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TAX INCENTIVES FOR CARBON TRADING IN INDONESIA: FOSTERING SUSTAINABLE GREEN FINANCE

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Abstract

Carbon trading is an important mechanism in global efforts to reduce greenhouse gas emissions. In Indonesia, the implementation of the Carbon Economic Value (NEK) system and the launch of a carbon exchange are strategic steps towards a low-carbon economy. However, the success of this initiative heavily relies on the effectiveness of fiscal support, particularly through tax incentives. This research aims to analyze Indonesia's legal framework and fiscal policy in supporting carbon trading, evaluate the challenges of implementing tax incentives, and design tax incentives that can strengthen private sector participation and sustainable green finance. Using a doctrinal approach, this study compares international practices and analyzes domestic regulations, including Law No. 7 of 2021 and various derivative regulations related to carbon trading. The study results indicate that although Indonesia's legal framework is relatively complete, implementation still faces challenges such as technical limitations, low understanding, and minimal fiscal-environmental integration. Therefore, the design of tax incentives integrated with carbon trading mechanisms, accompanied by capacity building and inter-agency coordination, is key to encouraging private participation and the transition towards a green economy. This research offers theoretical and practical contributions in developing fiscal policies that are more responsive to climate challenges.

A. INTRODUCTION

Climate change has become a pressing global challenge, prompting countries to adopt various mechanisms for reducing greenhouse gas emissions. One prominent approach is carbon trading, which allows entities to buy and sell emission rights as an incentive to reduce their emissions. Indonesia, as a country with the third-largest tropical forests in the world and significant carbon emissions, has launched various initiatives to implement domestic and international carbon trading systems. However, the success of this system heavily depends on fiscal policy support, particularly tax incentives, which can encourage private sector participation and investment in green projects.

Indonesia has demonstrated a strong commitment to reducing greenhouse gas emissions through various policies, including the launch of an Emission Trading System (ETS) for the power generation sector in 2023.[1] This system, known as Carbon Economic Value (NEK), sets emission caps and allows companies to trade their emission quotas.[2] Furthermore, Indonesia also plans to launch an international carbon market through the IDXCarbon platform, which is expected to attract foreign investment in emission reduction projects.[3] However, the implementation of carbon trading in Indonesia faces various challenges, including a lack of strong fiscal incentives to encourage private sector participation. Although Law Number 7 of 2021 concerning the Harmonization of Tax Regulations has introduced a carbon tax, the tariff set is still relatively low and does not yet reflect the appropriate carbon price. Additionally, there are no specific tax incentive policies to encourage investment in green projects that contribute to emission reductions.

A study is needed to analyze the role of tax incentives in supporting carbon trading in Indonesia, as well as how these policies can strengthen sustainable green finance. By reviewing the existing legal framework and comparing it with international practices, this study is expected to provide effective policy recommendations to encourage the transition to a low-carbon economy. Thus, it is necessary to address 3 (three) main problems. First, how does the current legal framework and fiscal policy in Indonesia support the implementation of carbon trading? Second, what are the challenges and obstacles in implementing tax incentives for carbon trading in Indonesia? Third, how can an effective tax incentive design encourage private sector participation in carbon trading and strengthen sustainable green finance in Indonesia?

In the context of this study's theme, while several previous studies exist, this doctrinal study offers novel contributions by analyzing how tax incentives can be designed to support carbon trading mechanisms in Indonesia, a topic not extensively discussed in prior literature; examining the role of the legal framework in integrating tax incentives with carbon trading to foster sustainable green finance; comparing tax incentive practices in carbon trading in other countries to identify best practices adaptable to Indonesia; and providing policy recommendations that amalgamate fiscal, legal, and environmental aspects to bolster carbon trading and green finance in Indonesia. Through this approach, this study is anticipated to address a lacuna in the literature and make a significant contribution to the development of fiscal and legal policies that support carbon trading and green finance in Indonesia. Research conducted by Pratama et al. (2022) projected potential state revenue from carbon tax in the energy sector amounting to IDR 23.651 trillion by 2025, and highlighted the impact of carbon tax imposition on the reduction of carbon emissions.[4] However, the

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[1] International Carbon Action Partnership, Indonesian Economic Value of Carbon (Nilai Ekonomi Karbon) Trading Scheme, Retrieved from https://icapcarbonaction.com/en/ets/indonesian-economic-value-carbon-nilai-ekonomi-karbon-trading-scheme#:~:text=500%2C000%20tonnes%20of%20CO2%20in,ETS%20in%20its%20first%20yea.

[2] *Loc.cit.*

[3] Giorgia Marino, CLIMATE, INDONESIA LAUNCHES ITS INTERNATIONAL CARBON TRADING, 06 FEB 2025. Retrieved from https://www.renewablematter.eu/en/climate-indonesia-launches-its-international-carbon-trading.

[4] Bintang A. Pratama, M. Agra Ramadhani, Putri M. Lubis, dan Amrie Firmansyah, A. (2022). Implementasi Pajak Karbon di Indonesia: Potensi Penerimaan Negara dan Penurunan Jumlah Emisi Karbon, *Jurnal Pajak Indonesia*, Vol. 6, No. 2, 2022, pp. 368–374.

research by Pratama et al. (2022) only focused on fiscal potential and emission reduction without discussing the integration of tax incentives in carbon trading mechanisms or their implications for green finance. Meanwhile, research by Wibisono & Soepriyanto (2024) has identified challenges in implementing carbon tax in the Indonesian automotive industry, including infrastructure readiness and its impact on production costs.[5] However, this previous research did not discuss the role of tax incentives in supporting carbon trading or its contribution to green finance. Meanwhile, research by Zahrotullail (2023) has analyzed the "cap and tax" scheme in Indonesia's carbon tax policy, highlighting revenue opportunities and implementation challenges.[6] Also, this previous research has not explored the integration of tax incentives in carbon trading or its impact on green finance. Furthermore, the study by Sulistyowati et al. (2025) highlighted the importance of legal and institutional readiness in implementing carbon tax to support the green energy transition.[7] Then, this previous study did not specifically discuss the role of tax incentives in carbon trading or its contribution to green finance. Then, research by Arifin & Siagian (2024) has analyzed carbon tax policy as a source of state revenue and its contribution to climate resilience.[8] Thus, this previous research has not discussed the integration of tax incentives in carbon trading or its impact on green finance. It is important and urgent to evaluate how tax incentives can be effectively designed and implemented to support carbon trading and strengthen green finance in Indonesia. By learning from international practices and considering domestic conditions, Indonesia can develop fiscal policies that support the transition towards a sustainable low-carbon economy.

B. ANALYSIS AND DISCUSSION

1. Legal and fiscal policy framework in Indonesia supporting the implementation of carbon trading

Indonesia has established a legal framework that supports the implementation of carbon trading, which includes Presidential Regulation Number 98 of 2021 concerning the Implementation of Carbon Economic Value (NEK), which serves as the primary legal basis for carbon trading in Indonesia; Financial Services Authority Regulation (POJK) Number 14 of 2023 concerning Carbon Trading through the Carbon Exchange, which regulates the procedures for carbon trading through the carbon exchange in Indonesia; Minister of Environment and Forestry Regulation Number 21 of 2022 concerning the Procedure for Implementing Carbon Economic Value, which regulates the technical mechanisms for NEK implementation, including validation and verification of emission reduction projects; and Law Number 4 of 2023 concerning the Development and

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[5] Adrian H. Wibisono dan Gatot Soepriyanto, Tantangan Pajak Karbon sebagai Alternatif Kebijakan Transisi Energi Bersih di Indonesia: Studi Kasus Industri Otomotif, *Owner: Riset dan Jurnal Akuntansi*, Vol. 8, No. 1, 2024, pp. 258–265.

[6] Q. Zahrotullail, Peluang dan Tantangan Kebijakan Pajak Karbon dengan Skema Cap and Tax di Indonesia. Jakarta Fakultas Ilmu Administrasi, Universitas Indonesia, 2023.

[7] Rina Sulistyowati, Tri Winarsih, Mistri Ani, dan Rachmad Bayu Kurniawan,, Urgensi Penerapan Carbon Tax Sebagai Upaya Mitigasi Perubahan Iklim Untuk Meningkatkan Sustainable Economic Growth, Owner: Riset & Jurnal Akuntansi, Vol. 9, No. 2, 2025, DOI : https://doi.org/10.33395/owner.v9i2.2564.

[8] Amalia H. Arifin dan Abdhy W. Siagian, Quo Vadis Ketahanan Iklim: Analisis Kebijakan Pajak Karbon sebagai Pertambahan Pendapatan Indonesia. Jurnal BPPK: Badan Pendidikan dan Pelatihan Keuangan, Vol. 16, No. 1, 2024, pp. 1–15.

Strengthening of the Financial Sector, which provides the legal basis for OJK to regulate and supervise carbon trading through the carbon exchange. This legal framework demonstrates Indonesia's commitment to developing a transparent and accountable domestic carbon market.

In addition to this legal framework, the government has also established fiscal policies in Indonesia to support carbon trading. These policies include the imposition of a carbon tax through Law Number 7 of 2021 concerning the Harmonization of Tax Regulations. Indonesia has set a carbon tax with a minimum rate of IDR 30 per kilogram CO2e. This tariff can be adjusted according to prices in the carbon market. In this regard, the Government has implemented a cap and tax scheme, where companies whose emissions exceed the set limit must pay a carbon tax. This scheme aims to encourage companies to reduce emissions and participate in carbon trading[9]. Revenue from the carbon tax is used to fund environmental initiatives, such as reforestation, conservation, and renewable energy development, as well as to provide social assistance to affected communities.[10] This fiscal policy is designed to provide incentives for businesses to reduce emissions and participate in carbon trading.

Although the legal framework and fiscal policies have been established, there are several challenges in implementing carbon trading in Indonesia. First, there is still a need to strengthen technical capacity and human resources in carbon trading management. Second, more effective coordination between relevant ministries and agencies is needed to ensure harmonious implementation. Third, there is a need to increase awareness and understanding among businesses regarding the benefits and mechanisms of carbon trading. These challenges in implementing carbon trading in Indonesia indicate the need for developing training and socialization programs to enhance the capacity and understanding of stakeholders, improving inter-agency coordination through the establishment of special forums or task forces for carbon trading, and providing additional incentives for businesses actively participating in carbon trading.

2. Challenges and obstacles in the application of tax incentives for carbon trading in Indonesia

The implementation of tax incentives for carbon trading requires a reliable Measurement, Reporting, and Verification (MRV) system. However, many sectors in Indonesia do not yet have adequate infrastructure or emission data to support transparent calculations.[11] This limitation hampers the effectiveness of tax incentives in encouraging emission reductions. The application of a carbon tax can increase production costs, especially for industries that rely on fossil fuels. This can reduce the competitiveness of Indonesian products in both domestic and

[9] Hendra Kurniawan, Pajak Karbon di Indonesia: Tarif Carbon Tax untuk Perusahaan, 2025. Retrieved from https://klikpajak.id/blog/pajak-karbon-dan-tarif-pajak-karbon-indonesia/.
[10] *Loc.cit.*
[11] Kompas.com, Menguak Tantangan dan Peluang Pajak Karbon di Indonesia, Siapakah Kita?, 16 November 2024. Retrived from https://www.kompasiana.com/mogi2004/6738cf53c925c4427861a572/menguak-tantangan-dan-peluang-pajak-karbon-di-indonesia-siapakah-kita.

international markets.[12] Resistance from industry players is a significant obstacle in the implementation of tax incentives for carbon trading.

The first challenge is the increase in production costs for industry players, especially sectors that rely on fossil fuels. In the short term, carbon taxes tend to increase the price of products manufactured by these industries. Then, the low understanding of the public and business actors about the concept and benefits of carbon tax leads to a lack of support for this policy.[13] Many perceive it only as an additional burden without understanding its long-term positive impacts. One of the main challenges is the low understanding of the public and business actors about the concept and benefits of carbon tax. Many perceive it only as an additional burden without understanding its long-term positive impacts.

Although there is a legal umbrella such as Law Number 7 of 2021, the implementation of carbon tax still faces obstacles due to the absence of supporting derivative regulations.[14] Lack of coordination between relevant ministries and agencies also hinders the effectiveness of this policy. The carbon tax, which was supposed to be implemented from April 1, 2022, has not yet materialized due to the absence of supporting derivative regulations for its implementation. The implementation of carbon trading requires adequate experts and financial resources. Lack of technical and financial capacity is an obstacle in the development and operationalization of an effective carbon market.[15] For emission reduction activities in the upstream aspect, then the downstream aspect in the market requires technical capacity that is actually multilayered; it must be developed in policymakers, the private sector, and the community.

This analysis shows that although Indonesia has taken initial steps in implementing carbon tax and carbon trading, there are still various challenges that need to be overcome to ensure the effectiveness and sustainability of these policies. Collaborative efforts between the government, industry, and the community are needed to address these obstacles and encourage the transition to a low-carbon economy.

3. Effective tax incentives can encourage private sector participation in carbon trading and strengthen sustainable green finance in Indonesia

Well-designed tax incentives can be a strategic tool to encourage the private sector to participate in carbon trading. By providing tax relief or exemptions for companies that invest in low-emission technologies or emission reduction projects, the government can create a conducive environment for green economic growth.[16]

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[12] Universitas Widya Mataram, Pajak Karbon: Tantangan Baru bagi Industri, 2024. Retrieved from https://new.widyamataram.ac.id/content/news/pajak-karbon-tantangan-baru-bagi-industri.
[13] Kompas.com, *Ibid.*
[14] Hairul Rizal, Instrumen Fiskal Iklim: Tantangan Pajak Karbon, 23 Sept 2024. Retrieved from https://labirin.id/v1/public/news/45599/instrumen-fiskal-iklim-tantangan-pajak-karbon.
[15] Bagaskara, Carbon Trading: Kelebihan, Kekurangan, Regulasi, dan Dampak. Retrieved from https://mutucertification.com/carbon-trading/.
[16] Aswin Rivai, (2025, Februari 20). Insentif Pajak Hijau untuk Ekonomi Berkelanjutan. https://www.antaranews.com/berita/4662345/insentif-pajak-hijau-untuk-ekonomi-berkelanjutan.

There are several strategies in designing effective tax incentives in Indonesia. First, Super Deduction Tax for Research and Development (R&D) of Green Technology. The Indonesian government has implemented a super deduction tax policy that provides tax reductions of up to 300% for companies investing in green technology R&D.[17] This policy aims to encourage innovation and adoption of environmentally friendly technologies in the industrial sector.[18] Second, Tax Holiday for Renewable Energy Investment. Companies engaged in the renewable energy sector can obtain Corporate Income Tax exemptions for 5 to 20 years, depending on the investment amount. This incentive is designed to attract large investments in clean energy projects.[19] Third, Reduction of Value Added Tax (VAT) for Electric Vehicles. The government has reduced VAT for electric vehicles to encourage the adoption of environmentally friendly vehicles by the public and businesses.[20] Fourth, Integration of Tax Incentives with Carbon Trading Mechanisms. Integrating tax incentives with carbon trading mechanisms, such as cap and trade schemes, can provide flexibility for companies in managing their emissions. Companies that successfully reduce emissions below the set limit can sell their excess emission quotas, while those exceeding the limit must buy additional quotas or pay carbon tax.[21]

Although various incentives have been implemented, there are several challenges in their implementation. First, mismatch between policy and implementation. There is a mismatch between the designed fiscal policy and its implementation in the field, which can reduce the effectiveness of tax incentives.[22] Second, lack of inter-agency coordination. Lack of coordination between relevant ministries and agencies can hinder the effective implementation of tax incentives. Third, limitations in infrastructure and technology. Limitations in infrastructure and technology for monitoring and reporting emissions can hinder private sector participation in carbon trading.

The existence of these challenges in implementing tax incentives requires several designs for more effective tax incentives. First, develop a clear and consistent regulatory framework for tax incentives related to carbon trading, including mechanisms for verification and emission reporting. Second, enhance technical capacity and infrastructure to support the implementation of carbon trading and emission monitoring. Third, improve coordination between relevant ministries and agencies to ensure effective and harmonious implementation of tax incentives. Fourth, conduct socialization and education for business actors about the benefits and mechanisms of tax incentives and carbon trading. With an effective tax incentive design and proper implementation, Indonesia can encourage private sector participation in carbon trading and strengthen sustainable green finance.

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[17] *Loc.cit.*
[18] Anastasia Zefanya, dan Posma S. J. Kennedy, Kajian Pelaksanaan Skema Cap and Tax dalam Kebijakan Mitigasi Perubahan Iklim di Indonesia. IKRAITH-HUMANIORA, Vol. 7, No. 3, 2023, pp. 279–284. https://journals.upi-yai.ac.id/index.php/ikraith-humaniora/article/download/3410/2567.
[19] Aswin Rivai, *Ibid.*
[20] *Ibid.*
[21] Anastasia Zefanya, dan Posma S. J. Kennedy, *Ibid.*
[22] Aswin Rivai, *Ibid.*

This will contribute to achieving emission reduction targets and environmentally friendly economic development.

C. CONCLUSION

This doctrinal study yields three main conclusions. First, the existing legal and fiscal policy framework is progressive but not yet optimal. Indonesia has established a legal framework for carbon trading through Presidential Regulation No. 98/2021, Financial Services Authority Regulation (POJK) No. 14/2023, and Minister of Environment and Forestry Regulation No. 21/2022, and has stipulated a carbon tax through the Law on Harmonization of Tax Regulations (UU HPP) of 2021. However, this framework still faces technical and institutional challenges that hinder effective implementation. Second, challenges in the application of tax incentives remain significant. Key obstacles include an inadequate MRV system, industry resistance due to increased production costs, low understanding among business actors, and delays in derivative regulations. These factors impede the effective adoption of fiscal incentives in supporting carbon trading. Third, appropriate tax incentive design can encourage private participation and green finance. Strategies such as super deduction for green R&D, tax holidays for renewable energy, and VAT reduction for electric vehicles indicate promising directions. However, their effectiveness depends on regulatory clarity, adequate technical infrastructure, and closer inter-agency coordination.

Going forward, Indonesia needs to design tax incentives that are integrated with carbon trading mechanisms, strengthen technical and institutional capacity, and improve climate literacy among business actors. This step is crucial for creating a system that not only curbs emissions but also promotes sustainable green investment. This research addresses a literature gap by presenting an integrative analysis of tax law and carbon trading within the Indonesian context. Policy recommendations are directed towards strengthening regulations, expanding emission-based fiscal incentives, and harmonizing sectoral policies to bolster green finance and effectively achieve national emission reduction targets.

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