

THESIS

**THE URGENCY OF CARBON TAX IMPLEMENTATION TO TARGET
ENHANCED NATIONALLY DETERMINED CONTRIBUTION**



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ABSTRACT

The signing of the Paris Agreement in 2015 was a significant step for Indonesia to commit by establishing a Nationally Determined Contribution (NDC) document to transition towards Indonesia with a just and affordable Green Economy. As stipulated in the Taxation Harmonisation Act, the carbon tax has not been implemented; even until this thesis was successfully compiled, the derivative regulations listed in the Taxation Harmonisation Act have not been established. This research aims to determine the factors urging carbon tax to be implemented after being postponed 2 (two) times by the government.

A qualitative interpretive approach was employed in this study to broaden the scope of informants, enriching the research perspectives. Using interviews as the primary data collection technique, the study presents insights from tax academics interested in a carbon tax, experienced tax practitioners, tax authorities involved in public education, and YouTube to gather perspectives from relevant ministries. In-depth semi-structured interviews were conducted to enhance the richness of perspectives, whose quality was further enhanced through data triangulation, named observation and documentation.

The interview data collected and sorted using data triangulation will be traced using the main ideas from each view towards the research themes. Although delayed twice, a carbon tax is still essential to implement due to the pressure from international organisations, environmental issues, and Indonesia's commitment to transition to a green economy. The Indonesian government postponed the carbon tax implementation to wait for the right moment so that the implementation result is ideal and does not harm the parties affected by the carbon tax. As the first sector planned to be subject to a carbon tax, the energy sector is the most likely to be included in the carbon tax and market roadmap as the highly regulated business climate makes it easier for the government to implement the carbon tax in 2025.

Keywords: Negative Externality, Pigouvian Tax, Carbon Tax, Carbon Emission

URGENSI IMPLEMENTASI PAJAK KARBON UNTUK MENARGETKAN PENINGKATAN KONTRIBUSI YANG DITETAPKAN SECARA NASIONAL

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ABSTRAK

Penandatanganan Perjanjian Paris pada tahun 2015 merupakan langkah besar Indonesia untuk berkomitmen melalui penetapan dokumen kontribusi yang ditetapkan secara nasional (NDC) bertransisi menuju Indonesia dengan Ekonomi Hijau yang adil dan terjangkau. Tertuang dalam Undang-Undang Harmonisasi Perpajakan, pajak karbon tidak kunjung diimplementasikan, bahkan hingga skripsi ini berhasil disusun, peraturan turunan yang tertera dalam UU HPP belum ditetapkan. Penelitian ini bertujuan untuk mengetahui faktor-faktor mendesak untuk pajak karbon harus diimplementasikan setelah ditunda sebanyak 2 (dua) kali oleh pemerintah.

Metode kualitatif interpretatif digunakan dalam penelitian ini untuk memperluas jangkauan informan yang dapat menambah kekayaan perspektif atau pandangan penelitian ini. Menggunakan wawancara sebagai teknik pengumpulan data primer, penelitian ini menyuguhkan pandangan dari kalangan akademisi pajak yang tertarik dengan pajak karbon, praktisi pajak yang sudah lama berkecimpung di dunia pajak, otoritas pajak yang bernaung dalam bagian penyuluhan masyarakat serta kehadiran Youtube untuk mengetahui pandangan dari kementerian-kementerian terkait. Wawancara mendalam dilakukan semi terstruktur untuk meningkatkan kekayaan pandangan yang kualitasnya akan ditingkatkan dengan triangulasi data berupa observasi dan dokumentasi.

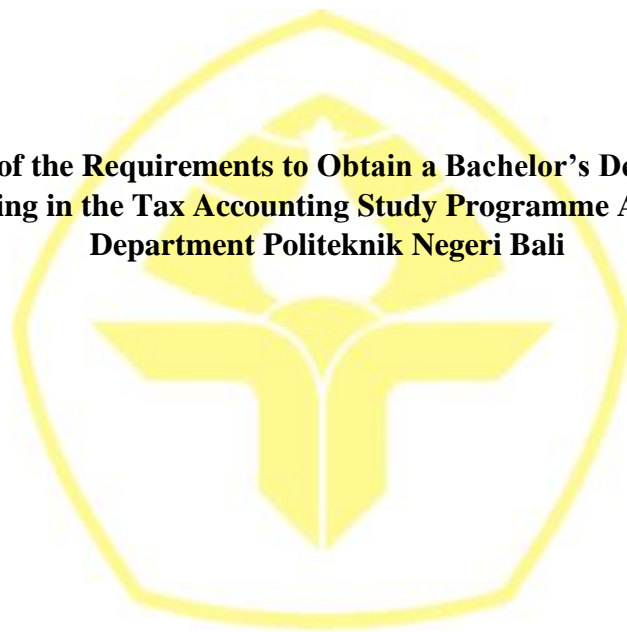
Data hasil wawancara yang telah dikumpulkan dan dipilah menggunakan triangulasi data akan ditelusur menggunakan ide pokok dari setiap pandangan menuju tema-tema penelitian. Pajak karbon, walau tertunda 2 (dua) kali, tetap penting untuk diimplementasikan karena adanya desakan organisasi internasional, masalah lingkungan, dan keadaan Indonesia yang berkomitmen untuk bertransisi menuju ekonomi hijau. Pemerintah Indonesia menunda implementasi pajak karbon untuk menunggu momen yang tepat agar hasil implementasinya ideal dan tidak merugikan pihak-pihak terdampak pajak karbon. Sektor energi, sebagai sektor pertama yang rencananya akan dikenakan pajak karbon, merupakan sektor yang paling memungkinkan untuk masuk dalam peta jalan pajak dan pasar karbon karena iklim usaha yang memiliki regulasi ketat tersebut memberikan kemudahan bagi pemerintah untuk mengimplementasikan pajak karbon di tahun 2025.

Kata Kunci: *Ekternalitas Negatif, Pajak Pigouvian, Pajak Karbon, Emisi Karbon*

**THE URGENCY OF CARBON TAX IMPLEMENTATION TO TARGET
ENHANCED NATIONALLY DETERMINED CONTRIBUTION**

THESIS

**Made as One of the Requirements to Obtain a Bachelor's Degree in Applied
Accounting in the Tax Accounting Study Programme Accounting
Department Politeknik Negeri Bali**



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Date of Test : 14th of August 2024

The thesis is my own and original work. It is not plagiarism or adaptation of other parties' work, and it has never been submitted as a requirement or as part of the requirements for obtaining a degree from a university.

Thus, I make this statement to be used as appropriate.

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THESIS

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ENHANCED NATIONALLY DETERMINED CONTRIBUTION**

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FOREWORD

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criticism and suggestions from readers will be very useful in developing this research further to its best version.

Denpasar, 31 July 2024

Ni Putu Sri Suci Artini Asih



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- Attachment 3: Interview transcript with Mr Pintar
- Attachment 4: Interview transcript with Mr Zukses
- Attachment 5: Interview transcript with Mr Bagus
- Attachment 6: Interview transcript with Mrs Sri Mulyani
- Attachment 7: Interview Documentation



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CHAPTER I

INTRODUCTION

A. Research Background

As per the findings outlined in the report of Global Carbon Project (2023), should current CO₂ levels remain unchanged, global warming will likely surpass a 1.5°C increase by 50% over the next seven years. However, this estimation is subject to considerable uncertainties, primarily stemming from the unpredictability surrounding the extent of additional warming attributed to non-CO₂ factors. This uncertainty is particularly pertinent in the context of targets aiming for a 1.5°C increase as they approach the existing warming threshold.

The effects of global warming are to be expected and prevented in many ways. For example, Indonesia has transitioned from fossil-generated transportation to electricity-generated transportation, and a big step has been pursued: a long-term plan temperature goal set out in Article 2 of the Paris Agreement. (Kementrian Keuangan, 2024)

The Paris Agreement was signed by 196 (one hundred and ninety-six) parties at the 2015 United Nations Climate Change Conference near Paris, France. While the United States withdrew from the agreement, 195 (one hundred and ninety-five) countries, including Indonesia, signed an agreement to commit an act to prevent global warming called the Paris Agreement on the 22nd of April 2016 in New York, United States. The signing of the Paris Agreement (2015) required Indonesia and 194 (one hundred and ninety-four)

other countries to commit to structured changes in the economic and social sectors to prevent the change in global temperature until at least 1.5°C and create a financial supply to reach a low-carbon development. This is stated in Article 4 Paragraph 2 of the Paris Agreement, which says each party is to prepare, communicate, and maintain successive Nationally Determined Contributions (NDC) that it intends to achieve. All parties shall pursue domestic mitigations and measures to achieve the objectives of such contributions. NDC as the heart of the Paris Agreement, already prepared, communicated, and updated by Indonesia from Intended NCD, First NDC, then finally Enhanced NDC where Indonesia committed an emissions reduction target of 31.89% unconditionally by national support and 43.20% conditionally with international support in 2030.

Sector	GHG Emission Level 2010* (MTon CO ₂ -eq)	GHG Emission Level 2030			GHG Emission Reduction				Annual Average Growth BAU (2010-2030)	Average Growth 2000-2012
		MTon CO ₂ -eq			MTon CO ₂ -eq		% of Total BaU			
		BaU	CM1	CM2	CM1	CM2	CM1	CM2		
1. Energy*	453.2	1,669	1,311	1,223	358	446	12.5%	15.5%	6.7%	4.50%
2. Waste	88	296	256	253	40	43.5	1.4%	1.5%	6.3%	4.00%
3. IPPU	36	69.6	63	61	7	9	0.2%	0.3%	3.4%	0.10%
4. Agriculture	110.5	119.66	110	108	10	12	0.3%	0.4%	0.4%	1.30%
5. Forestry and Other Land Uses (FOLU)**	647	714	214	-15	500	729	17.4%	25.4%	0.5%	2.70%
TOTAL	1,334	2,869	1,953	1,632	915	1,240	31.89%	43.20%	3.9%	3.20%

Notes: CM1= Counter Measure 1 (*unconditional mitigation scenario*)
CM2= Counter Measure 2 (*conditional mitigation scenario*)

*) Including fugitive.

**) Including emission from estate and timber plantations.

Source: Republic of Indonesia, 2022

Figure 1. 1 Projected BAU and Emission Reduction from Each Sector Category

Enhanced NDC is Indonesia's last update targeting its commitment to reduce carbon emissions while considering its conditions as a developing country. This update is also intended to show Indonesia's transparency and

seriousness in preventing climate change worldwide with the help of the United Nations Framework Convention on Climate Change (UNFCCC).

The commitment is also included in Presidential Regulation No. 18/2020 on the Medium-Term Development Plan 2020 – 2024 (Peraturan Presiden No 55 Tahun 2020, 2019) which stated that Indonesia would implement Low Carbon Development and create several new tax and trade regulations that had previously been implemented by developed countries, such as Finland (Kumala et al., 2022).

An economic activity that result in negative externalities, or costs imposed by unconnected third parties, is subject to a a pigouvian tax (Arthur C Pigou, 1920). The cost arising from negative externalities was not reflected in the product's final cost, hence the market inefficiency. Pigouvian tax is only intended to counteract market inefficiencies by raising marginal costs by the amount of the negative externality. The overall social cost of the economic activity in this instance will be reflected by the initial cost plus the Pigouvian tax. The adverse externality will then be internalised. For example, the carbon gas emitted by companies in Finland will be taxed with the carbon tax.

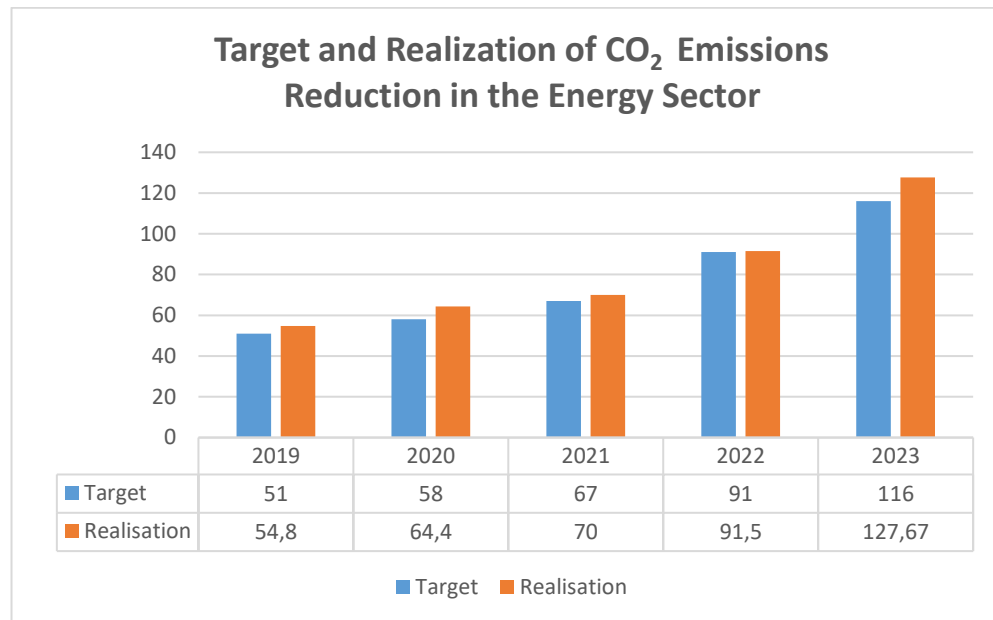
A carbon tax is implemented as a levy on carbon emissions from manufacturing goods and services. Its primary objective is to shed light on the concealed societal costs associated with carbon emissions and to mitigate greenhouse gas emissions. This is accomplished through the escalation of fossil fuel prices, thereby diminishing the demand for high-emission products and services and fostering the production of alternatives with lower carbon

intensity (Khastar, Aslani, & Nejati, 2020; Duan, Han, Zhang, & Wang, 2021; Kumala, Ulpa, & Rahayu, 2022)

Implementing a Pigouvian tax in the form of a carbon tax is an attempt to reduce the negative externalities associated with producing carbon emissions. The government enacted Law No. 7 of 2021 on the Harmonisation of Tax Regulations as the regulation for imposing the carbon tax. The regulation stipulates that the carbon tax will be applied on a limited basis to coal-fired power plants from 1 April 2022, which is postponed to July 2022, to be postponed again to 2025 and to the purchase of carbon-containing goods or activities that produce carbon emissions from 2025 (Undang Undang Nomor 7 tentang Harmonisasi Peraturan Perpajakan, 2021). The implementation of a carbon tax is anticipated to alter the behaviour of both society and industry, encouraging a transition towards environmentally friendly economic activities with reduced carbon emissions. (RI, 2022).

The government, with the Ministry of Energy and Mineral Resources, the Ministry of Finance, the Ministry of Environment and Forestry, the Financial Services Authority, and the Indonesia Stock Exchange, designed a decarbonisation plan to reach the Enhanced NDC. In 2022, the Ministry of Energy and Mineral Resources finalised the carbon tax plan for the coal-fired power generation sector by setting a cap on emissions. The plan included a pilot carbon trading scheme for power plants, which will implemented in 2025 with minimum Rp30,-/Kg CO₂e (carbon dioxide equivalent) or other equivalent units as the tariff as stated in chapter 6 on carbon tax article 13

paragraph 9 of Law No. 7 of 2021 on Harmonisation of Taxation. (Nurkamila et al., 2022)

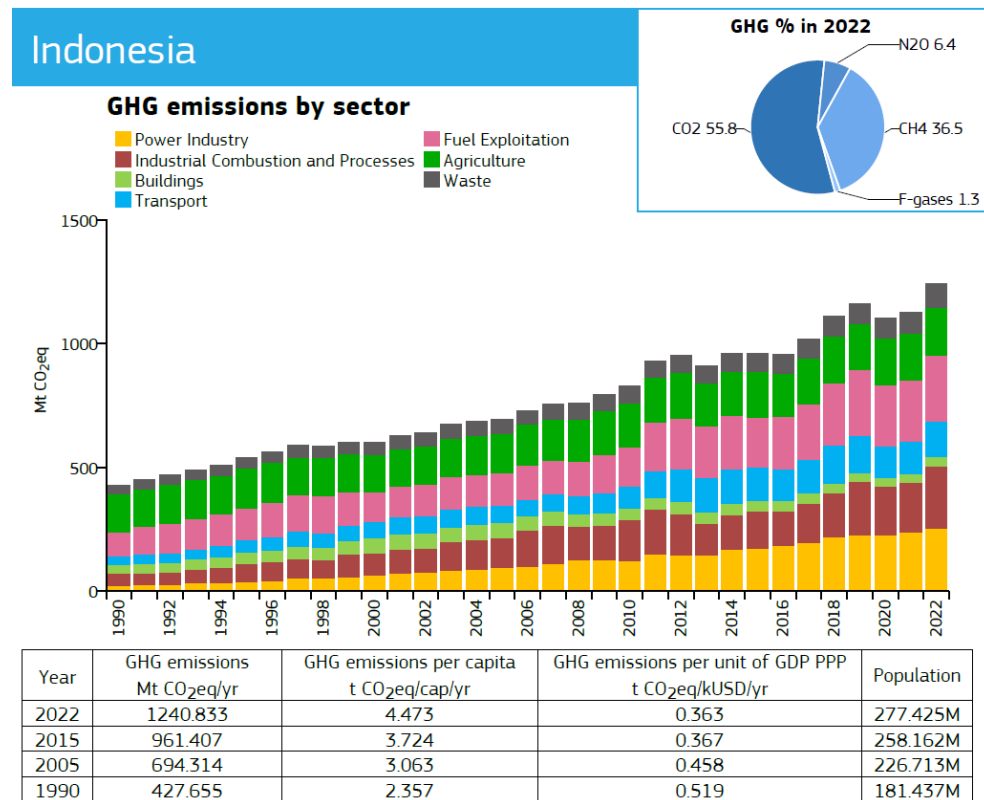


Source: ESDM Ministry, reprocessed by researchers in 2024

Figure 1. 2 Target and Realization of CO₂ Emissions Reduction in the Energy Sector

Above are the annual carbon reduction achievements (Siaran Pers HM.4.6/600/SET.M.EKON.3/10/2022, 2022). It could have been influenced by the trend of electric cars and the development of new renewable energy power plants in Indonesia from 2021 until now. Minister of Energy and Mineral Resources Arifin Tasrif stated that in 2023, the reduction of greenhouse gas emissions in the energy sector was 127.67 million tonnes of CO₂, which exceeded the target of 116 million tonnes of CO₂, 2022 also showed the same thing, with the realisation of a reduction of 91.5 million tonnes of CO₂ with a target of 91 million tonnes of CO₂. A similar situation happened in 2021 with a realisation of 70 million tonnes of CO₂ and a target

of 67 million tonnes of CO₂. Indonesia has reduced its emissions for three consecutive years without a carbon tax. (Tasrif, 2024)



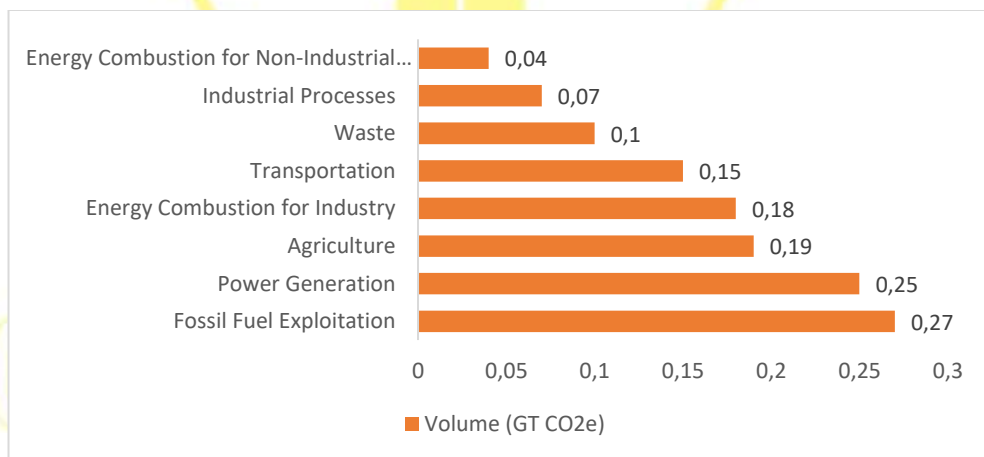
Source: (European Commission. Joint Research Centre., 2023)

Figure 1. 3 Indonesia's Greenhouse Gas Emissions by Sector

However, the urgency of the situation is underscored by the data from the European Commission (2023), which reveals that Indonesia's Greenhouse Gas emissions (GHG) in 2022 reached a staggering 1.24 gigatons of carbon dioxide equivalent (Gt CO₂e), representing approximately 2.3% of the global total. This marked a 10% increase compared to the previous year, setting a new record high. "Indonesia recorded a 10% rise in greenhouse gas emissions in 2022 relative to 2021, the highest annual percentage increase among all countries," noted the European Commission in its GHG Emissions of All World Countries 2023 report. The European Commission's assessment

includes emissions of carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases (F gases).

This dataset encompasses emissions from power generation, transportation, energy combustion for industrial purposes, agriculture, fossil fuel exploitation, including mining, production, metal processing, and chemical production, energy combustion for non-industrial buildings, and waste sectors. Notable emissions from forestry and land-use activities are excluded and categorised as land use, land-use change, and forestry (LULUCF). The highest contributor to Indonesia's GHG in the past year was fossil fuel exploitation (mining, production, and processing). The detailed volume of Indonesia's greenhouse gas emissions in 2022 by sector, ranked from highest to lowest contributors, is as follows:



Source: ESDM Ministry, reprocessed by researchers in 2024

Figure 1. 4 Volume of Indonesia's GHG in Each Sector for 2022

According to Prasad (2022), the complexities of evaluating carbon tax policies drew attention to the limitations of traditional cost-benefit analysis. It argues that while such analyses provide valuable insight, they often overlook

unquantifiable factors, such as humanitarian benefits and environmental gains, which are crucial in assessing the true impact of carbon taxes. However, the potential benefits of these policies, including significant reductions in greenhouse gas emissions and a healthier environment, offer hope for a more sustainable future.

This paper stated that numerous studies suggest starting with a lower carbon tax rate to allow households and businesses sufficient time to adapt and implement long-term changes. It is widely acknowledged in theoretical literature that the most efficient carbon tax would be a uniform tax applied equally across all sectors. However, in practice, many existing carbon tax schemes exempt politically influential or internationally competitive sectors, even in environmentally ambitious countries. Countries such as Finland, the Netherlands, Sweden, Norway, and Denmark have implemented carbon taxes since the early 1990s, albeit with varying sectoral exemptions and adjustments over time. For instance, in Sweden, higher tax rates on transportation have resulted in emission reductions in that sector, while lower rates on oil and natural gas have not significantly impacted emissions. Similarly, in Norway, only approximately 60% of emissions are subject to taxation, with exemptions granted to the most energy-intensive industries. These practical benefits underscore the potential positive impact of implementing a carbon tax.

Nong et al. (2021) investigated the differential impacts of a carbon tax set at US\$15 per tonne of CO₂e across various world regions, focusing on the 20

major polluting nations, including Indonesia. Firstly, developing countries, benefiting from lower production costs due to their inexpensive labour, capital, and natural resources, faced disproportionately high emission costs under a uniform carbon tax rate of US\$15. The modelling revealed that these countries tended to reduce production levels to curb emissions, resulting in significant economic contraction. For instance, real GDP reductions were notably higher in countries like Iran, Kazakhstan, South Africa, China, and India compared to nations like France, the United Kingdom, the United States, Canada, and Australia. Secondly, large polluting nations such as China, the United States, India, and Russia exhibited lower marginal abatement costs, as they could reduce substantial CO₂ emissions under the same carbon tax rate applied universally. Thirdly, incorporating non-CO₂ emissions into the analysis revealed considerably higher negative impacts of carbon tax policies than scenarios excluding such emissions. The impact discrepancies were more pronounced as economic costs increased, emphasising the underestimation of policy impacts when only CO₂ emissions are considered. It was observed that excluding non-CO₂ emissions leads to a significant underestimation of the actual effects of climate change policies. Additionally, the differences in impacts varied across sectors and countries, correlating with the intensity of climate change policies. Therefore, the study recommends future analyses that include both non-CO₂ and CO₂ emissions in models to provide more accurate and insightful assessments of the impact of climate change policy.

The data and studies above encouraged this research due to the practical knowledge gap. Starting unclear regulation and technical direction of carbon tax implementation in Indonesia and the lack of data to state that a carbon tax can be implemented in Indonesia shows that Indonesia needs to conduct exclusive research to develop a tax regulation toward their carbon emittance because not many studies have developing countries as their subject, primarily developed countries, especially European countries, that have implemented the carbon tax since the early 1990s.

B. Problem Statements

Based on the background explanation related to the long-term decarbonisation plan which includes carbon pricing and carbon tax as the instruments used by the Indonesian government in an effort to reduce carbon emission gas (Nurkamila et al., 2022), the absence of derivative regulations and technical direction of carbon tax implementation in Indonesia has raised some pressing questions. The discipline increases of carbon reduction that could lead to Indonesia's capability to reach the Enhanced NDC target sparked a big question mark of the need for carbon tax implementation in Indonesia. Therefore, the problem that this research wants to pursue is the implementation of a carbon tax urgently needed to reach the Enhanced NDC to the Paris Agreement 2015.

C. Scope of Problems

To define the problem's scope and provide an explanation for its formulation, this study has identified. Since the carbon tax will not be

implemented until 2025, the research will be focused on the urgency of carbon tax implementation in Indonesia based on data, regulations, and publications about carbon tax after the 29th of October 2021 or the stipulation of the Law No. 7 of 2021 on the Harmonisation of Tax Regulations and before the end of June 2024.

D. Purposes and Benefits of Research

This study aims to investigate the urgency of implementing a carbon tax in Indonesia to reduce to achieve the Enhanced NDC targets. The study will examine whether a carbon tax plays a significant role in achieving Indonesia's commitments under the Paris Agreement (2015), specifically called NDC in 2030. About the objectives of this research, there are three practical benefits which are described below:

1. Taxpayers

This research is expected to benefit taxpayers, especially those who owe carbon taxes, by addressing carbon taxation regulations to achieve carbon emission reduction targets. It can also provide an opportunity to understand the impact on financial policies for companies and the fulfilment of corporate social responsibility and help related taxpayers make business decisions.

2. Tax Authorities

The tax authority is the institution responsible for state revenue from taxes and the regulator of policies in the taxation sector in this country. The results of this study are expected to be further considered in order to

improve the academic paper on the draft policy related to carbon emission gas taxation.

3. Politeknik Negeri Bali

Politeknik Negeri Bali, as a vocational education institution, is here to assist the tax authority in socialising the purpose of a carbon tax. Through the direction of PNB in writing this research, it is hoped that it can be helpful for related agencies or institutions. This research is expected to illustrate the projected reduction in carbon emission gases in Indonesia with the benchmark of the relevant year's policy, and the results can be taken into consideration for curriculum development at the tertiary level, which refers to the Politeknik Negeri Bali's Merdeka Belajar Kampus Merdeka (MBKM) programme.



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CHAPTER V

CONCLUSION AND SUGGESTION

A. Conclusion

This study captures the primary reasons for the urgency of implementing a carbon tax in Indonesia. Based on the research discussion and result there are three reasons why Indonesia should implement a carbon tax even though have already been postponed 2 (two) times in 1 (one) year. This study highlights that international pressure is significant in urging Indonesia to implement a carbon tax. As a signatory to the Paris Agreement, Indonesia is committed to reducing its carbon emissions and has to report its decarbonisation efforts to the UNFCCC. Environmental impact is another critical factor discussed since Indonesia has experienced a significant increase in Greenhouse Gas (GHG) emissions, with a 10% rise in 2022 compared to 2021. The urgency for a carbon tax is tied to mitigating these environmental damages and addressing pollution, which is identified as a major global risk in the next 10 years.

Indonesia has a regulatory gap that poses a challenge for effectively rolling out the carbon tax and ensuring compliance across various industries due to the unavailability of derivative regulations and the updated road map of carbon tax. Considering public readiness for such a big change in Indonesia's economy, it notes that different industries may require different timelines to give time for adaptation without causing a big disruption for the new tax implementation.

B. Implication

Referring to the results and discussion of this research, there are practical implications for the tax authorities, the Ministry of Finance of the Republic of Indonesia, and the Indonesian public. The practical implications for the tax authorities lie in the opportunity for this research to serve as a source of consideration for the tax authorities in formulating future policies regarding the implementation of a carbon tax. On the other hand, the practical implications for the Ministry of Finance of the Republic of Indonesia, which regulates the carbon tax, involve providing a theoretical review related to the urgency of implementing the carbon tax in the future, impacting the process of transitioning to a green economy in Indonesia. For the general public in Indonesia, the practical implication of this research is further education on the carbon tax, which is one of the instruments in Indonesia's efforts to transition to a green economy. This education aims to help the public adapt more quickly to new policies that are geared towards accelerating Indonesia's transition to a green economy.

C. Suggestion

1. Taxpayers

Taxpayers play a crucial role in facilitating the implementation of tax regulations, thereby assisting the government in its efforts to transition to a low-carbon green economy and mitigate the economic impacts of climate change in Indonesia.

2. Tax Authorities

As policymakers, tax authorities still harbour a negative stigma towards taxpayers. It is hoped that tax authorities can build public trust effectively to prevent tax evasion efforts that could harm the nation. Therefore, tax authorities need to reconsider the importance of educating taxpayers as a form of communication to achieve a harmonious relationship between taxpayers and tax authorities.

3. Politeknik Negeri Bali

Academics are urgently seeking to strengthen the taxation system in Indonesia. As agents of change and leaders in raising student awareness about the importance of regulatory or *regulerend* taxes, PNB is expected to help educate on the broad functions of taxes. The combination of the "Merdeka Belajar Kampus Merdeka" program, Tax Centre, and government tax volunteers is an ideal mix to enhance the quality of professional and internationally competitive graduates.

4. Future Research

The limitations of this study are related to the lack of secondary data, such as publications and derivative regulations concerning carbon tax and its delayed implementation. Through this writing, it is hoped that future research will broaden the perspective on the carbon tax to cover the limitations of this study.

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