



**THE IMPACT OF CARBON TAX IMPLEMENTATION IN INDONESIA
ON SUPPORTING SUSTAINABLE DEVELOPMENT GOALS**

UNDERGRADUATE THESIS

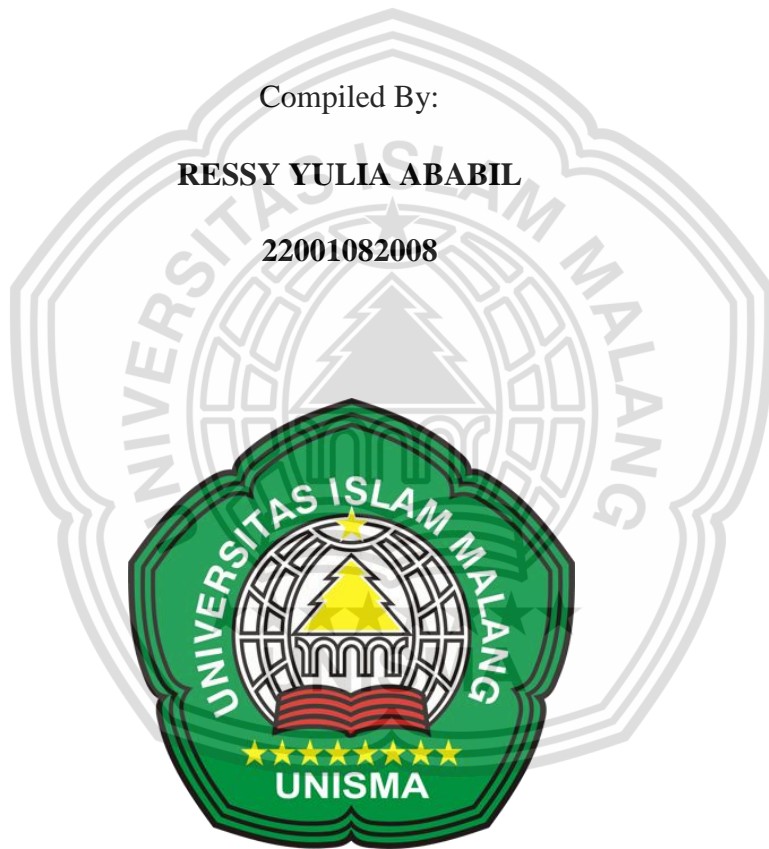
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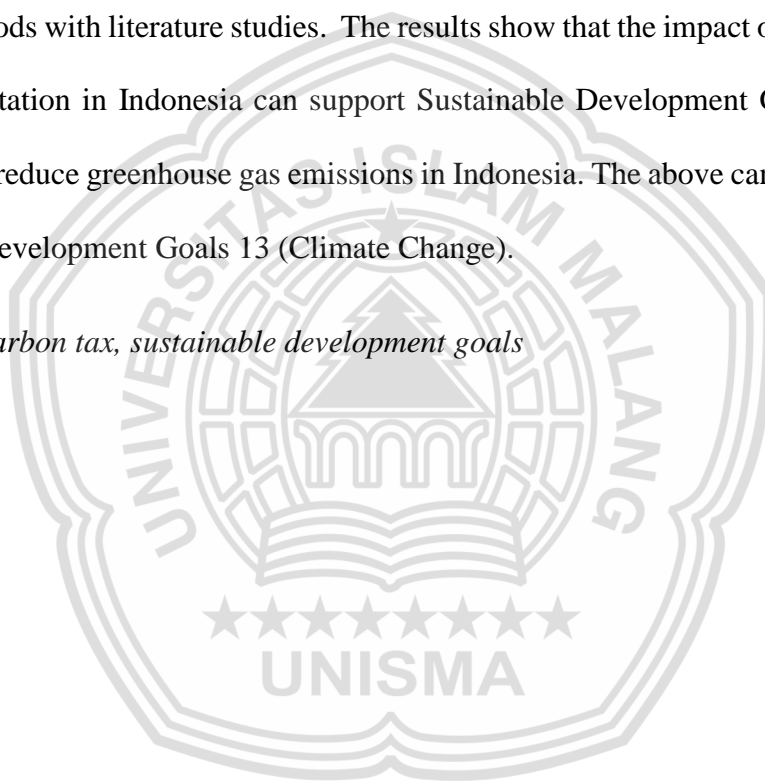
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ABSTRACT

This research aims to find out how the implementation of carbon tax in Indonesia can support the Sustainable Development Goals (SDGs). The author uses a descriptive qualitative approach, using secondary data. This research also uses documentation techniques in the information data collection process and uses data analysis methods with literature studies. The results show that the impact of carbon tax implementation in Indonesia can support Sustainable Development Goals by continuing to reduce greenhouse gas emissions in Indonesia. The above can support Sustainable Development Goals 13 (Climate Change).

Keywords: *Carbon tax, sustainable development goals*



ABSTRAK

Penelitian ini bertujuan untuk mengetahui bagaimana penerapan pajak karbon di Indonesia dapat mendukung Tujuan Pembangunan Berkelanjutan (*Sustainable Development Goals*). Penulis menggunakan pendekatan kualitatif deskriptif, dengan menggunakan data sekunder. Penelitian ini juga menggunakan teknik dokumentasi dalam proses pengumpulan data informasi dan menggunakan metode analisis data dengan studi literatur. Hasil penelitian menunjukkan bahwa dampak penerapan pajak karbon di Indonesia dapat mendukung Tujuan Pembangunan Berkelanjutan dengan terus mengurangi emisi gas rumah kaca di Indonesia. Hal tersebut di atas dapat mendukung *Sustainable Development Goals 13 (Climate Change)*.

Kata kunci: *Pajak karbon, Tujuan Pembangunan Berkelanjutan*

CHAPTER 1

INTRODUCTION

1.1 Background

A carbon tax is a type of tax levied on the carbon content of fossil fuels, which can also refer to the taxation of certain types of greenhouse gas emissions. A carbon tax puts a price on those emissions to encourage individual consumer, business and government entities to produce fewer of them (Tax Foundation, 2022). Carbon pricing is a policy tool to reduce emissions of carbon dioxide (CO₂) and other greenhouse gases. These emissions result from burning fossil fuels to generate electricity, fuel vehicles, manufacture materials and products, and heat and cool spaces (U.S. Environmental Protection Agency, 2024). Earth's temperature and climate are affected by burning fossil fuels, clearing forests and raising animals. This increases the greenhouse effect and causes global warming by adding large amounts of greenhouse gases to those already naturally present in the atmosphere (European Commission, 2020).

A carbon tax is a type of levy collected by the government on Greenhouse Gas (GHG) emissions resulting from the burning of fossil fuels such as coal, oil and gas. The government aims to integrate the costs of pollution and climate damage into market prices to incentivize emissions reductions and promote the adoption of environmentally friendly energy alternatives across all sectors of the economy. . The underlying idea of a successful carbon tax is that it will generate a stable and

increasing price trajectory that will ultimately result in significant emissions reductions and the expansion of green technologies (EARTH ORG, 2024)

The goal of carbon pricing is to shift cost responsibility to those who produce emissions (MIT Climate, 2022). Economists and policymakers consider carbon pricing to be one of the best ways to combat climate change. This is because carbon pricing can affect everything in the economy from electricity to vehicle fuel, and it rewards entities for reducing gas emissions. Carbon pricing gives the market the flexibility to find ways to reduce emissions. Several countries have implemented carbon pricing including the European Union, California and China (MIT Climate Portal, 2022).

Carbon dioxide (CO₂) accounts for the largest proportion of human-caused greenhouse gases. The addition of man-made greenhouse gases to the atmosphere disrupts the Earth's radiation balance (i.e. the balance between solar energy absorbed by the Earth and radiated into space). This leads to an increase in the Earth's surface temperature and its impact on global climate, sea level and agriculture (OECD, 2015).

Greenhouse gas emissions are human activities that disrupt the radiant energy balance of the Earth's atmospheric system. This exacerbates the natural greenhouse effect, causing temperature changes and other impacts on the Earth's climate, as well as impacts on human and socio-economic activities (OECD, 2015). Climate change refers to long-term changes in temperature and weather patterns. Burning fossil fuels produces greenhouse gas emissions that act as a blanket over

the earth, trapping the sun's heat and increasing temperatures (UN Climate Action, 2021).

The continuous increase in the global average temperature of the Earth's climate system is referred to as global warming. The main cause is human activity, particularly the burning of fossil fuels, which increases the concentration of heat-trapping gases in the atmosphere. Carbon dioxide, produced by burning coal, oil and natural gas, is the main greenhouse gas. Methane, nitrous oxide and synthetic fluorinated gases are examples of additional greenhouse gases.

Research results conducted by Intergovernmental Panel on Climate Change (IPCC) 2021, which state that the average temperature on the Earth's surface in 2011 and 2020 is 1.1°C warmer than the average temperature at the end of the 19th century before the industrial revolution. In the last four decades, the Earth has warmed more than in any decade since 1850. And the world has warmed faster than at any time in at least the last two thousand years.

All of the observed warming of 1.1°C seen since the pre-industrial era is human-caused. In fact greenhouse gas emissions from human activities will cause the earth to warm by about 1.5°C in total, a warming impact that can be partially counteracted by emissions of air pollutants called aerosols that have an overall cooling effect. Carbon dioxide is the greenhouse gas that contributes most to warming and methane and nitrous oxide are also present. Figure 1 shows that greenhouse gases, air pollutants or aerosols as well as natural causes have affected

global temperatures since 1850. This could be one way of knowing that humans are responsible for climate warming.

How do we know humans are causing climate change?

Observed warming (1850-2019) is only reproduced in simulations including human influence.

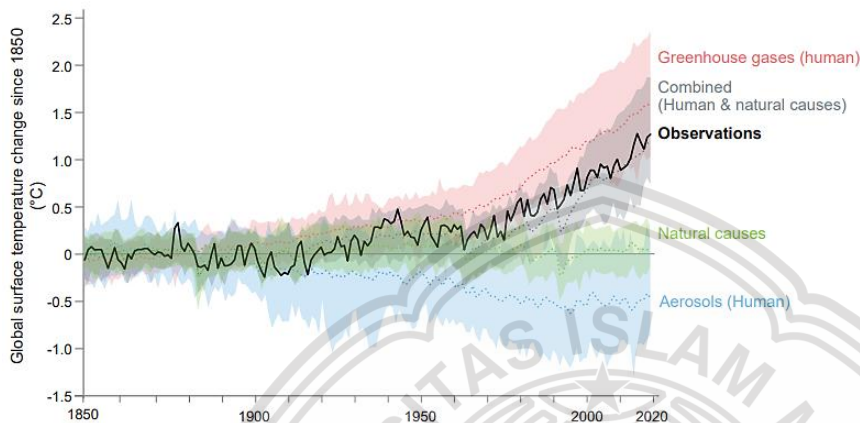


Figure 1. Humans are responsible for climate warming. IPCC 2021

The findings consistently demonstrate that these climate models are only able to replicate the observed warming (Black Line, Figure 1) when human activity effects (Grey band, Figure 1) are taken into account. This is especially true when it comes to the increasing quantities of greenhouse gases. According to these climate models, the warming effect of rising greenhouse gas concentrations (shown by the red band, which represents the warming effects of greenhouse gases alone) has largely been offset by the cooling effect of rising aerosol levels in the atmosphere (represented by the blue band). On the other hand, the observed warming cannot be replicated in simulations that solely incorporate natural processes, such as internal variability linked to El Niño and other comparable variations, variations in solar activity, and emissions from large volcanoes (Green band, Figure 1). The fact that substantially smaller temperature increases are seen in simulations with solely

natural processes suggests that natural processes are insufficient to account for the significant rate of warming that has been observed. The only way to replicate the reported rate in the simulations is to include human involvement. Furthermore, the warming of the earth's surface is not the only change that results from human activity; there have also been several other changes, including as the melting of sea ice, warming of the ocean, and the pattern of warming in the lower atmosphere and cooling in the stratosphere. Comparing the rate of warming seen in recent decades with that which occurred before human influence on climate provides additional evidence that humans are responsible for the current state of climate. The pace of increase in global surface temperature seen over the last 50 years has exceeded the rate of increase in any prior 50-year period over the past 2000 years, according to evidence from tree rings and other paleoclimate records. When considered collectively, these data demonstrate that the primary driver of the current observed global warming is human activity (IPCC, 2021).

Reducing greenhouse gas emissions is essential to mitigate the impact of global warming, especially carbon dioxide from burning fossil fuels. Reforestation initiatives, use of renewable energy sources and improved energy efficiency can help achieve this. Adaptation strategies such as drought-resistant crops and flood control techniques can also help reduce the impact of climate change.

Tackle climate change and its negative impacts, world leaders at the UN Climate Conference held in Paris on December 12, 2015, reached a breakthrough, the Paris Agreement. The agreement sets several long-term goals to guide all countries in terms of reducing global greenhouse gas emissions that substantially

limit global temperature rise, reviewing country commitments every five years, providing financing to developing countries to mitigate climate change and strengthen resilience and improve adaptation to climate impacts. This agreement is an internationally recognized and legally binding treaty. The agreement has been in effect since November 04, 2016, and currently 195 countries have joined the Paris Agreement. Implementation of this agreement is critical to achieving the Sustainable Development Goals.

In 2016, the Government of Indonesia through the Minister of Environment and Forestry Dr. Siti Nurbaya, representing President Joko Widodo, signed the Paris Agreement on Climate Change at the UN Headquarters. The Paris Agreement is a monumental global agreement to deal with existing climate change. Countries' commitments are expressed through Nationally Determine Contribution (NDC).

Indonesia has responded by passing Law No. 16/2016 on the Ratification of the Paris Agreement to the United Nations Framework Convention on Climate Change, thus Indonesia has ratified the Paris Agreement. On October 07, 2021, the Indonesian Ministry of Finance implemented a carbon tax, made possible by the Harmonization of Tax Regulations.

The application of carbon tax in Indonesia has been regulated in the Harmonization of Tax Regulations where Article 13 Paragraph (1) explains that the actions that can be taken to achieve the Nationally Determined Contribution (NDC) target are with Carbon Pricing instruments consisting of trade and non-trade instruments. It was also explained that this carbon tax is imposed to control greenhouse gas emissions to support the achievement of Indonesia's NDC. NDC

has also been committed nationally to address global climate change in the Paris Agreement to The United Nations Framework Convention on Climate Change.

It is also explained in Article 13 Paragraph (3) Letter A which says that the government's commitment to reduce greenhouse gas emissions is 29% by its own ability and 41% by international support to achieve Net Zero Emission (NZE) which is no later than 2060. While in Letter B in the same article and paragraph, explains the target of emission reduction in the energy, transportation and forestry sectors.

Article 13 paragraph (5) of the Harmonization of Tax Regulations stipulates that a carbon tax is imposed on the purchase of carbon-containing goods or activities that produce a certain amount of carbon during a certain period. Indonesia's carbon tax rate is regulated in Article 13 paragraphs (8) and (9) of the Harmonization of Tax Regulations, which stipulates that the carbon tax rate is higher or equal to the carbon market price of IDR 30 per kilogram of carbon dioxide equivalent (CO_{2e}), and in the case of carbon barriers, the carbon tax rate is set according to the carbon market price per kilogram of carbon dioxide.

The imposition of carbon tax is intended to change the behavior pattern (changing behavior) of economic actors to switch to activities that are more green economy will be low carbon. For the implementation of the first phase on April 01, 2022, a carbon tax will be applied to the coal-fired power plant sector with a mechanism based on emission limits (Cap and Tax) at a rate of IDR 30,000 per kilogram of carbon dioxide equivalent (CO_{2e}). The government is well aware of the importance of transitioning towards a green environment, so taxpayers can use carbon certificates purchased in the carbon market to reduce their carbon tax

obligations in the imposition mechanism. Therefore, it can be concluded that the carbon tax implemented in Indonesia has the right reasons that reduce carbon emissions that are harmful to nature and humans and maintain the survival of living things.

The main purpose of the carbon tax is to reduce greenhouse emissions and encourage people to use more environmentally friendly fuels. Therefore, it is clear that the Indonesian economy will be affected by the implementation of the carbon tax. Prices of goods and services will increase as a result of the imposition. Therefore, the imposition of a carbon tax should be planned as well as possible to balance the positive and negative impacts. However, it is important to note that the impact of these price increases may vary depending on the sector and type of goods or services affected by the carbon tax. In addition, the government will also pay attention to an appropriate transition so that the implementation of the carbon tax remains consistent with the momentum of the post-pandemic economic recovery (Fiscal Policy Agency, Ministry of Finance of the Republic of Indonesia 2022)

The implementation of a carbon tax will increase the cost of using fossil fuels, leading to higher production costs for goods and services that rely on these inputs, especially for carbon-intensive industries such as electricity and transportation. Regions that rely on coal for electricity will experience the largest cost increases due to high CO₂ emissions. The impact of a carbon tax on the economy depends on how the revenue is used. Without considering the use of the revenue, the tax will have a negative impact. However, evidence from European countries suggests minimal or slightly positive impacts on Gross Domestic Product

(GDP) from carbon taxes. A carbon tax will impact households based on their income and expenditure. This is generally considered regressive because low-income households spend most of their income on carbon-intensive goods. However, returning some of the tax revenue to households could make the policy more progressive. Higher-income households may experience lower incomes due to the impact of carbon prices on business owners and individuals with large capital (Peter G. Peterson Foundation, 2021).

Implementing a carbon tax will certainly have an impact on its implementation. This research will discuss how these impacts can support the Sustainable Development Goals (SDGs). The Sustainable Development Goals are global and national commitments to improve the welfare of society and contain 17 global goals. The global goals aim to end poverty, protect the planet, and ensure peace and prosperity for all. The SDGs are intended as a universal call to action to address global challenges, including poverty, inequality, climate change and sustainable development. Implementation of the SDGs began worldwide in 2016 and is still ongoing.

The impact of carbon tax implementation can support the Sustainable Development Goals in several ways. It can help reduce greenhouse gases, global warming and climate mitigation, which is an element of SDG 13 (Climate Action). Carbon tax proceeds can be used to pay for essential public services and help disadvantaged groups cope with rising energy costs, such as by building or strengthening social safety nets. In addition to supporting the SDGs for economic

growth, decent work and poverty alleviation, this can also help reduce social inequality (Environment for Development, 2019).

The above-mentioned issues of rising carbon dioxide, increasing greenhouse gas emissions, and rising temperatures on the Earth's surface are some of the reasons for the need and importance of implementing a carbon tax. It is also important to know what challenges, obstacles will occur and overcome them. This is necessary to reduce the above. In an action that will be carried out, it cannot be separated from the impact on its implementation. The implementation of carbon tax in Indonesia will also cause impacts. These impacts are also expected to support the Sustainable Development Goals (SDGs).

Based on the background that has been discussed, this research has the objectives (1) to find out the implementation of carbon tax in Indonesia in affecting the economic sector and country revenue. (2) To find out the challenges and obstacles that may be faced in the implementation of carbon tax in Indonesia, and how to overcome them. (3) To find out and analyze the impact of carbon tax implementation in Indonesia in supporting the Sustainable Development Goals. Based on the background that has been described, the researcher conducted a study under the title **“The Impact Of Carbon Tax Implementation In Indonesia On Supporting Sustainable Development Goals”**

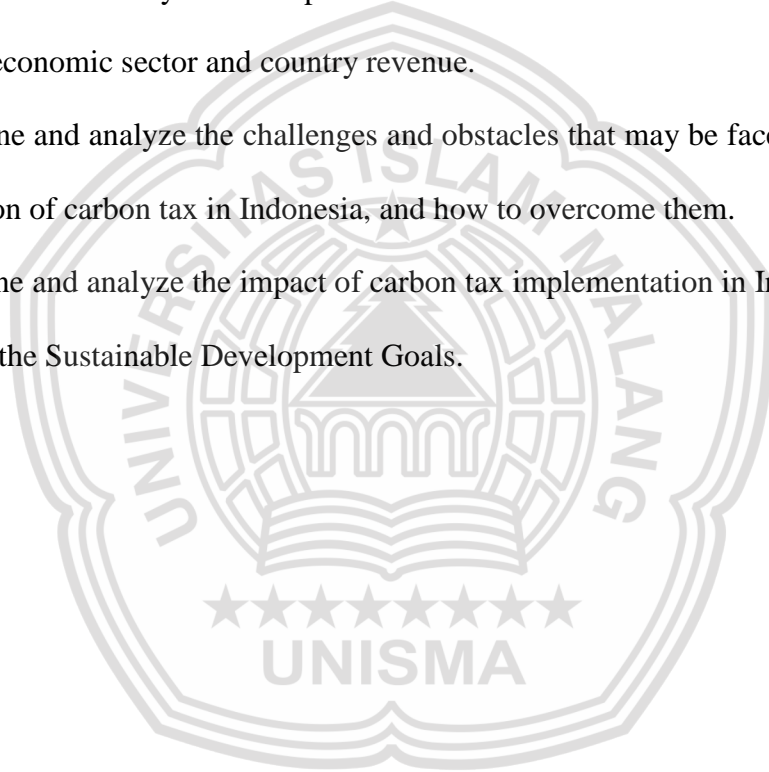
1.2 Research Problem Formulation

1. How does the implementation of carbon tax in Indonesia affect the economic sector and country revenue?

2. What are the challenges and barriers that may be faced in the implementation of carbon tax in Indonesia, and how can they be overcome?
3. What is the impact of carbon tax implementation in Indonesia in supporting the Sustainable Development Goals?

1.3 Research Objectives and Urgencies

1. To determine and analyze the implementation of carbon tax in Indonesia in affecting the economic sector and country revenue.
2. To determine and analyze the challenges and obstacles that may be faced in the implementation of carbon tax in Indonesia, and how to overcome them.
3. To determine and analyze the impact of carbon tax implementation in Indonesia in supporting the Sustainable Development Goals.



CHAPTER V

CONCLUSIONS AND SUGGESTIONS

5.1 Conclusion

Global warming and climate change are critical issues that require attention and preventive action from many countries. One way to prevent worse impacts is by implementing a carbon tax. In Indonesia, the legal basis for this tax is regulated in Law Number 7 of 2021 concerning Harmonization of Tax Regulations. The objectives of implementing a carbon tax in Indonesia are: controlling greenhouse gas emissions, supporting the achievement of national contributions, promoting the transition to a green economy, and increasing government revenue. The Cap and Tax scheme is used to impose a carbon tax in Indonesia. It involves setting a cap or target on carbon emissions and taxing emissions that exceed the cap. The aim is to encourage the reduction of carbon emissions and provide incentives for entities to adopt greener technologies. However, the implementation of a carbon tax in Indonesia has been postponed for several reasons, including the need to provide sufficient time for businesses and related sectors to prepare, develop an effective carbon market mechanism, and ensure the necessary infrastructure is in place. The government is also considering the economic impact and stability of the industrial sector.

From an economic perspective, the implementation of a carbon tax promises significant positive impacts, such as increasing tax revenue for the government,

encouraging the transition to a low-carbon economy, and creating new investment opportunities in the energy sector and green technology. To ensure that carbon tax becomes an effective policy tool in combating climate change, a clear and measurable roadmap is needed. Government revenue from the carbon tax will be implemented through the state budget mechanism and can be used to support sustainable development programs, reduce dependence on environmentally unfriendly sources of income, and provide support to low-income communities. The government through the Financial Services Authority has implemented a financial program that requires affiliated companies to submit sustainability reports that consider Environmental, Social, and Governance (ESG) concepts. The program aims to increase business interest in reporting carbon emissions and using the data as a carbon tax to build a strong and reliable state budget. The need for a good strategy for the government to combat excess carbon emissions is to implement a carbon tax. However, there are still many issues that need to be resolved when introducing a carbon tax, such as providing incentives for renewable energy development and ensuring the implementation of complementary efforts to achieve the 2030 SDGs.

The implementation of a carbon tax presents several challenges. One of the main challenges is the timing of implementation, which could distort the economy and increase the price of goods and services that generate carbon emissions. To mitigate these impacts, the government should implement accompanying policies, such as incentives for renewable energy development and social assistance for low-income households. Regulatory challenges must also be addressed, including

establishing strong regulations, setting efficient carbon tax rates and trading limits, and creating accountable monitoring, reporting and measurement systems. Political system and governance factors, business and economic impacts, and community resistance are additional challenges. In Indonesia, political and governance system challenges may arise due to business involvement in the political system and perceptions of corruption in government institutions. Business and economic impacts, such as concerns over competitiveness and production costs, may also pose challenges. Public opposition, particularly from businesses, is another potential obstacle due to concerns about the impact on the economy and business continuity. Other obstacles to carbon tax implementation in Indonesia include awareness, understanding and infrastructure readiness. Lack of awareness about the importance of carbon emission reduction and the benefits of a carbon tax can be a barrier. Lack of understanding of the concept and mechanism of carbon tax may also lead to uncertainty. Infrastructure readiness, particularly in terms of carbon emission data collection and administration systems, can also be a challenge.

In order to overcome these obstacles, the Indonesian government formed a coalition comprising corporations, governments, trade groups, community organizations, and other establishments and gradually implemented a carbon tax on coal-fired power plants. Proper revenue management, such as transparency and use of carbon tax revenues for household compensation and transition financing, can also increase public support. Combining carbon tax policy with other climate control policy instruments, such as feed-in tariffs, investment in renewable energy

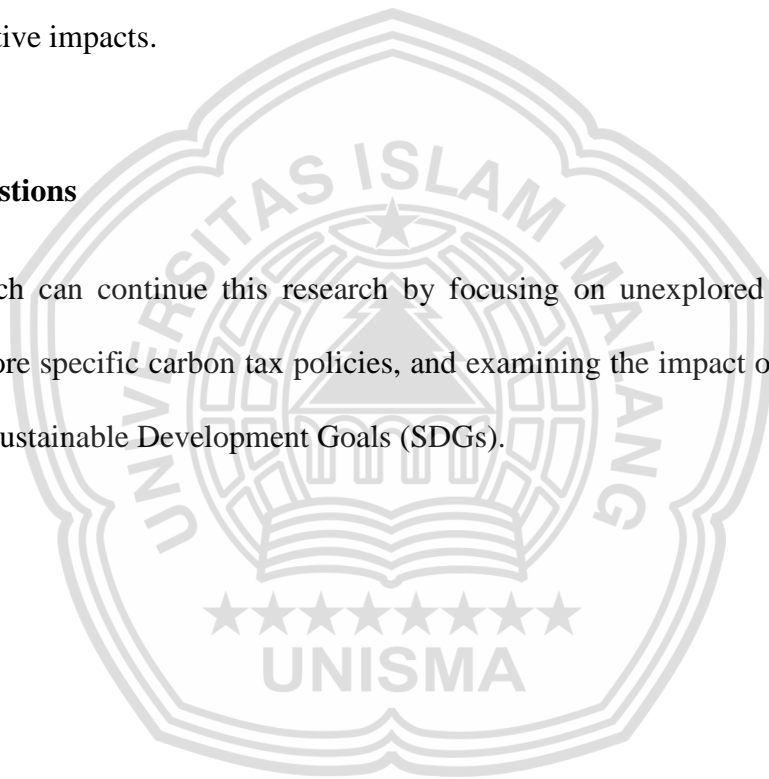
development, and public investment in mass transportation, can also ensure the effectiveness of carbon tax policy in reducing greenhouse gas emissions.

The implementation of a carbon tax can have various impacts, some of which can support Sustainable Development Goals (SDGs) such as controlling greenhouse gas emissions where a carbon tax can help control these emissions and support SDG 13 (Tackling Climate Change). By reducing the use of fossil fuels and encouraging environmentally friendly alternatives, a carbon tax can reduce CO₂ emissions and contribute to global efforts to address climate change. Renewable Energy Development, a carbon tax can encourage the development of renewable energy by providing incentives for economic actors to switch to cleaner and more sustainable energy sources. This can contribute to SDG 7 (Clean and Affordable Energy) by increasing access to clean and sustainable energy. Distribution and social justice impacts, where the implementation of a carbon tax can have a positive impact on the distribution of people's primary needs and promote social justice. Revenue from the carbon tax can be used by the government for programs related to reducing the impact of the climate crisis and supporting environmental conservation initiatives. This can help achieve SDG 1 (Poverty Alleviation) and SDG 10 (Reducing Inequality). A carbon tax can provide incentives for economic actors to adopt more sustainable and environmentally friendly business practices. It can also support Sustainable Development Goals 12 (Responsible Consumption and Production), which aims to encourage sustainable production and consumption patterns. As a result, the implementation of carbon tax in Indonesia could have an impact on distribution and social justice that supports the achievement of

Sustainable Development Goals (SDGs), especially in terms of sharing social needs and increasing social justice in economic activities. However, it is important to design a carbon tax policy that is fair and appropriate to the structure of the Indonesian economy to minimize economic distortions and negative impacts on low-income households. Complementary policies such as incentivizing renewable energy development and social assistance for low-income households can help mitigate negative impacts.

5.2 Suggestions

Future research can continue this research by focusing on unexplored aspects, examining more specific carbon tax policies, and examining the impact of carbon tax on other Sustainable Development Goals (SDGs).



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