31078/jk1839.

analyzing the legal reforms that need to be carried out by Indonesia after ratifying international agreements so as not to harm its national interests.

Research is conducted systematically using a methodology, framework, or concept. Research requires a theoretical framework to explain and justify the relationship between variables. This research adopts a normative legal research framework, grounded in doctrinal legal theory and the theory of legal harmonization. The doctrinal approach systematically analyzes legal texts, statutes, and regulations to assess Indonesia's coherence, adequacy, and effectiveness of carbon trading arrangements. The research is further informed by the theory of legal reform, which examines intentional legal change to bridge gaps between existing laws and foundational commitments, as well as the harmonization theory, which addresses the alignment of domestic regulations with international legal standards and obligations. This combined framework enables a critical evaluation of Indonesia's carbon trading regulation in light of national legal doctrine and international law harmonization processes. The qualitative and descriptive analysis focuses on secondary data to reveal regulatory gaps, overlaps, and the degree of alignment with international norms. Secondary data are analyzed to reveal whether there is a lack of regulation, inadequate regulation, or overlapping regulations. Secondary data sources include previously released material from government databases. Secondary data analysis entails using pre-existing data to answer research questions or check previous results. The results of secondary data analysis are delivered in a qualitative descriptive format so that the research describes a factual account of events derived from secondary sources.

A. The alignment of Indonesia's carbon trading regulations with international frameworks

1. Key Provision of the Ratified International Agreements

The UNFCCC has five main principles: Equity, the Common but Differentiated Responsibilities Principle, the Precautionary Principle, Sustainable Development, and Sustainable Economics. These main principles are also the principles of the conventions derived from the UNFCCC, namely the Kyoto Protocol and the Paris Agreement. All

parties must adhere to these principles to achieve the ultimate goal of the three conventions.

The first and second principles, namely Equity and Common but Differentiated Responsibilities (CBDR) Principle, are contained in Article 3 paragraph (1) of The UNFCCC which essentially regulates that parties must protect the climate system for the benefit of present generations and the benefit of future generations based on equal justice but with differentiated responsibilities according to their respective capabilities, so that developed countries must take the lead in combating climate change and its adverse effects. This principle is a philosophical basis for Indonesia's ratification of the UNFCCC, Kyoto Protocol, and Paris Agreement. Equity can be interpreted as a condition where the global climate and climate system are owned fairly and equally by all human beings, including future generations. The principle of Equity is in line with the mandate of Article 28H of the 1945 Constitution, which guarantees the right of citizens to a healthy environment. A healthy environment is the right of citizens now and in the future. Climate change can threaten citizens' rights to a healthy environment, so it must be addressed immediately.

The following principle, CBDR, stipulates that parties must protect the climate system to benefit present and future generations based on equal justice. However, with differentiated responsibilities according to their respective capabilities, developed countries must take the lead in combating climate change and its adverse effects. This principle is in line with the principle of sustainable development implemented by Indonesia, as well as emphasizing Indonesia's commitment, following the preamble of the 1945 Constitution, namely to protect the entire nation and the homeland of Indonesia, as well as participation in the world order. Climate change is seen as a threat to the sovereignty and welfare of the people, so ratification is a manifestation of this constitutional protection.

2. Carbon Trading Regulation: Still an International Debate

One effort to address the issue of climate change globally was the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988 to conduct

scientific research necessary to take further action against its impacts.[24] Subsequently, the UN General Assembly in December 1990 established the Intergovernmental Negotiating Committee (INC), which was expected to play a role in negotiating the Framework Convention on Climate Change (FCCC), a convention to prevent climate change with the support of UNEP and WMO. The fifth session of the INC in May 1992 resulted in adopting the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC is a source of international law in the form of an international treaty.[25]

The UNFCCC does not stipulate regulatory measures or rules on measurement mechanisms as concrete steps towards GHG emission reduction efforts; thus, additional instruments are needed to complement it. On December 11, 1997, the third UNFCCC Conference of the Parties (COP) was held in Kyoto, Japan. In this conference, the Kyoto Protocol was born as a tool. The Paris Agreement was born from the COP-21 meeting in Paris, which resulted in the agreement being approved and adopted by 156 countries in 2016. The Paris Agreement has successfully provided direction for global low-carbon development. The Paris Agreement is an essential follow-up to the Kyoto Protocol because it reflects broad participation and ensures that developed countries remain committed to reducing emissions by 2030 to no more than 2°C and maintaining an average temperature of 1.5°C.

The UNFCCC, Kyoto Protocol, and Paris Agreement are considered the forerunners of carbon trading regulations. The carbon trading mechanism, which aims to mitigate the effects of climate change by reducing greenhouse gas emissions, has faced criticism. For example, here are some criticisms of carbon trading:

1) The system allows companies to continue emitting greenhouse gases without reducing their overall emissions. Accurately

---

[24] Agatha Sevilla Maharia, Muhamad Muhdar, and Rahmawati Al Hidayah, "Penggunaan Certified Emission Reductions Sebagai Bukti Objek Transaksi," *Jurnal de Jure* 12, no. 2 (2020): 18–31, https://walhibali.org/lembar-informasi-2/. pp. 19-20.

[25] Maharia, Muhdar, and Al Hidayah.

measuring emissions and ensuring compliance with regulations are challenging.[26]

2) There is a risk that carbon trading can become a tool for greenwashing, where companies buy the right to produce carbon emissions without reducing them.[27]
3) There is a risk that rich and powerful countries could exploit the system for their benefit, increasing environmental injustice on a global scale.[28]

There are at least three ongoing debates on carbon trading. First, it allows businesses to emit carbon under the new carbon pricing system. The main criticism of carbon trading practices is that the carbon trading system will still enable companies to emit carbon. Trading carbon credits allows these companies to continue emitting greenhouse gases without reducing their overall emissions. Conversely, trading can lead to a situation where, although carbon emissions may be offset elsewhere, co-pollutants (such as benzene, dioxin, and ammonia) are released in the communities where these facilities are located.[29] This situation may exacerbate existing environmental injustices faced by low-income and minority communities, as they continue to face the risk of exposure to air contamination despite the goal of reducing carbon emissions through the trading system.

Second, carbon trading may aid Green Capitalism. One of the arguments for carbon trading is that it can support the implementation of Green Capitalism. Green capitalism is an approach that sees the environment as natural capital for wealth creation. Green capitalism proponents argue that through market-based policy instruments such as taxes and cap-and-trade, carbon trading can improve environmental

---

[26] Lejano, Kan, and Chau, "The Hidden Disequities of Carbon Trading: Carbon Emissions, Air Toxics, and Environmental Justice." Pp. 2-4

[27] Ahmad Hidayat, "Emerging Global South Carbon Trading: Conflicting Interests of Green Capitalism and Socio-Ecological Justice," *International Relations of FISIP UI* 4, no. 1 (2023): 1–5. pp. 3-4

[28] Davilla Prawidya Azaria, Rianda Dirkareshza, and Ali Imran Nasution, "Right Vulnerability to Carbon Trading Mechanism: A Lesson Learned for Indonesia," *Bengkoelen Justice: Jurnal Ilmu Hukum* 13, no. 2 (2023): 194–208, https://doi.org/10.33369/j_bengkoelenjust.v12i1.30953. p. 13

[29] Lejano, Kan, and Chau, "The Hidden Disequities of Carbon Trading: Carbon Emissions, Air Toxics, and Environmental Justice." pp. 4-6.

conditions.[30] They believe that these mechanisms incentivize polluters in the Global South to reduce their emissions while maintaining high productivity. In the long run, companies will benefit more by implementing higher environmental standards to regulate the emissions trading system. However, green capitalism is also not free from criticism because it can lead to greenwashing. Greenwashing can occur when companies (or other carbon-emitting entities) take steps that appear to be environmentally friendly but only aim to improve their image without making substantial changes in practice. In the context of green capitalism, there are concerns that large corporations may use carbon trading systems to manipulate their image as "partners in sustainability" without significantly reducing their carbon footprint or supporting social justice for communities marginalized by carbon trading practices.

Third, there are also concerns about the implementation of offsetting schemes.[31] In carbon trading, it could lead to injustice, particularly in the protection of Indigenous Peoples and customary territories. An example of an offsetting scheme that violates indigenous peoples' rights is the Clean Development Mechanism (CDM) practices of the Panama Barro Blanco Dam Project on the Tabasara River, Chiriqui Province, Panama. This dam construction project caused ecosystem and environmental damage to the Ngabe indigenous community, who had to experience flooding of their land, settlements, and cultural and religious objects.[32] The Ngabe community could not express their aspirations regarding the dam construction. The German Investment Corporation (DEG), the Netherlands Development Finance Company (FMO), and the Central American Bank for Economic Integration (CABEI), all of which are developed-country banks, are funding the construction of this dam. The CDM aims to incentivize developed countries and business entities to invest in emission reduction

---

[30] Hidayat, "Emerging Global South Carbon Trading: Conflicting Interest of Green Capitalism and Socio-Ecological Justice." pp. 3-4

[31] Offsetting compensates or offsets greenhouse gas emissions by reducing or avoiding emissions elsewhere. The basic idea is that if an entity or project manages to reduce or prevent an amount of emissions equivalent to the emissions produced, it can earn 'carbon credits' or 'carbon offsets'. See Azaria, Dirkareshza, and Nasution, "Right Vulnerability to Carbon Trading Mechanism: A Lesson Learned for Indonesia."

[32] Azaria, Dirkareshza, and Nasution.

projects in developing countries. Unfortunately, this project has brought disaster to the Ngabe Indigenous Peoples.

Despite the ongoing debate on implementing carbon trading, the Indonesian government has chosen carbon trading as one of the ways to fulfill its commitment to reduce GHG emissions and support climate change mitigation globally. Carbon trading policy is not an absolute obligation stipulated in the Kyoto Protocol or the Paris Agreement. However, both agreements provide market-based mechanisms, including carbon trading, to help countries achieve greenhouse gas (GHG) emission reduction targets. To implement carbon trading, Indonesia must conduct legal reform to implement carbon trading regulations into Indonesian law.

3. Implementation of the International Agreement in Indonesia: A Debate between Monism and Dualism

International law is often called the law of coordination and is challenging to apply effectively. Based on the legalization theory, the effectiveness of implementing the rules or provisions of international law is determined by the form of legalization.[33] When a country decides to enter into a global agreement, the behavior, relationships, and allegations between one country and another will change from time to time according to the applicable regulations.[34]

Chayes and Chayes argue that a state's compliance with international agreements cannot be empirically verified.[35] Generally, the parties to a global agreement (whether state or not) will comply with the binding contracts. Still, it does not rule out the possibility that the parties will violate the international agreement if it is not in their country's national interests. Chayes and Chayes also argue that parties' compliance with international agreements does not reflect a decision that is deliberately taken based on the calculation of their national interests.

---

[33] Sergio Dellavalle, "Legitimacy and Rationality in National and International Law-Making," Annual Conference, Stockholm, September 2021 (Stockholm, 2021).

[34] Dellavalle.

[35] Sasmini et al., "Meningkatkan Daya Ikat Hukum Internasional : Kajian Filosofis," *Simbur Cahaya* 29, no. 1 (2022): 1–20, https://doi.org/10.28946/sc.v29i1.1804. p. 11.

Furthermore, Chayes and Chayes state that an agreement is designed not to be strictly adhered to but only on acceptable matters.[36] The agreement is made with consideration so that it can be accepted by the parties involved in their common interests. The parties' compliance level with an international agreement can be assessed from the following points.[37]:

1) Efficiency is closely related to costs. Efficiency in an international agreement is usually related to the benefits that can be obtained by the parties from reduced costs, reduced transaction costs, or other forms of benefits related to financing or finance. The efficiency gained by the parties determines the policy taken and whether or not to conclude the international agreement.
2) Interests, defined as the interests of the parties. A country commits to an international agreement when its national interests align with the agreement's objectives. However, parties can also participate in an international treaty even though they do not have a national interest related to the treaty, for a good image in the global community.
3) Norms: Norms in international treaties are binding on the countries that participate in ratifying them. People in a country generally accept international treaties as obligations that must be obeyed, like the law. Norms are provisions contained in the agreement and guide actions for countries that participate in agreeing to it.

International treaties can be dynamic or static, depending on the number of the party's interests.[38] National interests influence a country's compliance with a global agreement, efficiency, and applicable norms. Meanwhile, the rejection of international agreements is due to the parties' understanding of the agreement. National interest is the main

---

[36] Vita Cita Emia Tarigan et al., "Indonesian Compliance with Tripartite Agreement in Controlling Marine Environmental Pollution in The Malacca Strait," *Indonesian Journal of International Law* 20, no. 3 (2023): 503–36, https://doi.org/10.17304/ijil.vol20.3.4. Pp. 417-418

[37] Tarigan et al.

[38] Anne Van Aaken and Betül Simsek, "Rewarding in International Law," *American Journal of International Law* 115, no. 2 (2021): 195–241, https://doi.org/10.1017/ajil.2021.2. p. 119

reason for parties' participation (whether state or not) in an international agreement.

A new international treaty becomes binding on the contracting states depending on the stages of the treaty's formation.[39] If the treaty does not require ratification, the signing will legally bind the state parties. If it does, the ratification will only legally bind the state parties. Parties must perform their international treaties in good faith, as they serve as a source of international law.[40] Another reason is that it can strengthen their international reputation and diplomatic ties. States seen as trustworthy and consistent in fulfilling their international commitments are more likely to be partners in future international cooperation, thus increasing their influence and access to global opportunities.[41] The practice of enacting international agreements into national law varies by country, depending on the country's national interests and legal system.[42]

Indonesia regulates the provisions regarding international agreements in Law Number 24 of 2000, Concerning International Agreements (Law Number 24/2000). Based on Article 9 paragraph (2) of Law Number 24/2000, in practice, there are two types of ratification of international agreements in Indonesia, namely by law (*undang-undang*) and Presidential Decree (*keputusan president*).[43] The substance or material of the international agreement is the basis for determining whether it will be ratified as a law or a Presidential Decree, and the Ministry of Foreign Affairs carries out this assessment.[44] Article 10 of Law Number 24/2000 regulates the ratification of international agreements by law, while Article 11, paragraph (1) governs the ratification of international agreements by presidential decree.

---

39 Sasmini et al., "Meningkatkan Daya Ikat Hukum Internasional : Kajian Filosofis." pp. 4-7

40 Sasmini et al. p. 7

41 Sasmini et al.

42 This may refer to civil law, and common law in genera. See Ibnu Mardiyanto, "Perjanjian Internasional Ditinjau Dari Perspektif Hukum Nasional Dan Internasional," *Sapientia Et Virtus* 8, no. 1 (2023): 185–209, https://doi.org/10.37477/sev.v8i1.415.

43 Mardiyanto.

44 Sinaga and Claudia, "Pembaharuan Sistem Hukum Nasional Terkait Pengesahan Perjanjian Internasional Dalam Perlindungan Hak Konstitusional."

Based on constitutional studies in Article 11 of the 1945 Constitution of the Republic of Indonesia (henceforth Indonesian Constitution):

(1) The President, with the approval of the People's Representative Council, declares war, makes peace, and concludes treaties with other countries.
(2) The President, when concluding other international treaties that give rise to extensive and fundamental consequences to the life of the people related to the state's financial burden, and/or compelling amendment or enactment of laws, shall obtain the approval of the People's Representative Council.
(3) Laws shall regulate further provisions regarding international treaties. International agreements have binding law and become a source of national law because constitutional provisions have made them, not because they are contained in the form of laws, so that international agreements can be used outside the law.[45]

Melda Karim also conveyed the opinion that Indonesia adheres to the monism approach. Melda Karim argues that Indonesia adheres to monism because, in every Law on Ratification of International Treaties, the international treaty is permanently attached; thus, the law on ratification of international treaties should be able to apply as a source of formal law for judges in court to decide a case.[46] An example of diplomatic and consular relations in Indonesia is the 1961 and 1963 Vienna Conventions on Diplomatic and Consular Relations, ratified through Law Number 1 of 1982. Although this convention is not regulated nationally, diplomatic and consular relations in Indonesia are based on it.

Wisnu Aryo Dewanto, referring to Article 9 paragraph (2) of Law Number 24/2000, states that the entry into force of international agreements in the Indonesian national legal system is carried out through

---

[45] Teresa Vrilda, Peni Susetyorini, and Kholis Roisah, "Implikasi Putusan Mahkamah Konstitusi No . 13 / PUU-XVI/2018 Terhadap Proses Pengesahan Perjanjian Internasional Di Indonesia," *Diponegoro Law Journal* 8, no. 4 (2019): 2779–96.

[46] Wisnu Aryo Dewanto in Sinaga and Claudia, "Pembaharuan Sistem Hukum Nasional Terkait Pengesahan Perjanjian Internasional Dalam Perlindungan Hak Konstitusional."

a transformation process.[47] If referring to this opinion, it can be said that Indonesia adheres to a dualist approach, where an international agreement must first be transformed into a national regulation to bind inward.[48] Article 11 of the Indonesian Constitution does not explicitly regulate whether international agreements can apply as a source of law in Indonesia. It only governs the president's authority to make international agreements.

Furthermore, the laws and presidential decrees used to ratify an international agreement are not the legal basis for implementing it in Indonesia. Indonesia contends that additional domestic legislation must be enacted for implementation, notwithstanding the ratification of international accords.[49] This is why, in practice, the ratification of international agreements, either by law or Presidential Decree, will be followed by the formation of national regulations governing the substance of the global agreement. An example is the United Nations Conventions on Climate Change, ratified by Law Number 6 of 1994 and became effective after being promulgated by Law Number 32 of 2009 on Environmental Protection and Management. Another example is the Berne Convention for the Protection of Literary and Artistic Works, ratified by Presidential Decree Number 19 of 1997, which was later implemented by Law Number 19 of 2002 on Copyright. Dewanto argues that these two examples confirm that Indonesia adheres to dualism, so the enactment of international treaties in Indonesia must undergo a transformation process.[50]

At this point, it can be concluded that Indonesia does not have clarity in applying the process of entry into force of international treaties into national law because, in practice, both the monism approach using the theory of incorporation and the dualism approach using the theory of transformation are equally applied. However, Indonesia tends to

---

47 Sinaga and Claudia, "Pembaharuan Sistem Hukum Nasional Terkait Pengesahan Perjanjian Internasional Dalam Perlindungan Hak Konstitusional."

48 Mardiyanto, "Perjanjian Internasional Ditinjau Dari Perspektif Hukum Nasional Dan Internasional."

49 Sinaga and Claudia, "Pembaharuan Sistem Hukum Nasional Terkait Pengesahan Perjanjian Internasional Dalam Perlindungan Hak Konstitusional."

50 Mardiyanto, "Perjanjian Internasional Ditinjau Dari Perspektif Hukum Nasional Dan Internasional."

apply the dualism approach. This is based on the dissenting opinion given by Constitutional Court Judges Hamdan Zoelva and Maria Farida Indrati when handling a judicial review case against Law Number 38 of 2008 on the Ratification of the ASEAN Charter in 2013.[51] Judge Hamdan Zoelva argued that judicial review of Law 28 of 2008 was rejected because the law was merely a form of ratification or adoption of an international agreement, which did not necessarily apply as a law that immediately binds citizens.

Meanwhile, Judge Maria Farida Indrati argued that, based on Article 24C of the Indonesian Constitution, normatively, the article can be interpreted that the Constitutional Court is also authorized to examine the Law on the Ratification of International Agreements that are contrary to the Indonesian Constitution. However, this is excluded from requests for judicial review of the substance of the Law on Ratification of International Agreements. Judge Maria Farida Indrati argued that this was not possible because there was no content material in the paragraphs, articles, and/or parts of the law that the Indonesian Constitution could contradict. The Law on Ratification of International Agreements is not legislation whose substance is normative and can be directly applied to everyone. The law on ratification of international agreements is a form of approval by the House of Representatives of international agreements made by the government under the provisions of Article 11 of the Indonesian Constitution.

Based on the two opinions of the Constitutional Court judges, it can be concluded that the approach used in Indonesia regarding the process of enactment of international treaties is dualism with the theory of transformation, where international treaties must be transformed into

[51] The right to test laws allegedly contrary to the 1945 Constitution is known as a material test or judicial review. The term 'right to test' covers two kinds of understanding, namely formal and material. The judge has the authority to investigate the legality of a legislative product through the 'right to formal review'. Meanwhile, the 'right to material test' grants the judge the authority to scrutinize the authorization of the authority or organ responsible for a regulation, and to determine if its content aligns with the provisions of higher legislation. A number of NGOs incorporated in the Global Justice Alliance submitted this judicial review request to the Constitutional Court in 2013, citing Article 1 paragraph (5) and Article 2 paragraph (2) letter n of Law Number 38/2008 on the Ratification of the ASEAN Charter. The panel of judges entirely rejected this judicial review request.

national regulations first and then can be applied to the community and used as a legal basis by judges in court in giving a decision.

4. Indonesian Legal Reform: Implementation and Harmonization of International Carbon Trading Regulation.

Social Justice for All Indonesian People is one value of Pancasila, an Indonesian "*grundnorm*". This justice applies to humans and the environment. Environmental justice aims to ensure that policies and actions related to the environment consider the community's social, economic, and health impacts. The benefits arising from government policies must be distributed fairly to all groups of society. No particular group of people should receive discriminatory treatment regarding the effects or adverse environmental consequences that may arise from the policy.

The Indonesian Constitution, namely the post-amendment 1945 Constitution of the Republic of Indonesia, has formulated environmental rights in Article 28H paragraph (1), which states that everyone has the right to a good and healthy environment. The phrase "right to a good and healthy environment" as a substantive right is a juridical basis for legal claims for individuals to realize their interests in a good and healthy environment. It can be concluded that the Indonesian constitution adopted the concept of a "green constitution," where the state laid the foundation for policymakers so that the policies are pro-environment.[52]

Implementing a green constitution in Indonesia is reflected in integrating environmental protection principles into the national legal and policy framework, rooted in the 1945 Constitution. Article 28H and Article 33 affirm the right to a healthy environment and sustainable management of natural resources for the welfare of the people. This constitutional mandate aligns with Indonesia's commitment to international climate agreements, such as the UNFCCC, Kyoto Protocol, and Paris Agreement. By ratifying these agreements, Indonesia is legally bound to reduce greenhouse gas emissions through Nationally

---

[52] Ischika Aprilia Ivana, Dewi Haryanti, and Hendra Arjuna, "Green Constitution Dalam Sistem Penyelenggaraan Negara Yang Demokratis Di Indonesia," *Jurnal Samudera Hukum* 1, no. 2 (2023): 100–103.

Determined Contributions (NDC), with a target of 29% emission reduction by 2030 (41% with international support). Undertaking legal reform in implementing the three international agreements above demonstrates Indonesia's efforts to fulfil its obligations as a party. These steps not only fulfil international commitments but also realize the principle of environmental sustainability mandated by Indonesia's green constitution.

In addition to ratifying the UNFCCC, the Kyoto Protocol, and the Paris Agreement, Indonesia also enacts laws and regulations related to carbon trading to comply with the Kyoto Protocol, demonstrating its recognition of the right to the environment and its commitment to preventing the impacts of climate change. Carbon trading is the subject of four laws, two presidential regulations, five ministerial regulations, and one state agency regulation.[53] These laws and regulations indicate Indonesia's commitment to engaging in carbon trading.

Laws issued after the ratification of the Kyoto Protocol and related to carbon trading are:

1) Law No. 32 of 2009 on Environmental Protection and Management (Law 32/2009)

This law provides the legal foundation for environmental management and introduces economic incentives, including carbon trading, to support sustainable practices. This aligns with Indonesia's obligations under the Kyoto Protocol and the Paris Agreement to reduce greenhouse gas (GHG) emissions through market-based mechanisms. In Law 32/2009, the regulation on economic incentives is contained in Article 42. One of the applications of financial incentives in environmental management is carbon trading. These articles provide a framework for developing environmental economic instruments, which can then be further elaborated in the implementing regulations of this law. Specifically, Article 42, paragraph (2) of Law 32/ 2009 regulates the development and application of environmental economic instruments, which include:

i. Development planning and economic activities that take into account environmental aspects

[53] Makarim and Taira S, "Entering the Carbon Trading Era in Indonesia," vol. 1 (Jakarta, 2023).

ii. Environmental funding
iii. Providing incentives and/or disincentives

These instruments aim to give economic value to environmental conservation efforts, for example, with market-based mechanisms such as carbon trading. In the context of carbon trading, incentives can be given to parties that successfully reduce greenhouse gas emissions below a specific limit to sell excess emission rights (carbon credits) to other parties in need. Conversely, disincentives can be imposed on parties that exceed the set emission limits. However, Law 32/2009 lacks a strong and comprehensive legal framework in the context of Carbon Trading. This law provides a legal basis for the environment's economic value, but does not regulate the governance and supervision system. In the broader context of climate change, this law also does not regulate the obligation to reduce emissions by the industrialized world or the emission reduction target and timeframe by the government, so the commitment of the Indonesian government in this regard is questionable.

2) Law Number 16 of 2016 on the Ratification of the UNFCCC.

This law ratifying the Paris Agreement underscores Indonesia's commitment to achieving its Nationally Determined Contributions (NDCs), targeting a 29%-41 % GHG reduction by 2030. As Article 6 of the Paris Agreement stipulates, carbon trading is a key tool in meeting these goals. Law 16/2016 is a law that formally ratifies the Paris Agreement, so all provisions and commitments in the Paris Agreement become part of Indonesia's national law and form the basis for national policies related to climate change, including the reduction of greenhouse gas emissions and the development of instruments such as carbon trading.

Law 16/2016 provides legal legitimacy for Indonesia to participate in global carbon trading. Still, as it is a ratification law, the implementation of the contents of the ratified international agreement is highly dependent on its derivative regulations. To be effective, these laws require strengthening derivative regulations to integrate cap-and-trade mechanisms, expand sector coverage, and ensure distributive justice in carbon trading practices.

3) Law No. 7 of 2021 on Harmonization of Tax Regulations

This law establishes a carbon tax framework that complements carbon trading by putting a price on emissions, encouraging businesses

to adopt greener practices. This law supports Indonesia's transition to a low-carbon economy that aligns with its international climate commitments. Law 7/2021 introduces a legal framework for a carbon tax in Indonesia that directly complements and supports the implementation of carbon trading. The provisions on carbon tax are regulated in Chapter VI of Article 13, paragraphs (1) to (16). This article regulates the integration of Carbon Tax and Carbon Trading (Article 13 paragraphs 6, 7, and 8 of Law 7/2021). In this case, entities whose emissions exceed the cap can pay a carbon tax or purchase emission certificates from other businesses through a carbon exchange. This approach is known as a cap and tax, which runs parallel to a cap and trade in carbon trading. This article also regulates carbon tax rates and incentives, which are set at a lower limit of IDR 30/kg CO2e (Article 13, paragraph 9 of Law 7/2021). This encourages a transparent and competitive carbon price in the carbon market and incentivizes businesses that successfully reduce emissions or purchase carbon credits.

However, this law has some weaknesses, namely that Article 13 contains too many different norms, making implementation complicated, and many technical rules that must be further regulated through derivative regulations. In addition, the definition and mechanism are unclear; this article (or Law 7/2021 as a whole) does not clearly define carbon tax or a mechanism for when and how the tax is imposed, creating legal uncertainty for businesses. Furthermore, the carbon tax rate of at least IDR 30,000/ton CO2e is far below international standards, making the incentive to reduce emissions less intense. The law also lacks mechanisms for monitoring, data transparency, and emissions reporting, requiring derivative regulations. The successful implementation of carbon trading depends on clarifying derivative regulations, adequate pricing, administrative readiness, and strengthened transparency and oversight. Without addressing these weaknesses, the effectiveness of carbon taxes and trading in reducing emissions and promoting a green economy will remain limited.

4) Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector,

This law institutionalizes carbon trading by establishing a carbon exchange regulated by the Financial Services Authority (*Otoritas Jasa Keuangan* or OJK). Is the primary legal basis for establishing a carbon

trading framework in Indonesia through a carbon exchange. This law stipulates the establishment of a carbon exchange under OJK as stipulated in Article 23, which mandates OJK to regulate carbon trading through carbon exchanges as part of financial instruments. Article 24 also specifies that carbon exchange organizers must obtain a business license from OJK. This is done to ensure market transparency and accountability. The law also classifies Carbon Units as Securities, allowing carbon trading through capital market mechanisms.

However, the law also has several weaknesses, firstly, the status of Carbon Units as Securities. The classification of carbon units as securities (rather than commodities) contradicts global practice, as it may hinder international market integration and lead to double counting. Second, in terms of participation in the carbon exchange market, there is a provision that the capital of the carbon exchange organizer (at least Rp100 billion) is the same as the stock exchange; this limits the participation of small actors and indigenous peoples. Third, the law relies on derivative regulations to address emissions verification, additionality, and anti-greenwashing mechanisms.

Presidential Regulations issued after the ratification of the Kyoto Protocol and related to carbon trading are:

1) Presidential Regulation No. 61 of 2011 on the National Action Plan to Reduce Greenhouse Gas Emissions.

This regulation establishes the National Action Plan for Reducing Greenhouse Gas Emissions (*Rencana Aksi Nasional Penurunan Emisi Gas Rumah Kaca* or RAN-GRK), which outlines Indonesia's strategies to mitigate emissions across key sectors like forestry, energy, agriculture, and waste management. It was issued after the ratification of the Kyoto Protocol and aligns with its principles by promoting sustainable development and enabling Indonesia to participate in mechanisms like the Clean Development Mechanism (CDM). The RAN-GRK serves as a roadmap for achieving voluntary emission reduction targets, reflecting Indonesia's proactive stance in global climate action.

This presidential regulation, which is the basis for the policy to reduce greenhouse gas emissions, has several structural and implementative weaknesses, such as the non-uniformity of emission baselines and targets. In this regulation, there are inconsistencies in the base year; for example, provinces can use different base years in preparing

the Regional Action Plan for Greenhouse Gas Emission Reduction (*Rencana Aksi Daerah Penurunan Emisi Gas Rumah Kaca* or RAD-GRK), making it challenging to aggregate national data and monitor progress. Furthermore, this regulation only sets national targets without specific allocations to sectors or regions, which can lead to overlapping responsibilities and program inefficiencies. In technical terms, mitigation activities in the forestry sector in the appendix to Perpres 61/2011 are dominated by supporting activities, such as socialization, rather than direct actions, such as emission reduction by industry. This Perpres does not regulate sanctions for regions or sectors that fail to meet targets, so implementation is voluntary and not monitored.

2) Presidential Regulation No. 98 of 2021 on Implementing Carbon Economic Value for Achieving Nationally Determined Contribution Targets and Controlling Greenhouse Gases in National Development,

This regulation provides a comprehensive framework for implementing carbon pricing mechanisms, including carbon trading, taxes, and results-based payments. It directly supports Indonesia's commitments under the Paris Agreement by operationalizing Article 6, allowing international cooperation through market-based mechanisms to achieve Nationally Determined Contributions (NDCs). The regulation also introduces the concept of Carbon Economic Value (NEK) to encourage investment in low-carbon technologies and sustainable practices, thereby contributing to Indonesia's target of reducing greenhouse gas emissions by 29% (or up to 41% with international support) by 2030. Presidential Regulation 98/2021 is the basis for implementing carbon trading in Indonesia, but it has several structural and operational weaknesses, for example, in Article 1, number 22, which stipulates that the state controls carbon rights. With this kind of regulation, it can be interpreted that indigenous peoples are not recognized as rights-holding subjects. This system has the potential to exploit indigenous peoples who have contributed to forest conservation without receiving fair economic benefits. In addition, indigenous peoples have no meaningful participation mechanism in formulating policies or implementing carbon trading, which is contrary to the principle of environmental justice.

Furthermore, the provisions of Article 13, which require recording mitigation activities in the National Registry System, make it difficult for indigenous peoples to participate because of the complicated process and high costs. This presidential regulation also relies heavily on its derivative regulations to regulate technical provisions such as validation, verification, and carbon prices, which are submitted to the Ministry of Environment, but this ministerial regulation has not been entirely issued, so it is prone to causing legal uncertainty and hindering implementation. Another weakness is that the market-based mechanisms regulated in this presidential decree tend to benefit large corporations, while MSMEs and indigenous communities have difficulty accessing the market due to high capital and administrative requirements.

Ministerial regulations issued after the ratification of the Kyoto Protocol and related to carbon trading are:

1) Minister of Forestry Regulation No. P.20/Menhut-II/2012 on Forest Carbon Management;
   This regulation establishes guidelines for managing forest carbon, focusing on reducing emissions from deforestation and forest degradation (REDD+). It aligns with the Kyoto Protocol's CDM and the Paris Agreement's Article 5, which emphasizes the role of forests in climate mitigation.
2) Minister of Energy and Mineral Resources Regulation No. 47/2018 on the Procedure for Determining Electricity Tariffs
   While primarily addressing electricity tariffs, this regulation indirectly supports Indonesia's climate commitments by promoting renewable energy development and reducing reliance on fossil fuels, contributing to GHG mitigation efforts under international agreements.
3) Minister of Energy and Mineral Resources Regulation Number 16 of 2022 concerning Procedures for Implementing the Economic Value of Carbon in the Electricity Generation Subsector;
   This regulation operationalizes carbon pricing in the energy sector, including carbon trading and taxes, to reduce emissions from electricity generation. It aligns with Indonesia's commitments under the Paris Agreement to achieve its NDCs through market-based mechanisms outlined in Article 6.

4) Minister of Environment and Forestry Regulation No. 21 of 2022 on Procedures for Implementing Carbon Economic Value;
   This regulation provides detailed procedures for implementing carbon economic value across various sectors, including carbon trading, taxes, and results-based payments. It directly supports Indonesia's NDC targets under the Paris Agreement by creating a framework for sustainable financing and emission reductions.
5) Minister of Environment and Forestry Regulation No. 7 of 2023 on Forestry Sector Carbon Trading Procedures
   This regulation establishes specific mechanisms for carbon trading within the forestry sector, enabling Indonesia to leverage its vast forest resources for climate mitigation. It supports the Kyoto Protocol's CDM and the Paris Agreement by facilitating international cooperation in reducing emissions through forestry-based initiatives.

The last State Institution's regulation is the Financial Services Authority (Otoritas Jasa Keuangan or OJK) Regulation No. 14 of 2023 on Carbon Trading through Carbon Exchange. The Kyoto Protocol introduced market-based mechanisms like the CDM and International Emissions Trading (IET) to facilitate global cooperation in reducing GHG emissions. OJK Regulation 14/ 2023 supports these principles by providing a structured platform for trading carbon credits, enabling Indonesia to participate in international carbon markets while fostering domestic emission reduction initiatives. The regulation also operationalizes Article 6 of the Paris Agreement, which allows countries to collaborate through market-based mechanisms such as Internationally Transferred Mitigation Outcomes (ITMOs). By establishing a carbon exchange, Indonesia creates a system to facilitate domestic and international carbon trading, contributing to its NDCs target of reducing GHG emissions by 29% (up to 41% with international support) by 2030. Further, the regulation complements Indonesia's broader policy framework on Carbon Economic Value, as outlined in Presidential Regulation No. 98 of 2021, by enabling a formal marketplace for carbon transactions. This supports Indonesia's efforts to incentivize low-carbon investments and sustainable development practices that align with its international climate commitments.

B. The challenges and opportunities after the implementation and harmonization of carbon trading regulation

1. Challenges in Carbon Trading: Indonesia Practices

Indonesia's carbon trading practices cause several environmental problems. Prihatiningtyas et al. outline these problems using the Katingan Mentaya Project case in Central Kalimantan.[54] The problems faced in carbon trading through the project are, firstly, forest fires in Indonesia, which are still a serious problem; these fires can hinder the integrity of carbon credits by causing unpredictable fluctuations in carbon stock assessments, making it challenging to accurately measure and verify emission reductions. Moreover, frequent forest fires can lead to environmental degradation, affecting indigenous peoples' land rights and livelihoods, which are often vital components of carbon offset projects. Secondly, there are greenwashing practices, where some companies use carbon trading to improve their image without taking real action to reduce carbon emissions. Third, there are land disputes with local communities. And fourth, there are conservation areas bordering industrial oil palm plantation areas, which could threaten the sustainability of the environment and local communities.[55]

According to Azaria et al., local communities will suffer from injustice resulting from activities if developed countries carry out CDM projects in developing countries without involving them.[56] According to Tampubolon, carbon trading trials in Indonesia conducted by the Ministry of Energy and Mineral Resources (MEMR) involving PLTU (*Pembangkit Listrik Tenaga Uap*/Electric Steam Power Plant) aim to control or reduce carbon emissions to obtain financial benefits and support efforts to prevent global warming. Furthermore, engaging in carbon trading can also improve the company's image in terms of

---

[54] Wilda Prihatiningtyas et al., "Perspektif Keadilan Dalam Kebijakan Perdagangan Karbon (Carbon Trading) Di Indonesia Sebagai Upaya Mengatasi Perubahan Iklim," *Refleksi Hukum: Jurnal Ilmu Hukum* 7, no. 2 (2023): 163–86, https://doi.org/10.24246/jrh.2022.v7.i2.p163-186.

[55] Prihatiningtyas et al.

[56] Azaria, Dirkareshza, and Nasution, "Right Vulnerability to Carbon Trading Mechanism: A Lesson Learned for Indonesia."

environmental sustainability.[57] This statement suggests that companies use carbon trading primarily for financial benefits and corporate image rather than environmental sustainability.

Challenges and problems in implementing carbon trading in Indonesia still need to be seriously addressed so that the policies can provide tangible benefits to the people and the environment. The value of carbon trading is to enrich environmental justice, and this value should still be adopted by the government when making policies related to carbon trading. This value is not yet evident in the current carbon trading policy, hence the abovementioned problems. Currently, the government's carbon trading policy is inconsistent and sectoral, so reformulation of the carbon trading policy is still needed.

The harmonization of carbon trading in Indonesia faces various challenges that need to be addressed for this policy to deliver tangible benefits to the environment and society. Aside from the issue of regulatory vagueness and the need for policy reformulation, several additional challenges also need to be addressed. One of the main challenges is limited market infrastructure and capacity. Although the Indonesia Carbon Exchange has been launched, the infrastructure supporting carbon trading is still under development. Limitations in technology, monitoring, and verification systems can hamper the effectiveness of carbon trading. Without a robust system to monitor emissions and ensure transparency in transactions, trust in the mechanism will diminish, reducing participation from the private sector.

Lack of understanding and awareness among industry players is also a significant barrier. Many companies, especially smaller ones, do not fully understand how carbon trading works or how they can participate effectively. Education and training for industry players are essential to increase their participation in carbon markets. The government needs to launch programs that clearly explain the benefits and mechanisms of carbon trading. Social justice issues must also be considered in the implementation of this policy. Often, environmental policies do not have an impact on local communities, especially indigenous communities that

---

[57] Tampubolon, "Perdagangan Karbon: Memahami Konsep Dan Implementasinya."

depend on natural resources.[58] If not appropriately managed, carbon trading could exacerbate social injustice by benefiting large companies while ignoring the rights of local communities. Therefore, it is essential to involve communities in decision-making and ensure that they benefit from carbon trading projects.

Furthermore, volatile carbon prices can affect market stability. Uncertainty about the cost of carbon credits can make companies hesitant to invest in long-term emission reduction projects. Price stability is essential to creating a conducive investment climate. The government should consider price stabilization mechanisms to keep the market attractive to investors.

Finally, collaboration between ministries and agencies is a key factor in the success of this policy. Many sectors involve carbon trading, including energy, environment, and finance. Policy implementation can be ineffective or contradictory without proper coordination between these various parties. Addressing these challenges through an inclusive and integrated approach, Indonesia can maximize its carbon trading potential to achieve emission reduction targets while ensuring social equity and environmental sustainability.

2. The 1945 Constitution: Answering the Carbon Trading Challenges

The concept of environmental justice finds resonance within the Indonesian Constitution. Article 28H paragraph (1) guarantees every person the right to a healthy environment, a principle deeply intertwined with the aims of carbon trading. Environmental justice demands that the burdens and benefits of environmental policies, such as carbon trading, are distributed fairly and equitably across all segments of society, preventing disproportionate negative impacts on marginalized communities.[59] This aligns with the constitutional mandate to ensure the well-being of all citizens and the sustainable management of natural resources, as implied in Article 33 paragraphs (3) and (4) concerning the state's control over natural resources for the most significant benefit of

---

[58] Lailiy Muthmainnah, Rizal Mustansyir, and Sindung Tjahyadi, "Kapitalisme, Krisis Ekologi, Dan Keadilan Inter-Generasi : Analisis Kritis Atas Problem Pengelolaan Lingkungan Hidup Di Indonesia," *Mozaik Humaniora* 20, no. 1 (August 31, 2020): 57, https://doi.org/10.20473/mozaik.v20i1.15754.

[59] Muthmainnah, Mustansyir, and Tjahyadi.

the people.[60] Therefore, a robust and just carbon trading policy must focus on emissions reduction and actively promote equity, protect vulnerable populations from adverse effects, and ensure their meaningful participation in decision-making processes.[61] Integrating these constitutional principles into designing and implementing carbon trading mechanisms is crucial for achieving environmental sustainability and social justice in Indonesia.

Indonesia's carbon trading policy's current inconsistencies and sectoral nature risk exacerbating existing environmental injustices.[62] Without a comprehensive and unified framework, specific industries or regions might disproportionately bear emissions reduction costs, while others benefit without contributing equitably.[63] This could lead to a situation where marginalized communities, often already facing environmental degradation and limited access to resources, are further burdened by the implementation of carbon trading schemes. For instance, if policies prioritize large-scale industrial carbon capture projects without considering the potential displacement or impact on local livelihoods, it would directly contradict the spirit of environmental justice enshrined in the Constitution.

Moreover, Article 33 of the Constitution emphasizes the state's responsibility to manage natural resources for the most significant benefit of the people. This implies that any policy related to the environment, including carbon trading, must prioritize the well-being of all Indonesians, not just a select few.[64] A carbon trading system that lacks transparency, accountability, and mechanisms for community involvement could undermine this constitutional principle.

---

[60] Fitra Arsil and Qurrata Ayuni, "Understanding Natural Resources Clause in Indonesia Constitution," in *IOP Conference Series: Earth and Environmental Science*, vol. 940, 2021, 6–10, https://doi.org/10.1088/1755-1315/940/1/012040.

[61] Prihatiningtyas et al., "Perspektif Keadilan Dalam Kebijakan Perdagangan Karbon (Carbon Trading) Di Indonesia Sebagai Upaya Mengatasi Perubahan Iklim."

[62] Azizi MJ, Kurnia Putra, and Sipahutar, "Perdagangan Karbon: Mendorong Mitigasi Perubahan Iklim Diantara Mekanisme Pasar Dan Prosedur Hukum."

[63] Surti Handayani, "Pengakuan Dan Pelibatan Masyarakat Adat Dalam Skema Perdagangan Karbon Di Indonesia," n.d.

[64] Karina Fitri Darmawan, "Hak Asasi Lingkungan Versus Hak Atas Pembangunan Sebagai Ham: Antara Konflik Dan Keseimbangan," *Jurnal Poros Hukum Padjadjaran* 3, no. 2 (2022): 169–84, https://doi.org/10.23920/jphp.v3i2.685.

Environmental justice necessitates that local communities, particularly those whose livelihoods are directly linked to natural resources, are not only consulted but also actively participate in designing and implementing carbon trading initiatives that might affect them.[65] Their traditional knowledge and perspectives are invaluable for ensuring the effectiveness and fairness of such policies.

To truly embody the constitutional ideals of environmental justice, the reformulation of Indonesia's carbon trading policy should prioritize several key elements. Firstly, it must establish clear and consistent regulations across all sectors, ensuring a level playing field and preventing the shifting of environmental burdens. Secondly, it should incorporate robust social safeguards and impact assessments to identify and mitigate potential negative consequences on vulnerable communities. Thirdly, benefits-sharing mechanisms should be integrated, ensuring that the revenues generated from carbon trading contribute to sustainable development initiatives and directly benefit affected communities. Finally, and perhaps most importantly, the policy development process must be inclusive and participatory, allowing for the meaningful engagement of civil society organizations, local communities, and indigenous groups. By grounding its carbon trading policy in the principles of environmental justice as reflected in its Constitution, Indonesia can create a system that is not only environmentally sound but also socially equitable and truly serves the best interests of all its citizens.

Conclusion

Indonesia's approach to incorporating international treaties into national law is not entirely clear-cut, exhibiting elements of both monism and dualism. However, there is a tendency towards dualism, where international treaties must be transformed into national regulations to be effectively applied and used as a legal basis in judicial decisions. This dualistic tendency is supported by practical examples and judicial opinions, indicating that while international treaties are significant, their domestic application often requires additional legislative action.

[65] Audrey R. Chapman and A. Karim Ahmed, "Climate Justice, Humans Rights, and the Case for Reparations," *Health and Human Rights* 23, no. 2 (2021): 81–94.

Indonesia's implementation of carbon trading faces significant hurdles despite its potential to enrich environmental justice, a value rooted in the constitution's guarantee of a healthy environment and equitable resource management. Research highlights issues such as persistent forest fires that undermine project credibility (Katingan Mentaya), greenwashing by companies prioritizing image over real emissions reductions, land disputes with local communities, and conflicts between conservation and industrial areas. Local communities risk injustice if excluded from CDM projects, and there are concerns that financial and reputational gains drive carbon trading more than environmental sustainability. Addressing regulatory ambiguity, limited market infrastructure (despite the Indonesian Carbon Exchange), and a lack of understanding among industry players is critical. Social equity must be central, ensuring that local and indigenous communities are involved and benefit, and that existing inequalities are not exacerbated. Volatile carbon prices pose investment risks and require potential stabilization mechanisms. Effective inter-ministerial cooperation is essential for coherent policy implementation. To be consistent with constitutional principles of environmental justice, policy reform should prioritize consistent regulations, robust social safeguards, benefit-sharing mechanisms, and inclusive participatory processes involving civil society and local communities. A consistent framework is needed to avoid disproportionate burdens on marginalized groups and to ensure that carbon trading serves the well-being of all Indonesians, promoting both environmental sustainability and social justice.

References

Aaken, Anne Van, and Betül Simsek. "Rewarding in International Law." *American Journal of International Law* 115, no. 2 (2021): 195–241. https://doi.org/10.1017/ajil.2021.2.

Anser, Muhammad Khalid, Sheikh Usman Yousaf, Bushra Usman, Kamran Azam, Nur Fatihah Abdullah Bandar, Hanifah Jambari, Sriyanto Sriyanto, and Khalid Zaman. "Beyond Climate Change: Examining the Role of Environmental Justice, Agricultural Mechanization, and Social Expenditures in Alleviating Rural Poverty." *Sustainable Futures* 6, no. 1 (December 1, 2023): 1–17.

https://doi.org/10.1016/j.sftr.2023.100130.

Anwar, Ilham Choirul. "Apa Itu Global Boiling Dan Bedanya Dengan Global Warming?," 2023. https://tirto.id/apa-itu-global-boiling-dan-bedanya-dengan-global-warming-gRK6.

Aprilia Ivana, Ischika, Dewi Haryanti, and Hendra Arjuna. "Green Constitution Dalam Sistem Penyelenggaraan Negara Yang Demokratis Di Indonesia." *Jurnal Samudera Hukum* 1, no. 2 (2023): 100–103.

Arsil, Fitra, and Qurrata Ayuni. "Understanding Natural Resources Clause in the Indonesia Constitution." In *IOP Conference Series: Earth and Environmental Science*, 940:6–10, 2021. https://doi.org/10.1088/1755-1315/940/1/012040.

Asadnabizadeh, Majid, and Espen Moe. "A Review of Global Carbon Markets from Kyoto to Paris and beyond: The Persistent Failure of Implementation." *Frontiers in Environmental Science* 12, no. July (2024): 1–13. https://doi.org/10.3389/fenvs.2024.1368105.

Azaria, Davilla Prawidya, Rianda Dirkareshza, and Ali Imran Nasution. "Right Vulnerability to Carbon Trading Mechanism: A Lesson Learned for Indonesia." *Bengkoelen Justice: Jurnal Ilmu Hukum* 13, no. 2 (2023): 194–208. https://doi.org/10.33369/j_bengkoelenjust.v12i1.30953.

Azizi MJ, Nur, Akbar Kurnia Putra, and Bernard Sipahutar. "Perdagangan Karbon: Mendorong Mitigasi Perubahan Iklim Diantara Mekanisme Pasar Dan Prosedur Hukum." *Jurnal Selat* 10, no. 2 (May 27, 2023): 91–107. https://doi.org/10.31629/selat.v10i2.4853.

Chapman, Audrey R., and A. Karim Ahmed. "Climate Justice, Human Rights, and the Case for Reparations." *Health and Human Rights* 23, no. 2 (2021): 81–94.

Dellavalle, Sergio. "Legitimacy and Rationality in National and International Law-Making." Annual Conference, Stockholm, September 2021. Stockholm, 2021.

Dewanto, Wisnu Aryo. "Memahami Arti Undang-Undang Pengesahan Perjanjian Internasional Indonesia." *Opinio Juris* 4, no. 1 (2012): 18–31.

Fitri Darmawan, Karina. "Hak Asasi Lingkungan Versus Hak Atas Pembangunan Sebagai Ham: Antara Konflik Dan

Keseimbangan." *Jurnal Poros Hukum Padjadjaran* 3, no. 2 (2022): 169–84. https://doi.org/10.23920/jphp.v3i2.685.

Handayani, Surti. "Pengakuan Dan Pelibatan Masyarakat Adat Dalam Skema Perdagangan Karbon Di Indonesia," n.d.

Harrison, James. "Significant International Environmental Law Developments: 2022-2023." *Journal of Environmental Law* 35, no. 3 (2023): 467–79. https://doi.org/10.1093/jel/eqad028.

Hidayat, Ahmad. "Emerging Global South Carbon Trading: Conflicting Interests of Green Capitalism and Socio-Ecological Justice." *International Relations of FISIP UI* 4, no. 1 (2023): 1–5.

Ifdal, Abdurrahman Al-fatih. "Diplomacy and Treaty Governance by Indonesia as Norm-Shaping Practices to Align National Interests of Indonesia." *Jurnal Hubungan Luar Negeri* 9, no. 2 (2024): 139–56.

International Development Law Organization. "Climate Justice: A Rule Of Law Approach For Transformative Climate Action." Rome, Italy, 2021.

Kuramochi, Takeshi, Andrew Deneault, Sander Chan, Sybrig Smit, and Natalie Pelekh. "Supporting the Paris Agreement through International Cooperation: Potential Contributions, Institutional Robustness, and Progress of Glasgow Climate Initiatives." *Npj Climate Action* 3, no. 1 (2024): 1–10. https://doi.org/10.1038/s44168-024-00106-4.

Lahay, Sarjan. "Perdagangan Karbon: Solusi Atau Ilusi Atasi Krisis Iklim." mongabay.co.id, 2023. https://www.mongabay.co.id/2023/09/09/perdagangan-karbon-solusi-atau-ilusi-atasi-krisis-iklim/.

Lejano, Raul P., Wing Shan Kan, and Ching Chit Chau. "The Hidden Disequities of Carbon Trading: Carbon Emissions, Air Toxics, and Environmental Justice." *Frontiers in Environmental Science* 8, no. 1 (November 10, 2020): 1–6. https://doi.org/10.3389/fenvs.2020.593014.

Maharia, Agatha Sevilla, Muhamad Muhdar, and Rahmawati Al Hidayah. "Penggunaan Certified Emission Reductions Sebagai Bukti Objek Transaksi." *Jurnal de Jure* 12, no. 2 (2020): 18–31. https://walhibali.org/lembar-informasi-2/.

Makarim and Taira S. "Entering the Carbon Trading Era in Indonesia."

Vol. 1. Jakarta, 2023.

Mardiyanto, Ibnu. "Perjanjian Internasional Ditinjau Dari Perspektif Hukum Nasional Dan Internasional." *Sapientia Et Virtus* 8, no. 1 (2023): 185–209. https://doi.org/10.37477/sev.v8i1.415.

Muthmainnah, Lailiy, Rizal Mustansyir, and Sindung Tjahyadi. "Kapitalisme, Krisis Ekologi, Dan Keadilan Inter-Generasi : Analisis Kritis Atas Problem Pengelolaan Lingkungan Hidup Di Indonesia." *Mozaik Humaniora* 20, no. 1 (2020): 57. https://doi.org/10.20473/mozaik.v20i1.15754.

Niranjan, Ajit. "Era of Global Boiling Has Arrived,' Says UN Chief as July Set to Be Hottest Month on Record." Accessed October 1, 2023. https://www.theguardian.com/science/2023/jul/27/scientists-july-world-hottest-month-record-climate-temperatures.

Piris-Cabezas, Pedro, Ruben N. Lubowski, and Gabriela Leslie. "Estimating the Potential of International Carbon Markets to Increase Global Climate Ambition." *World Development* 167, no. 1 (July 1, 2023): 1–14. https://doi.org/10.1016/j.worlddev.2023.106257.

Prihatiningtyas, Wilda, Suparto Wijoyo, Indria Wahyuni, and Zuhda Mila Fitriana. "Perspektif Keadilan Dalam Kebijakan Perdagangan Karbon (Carbon Trading) Di Indonesia Sebagai Upaya Mengatasi Perubahan Iklim." *Refleksi Hukum: Jurnal Ilmu Hukum* 7, no. 2 (2023): 163–86. https://doi.org/10.24246/jrh.2022.v7.i2.p163-186.

Rahmawati, Diah Ayu, Budi Endarto, Joice Soraya, and Siti Ngaisah. "Carbon Trading and Environmental Justice : A Juridical Examination of Fairness in Indonesia 's Emissions Reduction Initiative." *West Science Law and Human Rights* 2, no. 04 (2024): 429–36.

Sasmini, Erna Dyah, Sri Lestari, Emmy Latifah, and Anugrah Adiastuti. "Meningkatkan Daya Ikat Hukum Internasional : Kajian Filosofis." *Simbur Cahaya* 29, no. 1 (2022): 1–20. https://doi.org/10.28946/sc.v29i1.1804.

Sinaga, Erlina Maria Christin, and Grenata Petra Claudia. "Pembaharuan Sistem Hukum Nasional Terkait Pengesahan Perjanjian Internasional Dalam Perlindungan Hak

Konstitusional." *Jurnal Konstitusi* 18, no. 3 (2022): 677. https://doi.org/10.31078/jk1839.

Suwatno, Davira Syifa Rifdah. "Ratifikasi Terhadap Traktat Persetujuan Paris (Paris Agreement) Sebagai Wujud Implementasi Komitmen Indonesia Dalam Upaya Mitigasi Dan Adaptasi Perubahan Iklim." *Jurnal Pendidikan Kewarganegaraan Undiksha*. Vol. 10, 2022. https://ejournal.undiksha.ac.id/index.php/JJPP.

Tampubolon, Rossi Margareth. "Perdagangan Karbon: Memahami Konsep Dan Implementasinya." *STANDAR: Better Standard Living* 1, no. 3 (2022): 25–29. https://legal-planet.org.

Tarigan, Vita Cita Emia, Akmal Handi Ansari Nasution, Mohammad Ekaputra, and Rizki Nanda Saputri. "Indonesian Compliance with Tripartite Agreement in Controlling Marine Environmental Pollution in The Malacca Strait." *Indonesian Journal of International Law* 20, no. 3 (2023): 503–36. https://doi.org/10.17304/ijil.vol20.3.4.

UN News. "Hottest July Ever Signals 'Era of Global Boiling Has Arrived' Says UN Chief." Accessed October 1, 2023. https://news.un.org/en/story/2023/07/1139162.

Vrilda, Teresa, Peni Susetyorini, and Kholis Roisah. "Implikasi Putusan Mahkamah Konstitusi No . 13 / PUU-XVI/2018 Terhadap Proses Pengesahan Perjanjian Internasional Di Indonesia." *Diponegoro Law Journal* 8, no. 4 (2019): 2779–96.

Acknowledgement

The successful completion of this work would not have been possible without the generous support of several key institutions. I would like to express my sincere gratitude to the Indonesian Education Scholarship, the Center for Higher Education Funding and Assessment, the Ministry of Higher Education, Science and Technology of the Republic of Indonesia, and the Endowment Fund for Education Agency, the Ministry of Finance of the Republic of Indonesia. Their collective support has been instrumental in the realization of this research, and I am deeply indebted to them for their commitment to fostering academic excellence in Indonesia.

Funding Information

This research is funded by *Beasiswa Pendidikan Indonesia* (The Indonesian Education Scholarship)

Conflicting Interest Statement

There is no conflict of interest in the publication of this article.

Publishing Ethical and Originality Statement

The authors declared that this work is original and has never been published in any form or media, nor is it under consideration for publication in any journal. All sources cited in this work refer to the basic standards of scientific citation.