



Jurnal Ilmu Sosial Mamangan
Volume 12, Issue 03, Special Issue 2023

Analysis of the Challenges of Implementing a Carbon Tax in Efforts to Reduce
Greenhouse Gas Emissions and Achieve Net Zero Emissions in Indonesia

Author (s) : Fajriyah Melati Sholihah ¹, Ety Puji Lestari ², Heffi Christya Rahayu ³
Source : Jurnal Ilmu Sosial Mamangan, Volume 12, Issue 03, Special Issue 2023
Publisher : Sociology Education Department of Universitas PGRI Sumatera Barat
Doi : <http://dx.doi.org/10.22202/mamangan.v12i03.7926>

To Cite This Article:

Fajriyah Melati Sholihah, Ety Puji Lestari, Heffi Christya Rahayu, 2023. *Analysis of the Challenges of Implementing a Carbon Tax in Efforts to Reduce Greenhouse Gas Emissions and Achieve Net Zero Emissions in Indonesia*. Jurnal Ilmu Sosial Mamangan, Volume 12, Issue 03, Special Issue 2023: 682-688.

Copyright © 2023, Jurnal Ilmu Sosial Mamangan
ISSN: 2301-8496 (Print) & 2503-1570 (Online)

Sociology Education Department of
Universitas PGRI Sumatera Barat



Analysis of the Challenges of Implementing a Carbon Tax in Efforts to Reduce Greenhouse Gas Emissions and Achieve Net Zero Emissions in Indonesia

Fajriyah Melati Sholihah ^{1*}, Etty Puji Lestari ², Heffi Christya Rahayu

^{1*} Postgraduate Program, Open University, Indonesia

Email: 530081905@ecampus.ut.ac.id

² Postgraduate Program, Open University, Indonesia

Email: ettypl@ecampus.ut.ac.id

³ Sand University Pengaraian, Indonesia

Email: heffirahayu@upp.ac.id

Abstract

The main source of market failure from fossil fuels is the emergence of negative externalities such as air pollution and climate change. Without a carbon tax, consumers do not pay the entire cost of consumption of a product, including costs associated with production, shipping, and social costs such as lost income due to air pollution and climate change. Indonesia's efforts to reduce emissions from greenhouse gases and achieve net zero emissions are part of Indonesia's commitment to the global agreement between countries on actions to combat climate change, which can be achieved through the introduction of a tax on carbon in the country. Nevertheless, carbon taxes have their pros and cons in society. This study aims to examine the challenges of implementing a carbon tax in an effort to reduce emissions from greenhouse gases and obtain zero or net emission results in Indonesia. This research uses a qualitative research approach for its research. This study used a qualitative methodology based on the use of descriptive analytical techniques, which specifically summarized the conclusions drawn from the data collected and subsequently examined. The secondary data source of this research is used together with literature review research instruments, namely data collection through literature review and documentation. Data analysis in this study used an interactive model consisting of three activity streams simultaneously: data presentation, data condensation, and conclusion/verification. The results of the analysis explain that the implementation of a carbon tax that has the aim of changing the behavior of economic actors to move to relatively low-carbon green economic activities is a mitigation measure that is quite effective in minimizing greenhouse gas emissions and achieving "net zero emissions" in Indonesia with challenges that must be faced such as the involvement of business people in the prevailing democratic political system, good conditions and poor management of government institutions, the response to behavior change and high trust from the public, the emergence of concerns about the effect of carbon tax implementation on business sector conditions including increases in production prices, financial burdens and competitiveness.

Keywords : Carbon Tax, GHG, Greenhouse Gas Emissions, NZE, *Net Zero Emissions*

INTRODUCTION

Climate change is a problem that the world is currently trying to overcome and can endanger the existence of all living things. These difficulties include the possibility of relatively frequent natural disasters, rising sea levels, food shortages, the possibility of extinction, and increasing health problems [1], [2], [3]. It is indicated that temperatures on earth are expected to rise by 4°C by the end of the twenty-first century, following a World Bank report in 2012. Global warming is a term used to explain the phenomenon of a sudden increase in earth's temperature. [4], [5]. Based on a special analysis released in 2018, if NZE is achieved by 2050, global warming of the planet's average temperature will be limited to 1.5 ° Celsius. However, the global average temperature could increase by up to 2o Celsius if the earth only reaches NZE in 2070. The average increase in the earth's temperature will be much greater if this need is not met. Then, the phrase "NZE" appeared and was repeated which refers to the conditions listed in Article 4.1 of the Paris Agreement. The IPCC Special Report on 1.5 ° C presents a profile of world greenhouse gas emissions and predictions for the future, it illustrates how greenhouse gas emissions are increasing at a rate that could increase the earth's average temperature by 1 ° C. This figure also shows that, compared to efforts to reduce emissions, there is a greater chance of keeping the increase in the average temperature on earth from rising to 1.5 ° C if steps to reduce CO2 emissions are implemented immediately. This matter cannot be resolved as quickly as possible.

A carbon tax is a type of environmental tax imposed on the burning of fossil fuels to address market imperfections. Major market failures in fossil fuels and the emergence of negative externalities including air pollution and climate change are the subjects examined in this study. If there is no carbon tax, customers are not responsible for paying the full cost of consuming a product, including costs associated with production, shipping, and social costs such as financial losses due to air pollution and climate change. [6], [7] estimate that increased taxation-related spending will reduce the need for fossil fuels. Thus, a carbon tax attempts to overcome a failure in the market by taking into account the estimated need for social funds due to negative externalities that arise in fuel prices. A carbon tax would prevent excessive fuel use. Excessive tax rates could place significant financial pressure on an industry that is heavily dependent on fossil fuels. In addition, implementing a carbon tax requires the government to have adequate capacity in terms of administration and resources, law enforcement, supervision, and education of the public and business world. Implementation of a carbon tax and enforcement of regulations

Carbon tax as a government intervention is related to the concept of *changing behavior* which is not easy to implement. Apart from that, economic actors feel the impact of the carbon tax on their business operations, such as price increases, financial burdens, and even reduced competitiveness in previously competitive markets. Several of these phenomena made the author interested in learning more about the challenges in implementing a carbon tax in Indonesia in an effort to reduce greenhouse gas emissions and achieve *net zero emissions* . The novelty in this research is that it combines previous research with the topic of challenges in implementing a carbon tax in an effort to reduce greenhouse gases by adding the challenges of implementing a carbon tax in an effort to achieve *net zero emissions* in Indonesia. Previous research conducted by [8] looked at how the government must also take into account collection using a fuel approach in order to implement a carbon tax as a whole because the implementation of a carbon tax in the transportation sector and in some industries cannot yet be implemented. using a direct emissions approach. The use of carbon taxes as a source of state funding was researched through [9], [10]. An explanation regarding the application of excise taxes in Indonesia is also provided in this research. The reporting and monitoring practices of excise payers were also examined in this

study. This study also explains why a carbon price is relatively easier to implement than cap and trade. Meanwhile, a study conducted by [11] looked at the imposition and calculation of carbon tax rates. Based on this literature, the aim of this research is to analyze the challenges of implementing a Carbon Tax in Efforts to Reduce Greenhouse Gas Emissions and Achieve *Net Zero Emissions* in Indonesia.

METHOD

This research uses qualitative research for its implementation [12], [13], [14]. The data sources used in this research are secondary data sources in the form of documents, notes, evidence or reports. There are three streams of activities carried out, namely data condensation, data presentation, and drawing conclusions/verification.

RESULTS AND DISCUSSION

a Carbon Tax in Efforts to Reduce Greenhouse Gas Emissions

Concern about climate change is widespread across the country. So that future generations can experience the richness of nature, environmental conditions must receive special attention and mitigation efforts as signs of global warming emerge, such as melting ice at the poles, rising temperatures in the top layer of the earth, and chaotic climate change. One of the main causes of climate disasters is greenhouse gas emissions or GHG emissions. To combat negative externalities that endanger the existence of society, the government must step in and influence the market. Carbon pricing is an alternative strategy for reducing GHG emissions, according to CBPP or the abbreviation for the Center on Budget and Policy Priorities (2015). A carbon tax, also known as an Emission Trading System (ETS), is used to set a price for carbon [15].

cap and trade idea is the basis of the ETS working system. By setting the maximum amount of emissions allowed and giving the market the ability to set prices, the ETS seeks to limit the amount of gasoline emissions. For example, the coal business has an annual CO₂ quota of 60 million tonnes. Corporations are required to purchase 40 million tons of CO₂ quota from other companies that have more CO₂ remaining if they produce 100 million tons of CO₂ annually. However, instead of focusing on the total amount of permitted emissions, a carbon tax sets a price level on the additional CO₂ output a government allows. For example, the government established a policy stating that 60 million tons of CO₂ cannot be produced every year. Coal producing companies are required to pay tax on the additional 40 million tonnes of CO₂ produced each year, if the company produces 100 million tonnes of CO₂. With an estimated carbon price of \$5 per ton, the company is required to make carbon tax payments of \$200 million.

Reducing GHG emissions is the goal of carbon pricing and ETS. However, from an administrative perspective, a carbon tax is more transparent in terms of who is responsible for paying the tax, how the tax is imposed, how much it costs, and how it is paid and reported. With a number of regulations and restrictions imposed by the government, Indonesia has implemented its commitment to reduce greenhouse gas emissions. Indonesia aims to achieve ecologically responsible and sustainable development, as stated in "Article 33 paragraph 4 of the 1945 Constitution" (UUD, 1945). In an effort to achieve development planning and concentrate on NZE goals, the government is currently planning low-carbon development, which will start from 2045 to 2050 and adopt policies that are beneficial to the environment. Another thing is that the government is trying to fulfill the emission reduction goals stated by the NDC. In its capacity as a public entity, the government collaborates with the business world to finance the achievement of NDC goals. In an effort to increase financing to overcome the carbon impact on the environment,

the private sector is given a number of incentives, including tax relief for the new renewable energy sector and exemption from VAT for new renewable energy [16]. Public-private sector partnerships are expected to accelerate climate change management.

Local governments have implemented local levies to reduce pollution. These taxes include taxes on fuel used in motorbikes, cars, etc., motor vehicle taxes at the provincial level, district/city level mineral and non-metal taxes, and groundwater taxes. Discussions have been ongoing since early 2021 regarding the implementation of a carbon price. The details of the debate are contained in "Law Number 7 of 2021" which focuses on harmonizing tax regulations. This proposal is a new tax structure that has not yet been implemented in Indonesia. To optimize the implementation of carbon prices, the government is encouraging community preparedness both in terms of knowledge and skills.

Analysis of the Challenges of Implementing a Carbon Tax in Efforts to Achieve Net Zero Emissions in Indonesia

The law implements a carbon tax through statutory regulations, which requires each individual to recognize that each unit of carbon dioxide they emit has a financial responsibility that they must pay (individuals responsible for producing carbon dioxide emissions must bear the costs associated with it by mitigating this damage). This will change the behavior of those who do not take into account the direct consequences of their actions or other behavior that results in the release of comparable amounts of carbon dioxide. Ultimately, any use or activity that produces the same amount of carbon dioxide emissions can be seen by the general public, which is capable of producing those emissions, as an economic impact that needs to be addressed.

From an economic point of view, people who engage in some activities that involve costs will think more carefully about whether the happiness they receive outweighs the costs they incur. Regardless of whether it is clearly necessary or not, a carbon tax would use this mechanism to filter out societal activities that emit comparable amounts of carbon dioxide. Assuming this kind of thinking, society will not only repress but also successfully use carbon pricing as a preventive measure to achieve net zero emissions by 2060.

Apart from being expressly stated as a functional carbon tax, the tax also has a regulatory (regular) purpose in the carbon tax system, regulating or creating society with certain goals in line with the direction of government policy as outlined in the regulations in the law. This role when viewed logically could create a society that carefully evaluates its options before emitting the same amount of carbon dioxide, which is the reason for the carbon price. Ultimately, the regulatory role of the carbon tax will be consistent with its dual role as a tool for social engineering. People will question the need for certain activities or activities with comparable carbon dioxide emissions. If this is not required, society will realize that the payment of the required carbon tax is not commensurate with the enjoyment or benefits received from the action or activity, thereby leading to the cancellation and avoidance of equivalent carbon dioxide emissions [17]

The government will set a price or tax that must be paid for each amount of carbon dioxide emissions produced by the community or company in the same amount. This cap and tax plan mechanism will be the basis for implementing a carbon tax to achieve NZE based on the HPP Law. The plan intends to utilize taxes as a means to encourage carbon trading, but taxes could also be used as a kind of punishment for polluters who fail to meet their emissions targets. The Indonesian government has created a limitation and taxation mechanism that imposes taxes on a company that produces carbon that exceeds the PTE limit, which is short for Emissions Technical Approval. Conversely, companies that obtain a PTE or Emission Reduction Certificate (SPE) will reduce their carbon tax liability [17].

In the future, the government plans to establish a carbon market. This market will facilitate the exchange of unused emission allowances or limits (caps) between companies. The aim of this market is to ensure the effective functioning of the emission limitation and taxation system. The carbon market system is based on the cap-and-trade principle, which involves imposing caps, restrictions, or quotas on any company that produces comparable carbon dioxide emissions. If a corporation exceeds the set carbon dioxide equivalent emission limit, then the corporation must obtain the remaining quota or emission limit from another legal entity that has emitted emissions below the set limit.

The idea of corrective taxes, which is a type of government intervention at the stage of adverse conditions experienced by other stakeholders or neutral parties in a market due to the production or consumption of these parties in the context of a market, is actually the forerunner of the concept of behavior change. carbon tax actually originates. The government will then impose remedial taxes so that businesses and communities that emit damaging carbon dioxide can be held financially responsible. As a result, there are changes in the way society and corporate actors behave, which has economic and financial impacts for any activity that emits equivalent amounts of carbon dioxide. With timely and consistent implementation of a carbon tax based on the HPP Law, NZE can be achieved by 2060 at the latest.

CONCLUSION

The findings of this study show Indonesia's dedication to reducing greenhouse gas emissions. Activities for environmentally friendly and sustainable development include this kind of dedication. Low-carbon development is currently being planned by the government and is expected to begin in 2045–2050. In addition, in accordance with "Law Number 7 of 2021" concerning Harmonization of Tax Policies, the government has established special tax policies to control carbon emissions and greenhouse gas emissions. The HPP Law provides a general overview of future carbon tax rates and procedures in Indonesia. This shows Indonesia's dedication to reducing greenhouse gas emissions. Businesses and society are changing their behavior and there are financial and economic impacts for every activity that emits carbon dioxide in equivalent amounts. As a result, NZE can be achieved no later than 2060 with consistent implementation of a carbon tax based on the HPP Law from time to time.

REFERENCES

- [1] B. A. Pratama, M. A. Ramadhani, P. M. Lubis, and A. Firmansyah, "Implementasi Pajak Karbon Di Indonesia: Potensi Penerimaan Negara Dan Penurunan Jumlah Emisi Karbon," *JURNAL PAJAK INDONESIA (Indonesian Tax Review)*, vol. 6, no. 2, pp. 368–374, 2022, doi: 10.31092/jpi.v6i2.1827.
- [2] R. Mazhar, A. Ghafoor, B. Xuehao, and Z. Wei, "Fostering sustainable agriculture: Do institutional factors impact the adoption of multiple climate-smart agricultural practices among new entry organic farmers in Pakistan?," *J Clean Prod*, vol. 283, p. 124620, 2021, doi: <https://doi.org/10.1016/j.jclepro.2020.124620>.
- [3] A. Diallo, E. Donkor, and V. Owusu, "Climate change adaptation strategies, productivity and sustainable food security in southern Mali," *Clim Change*, vol. 159, no. 3, pp. 309–327, 2020.
- [4] E. K. Galappaththi, J. D. Ford, E. M. Bennett, and F. Berkes, "Climate change and community fisheries in the arctic: A case study from Pangnirtung, Canada," *J Environ Manage*, vol. 250, p. 109534, Nov. 2019, doi: 10.1016/j.jenvman.2019.109534.
- [5] S. Rogers Van Katwyk *et al.*, "Exploring models for an international legal agreement on the global antimicrobial commons: lessons from climate agreements," *Health Care Analysis*, vol. 31, no. 1, pp. 25–46, 2023.

- [6] X. Zhou, X. Wei, J. Lin, X. Tian, B. Lev, and S. Wang, "Supply chain management under carbon taxes: A review and bibliometric analysis," *Omega (United Kingdom)*, vol. 98, 2021, doi: 10.1016/j.omega.2020.102295.
- [7] A. Fremstad and M. Paul, "The Impact of a Carbon Tax on Inequality," *Ecological Economics*, vol. 163, pp. 88–97, 2019, doi: 10.1016/j.ecolecon.2019.04.016.
- [8] F. Méndez-Arriaga, "The temperature and regional climate effects on communitarian COVID-19 contagion in Mexico throughout phase 1," *Science of The Total Environment*, vol. 735, p. 139560, Sep. 2020, doi: 10.1016/j.scitotenv.2020.139560.
- [9] I. M. Martins, L. C. Gammage, A. Jarre, and M. A. Gasalla, "Different but Similar? Exploring Vulnerability to Climate Change in Brazilian and South African Small-Scale Fishing Communities," *Hum Ecol*, vol. 47, no. 4, pp. 515–526, Aug. 2019, doi: 10.1007/s10745-019-00098-4.
- [10] K. E. McNamara *et al.*, "An assessment of community-based adaptation initiatives in the Pacific Islands," *Nat Clim Chang*, vol. 10, no. 7, pp. 628–639, 2020, doi: 10.1038/s41558-020-0813-1.
- [11] V. D. Pamungkas, B. N. dan Haptari, "Analisis Skema Pengenaan Pajak Karbon Oleh Negara Berkembang," *Jurnal Pajak Indonesia*, vol. 6, no. 2, pp. 357–367, 2022.
- [12] H. SARIALTIN, "A Qualitative Study on the Conceptual Framework and Success," *Academic Studies on Social and Economic Issues*, 2022.
- [13] A. Kahraman and İ. Kazançoğlu, "Understanding consumers' purchase intentions toward natural-claimed products: A qualitative research in personal care products," *Bus Strategy Environ*, vol. 28, no. 6, pp. 1218–1233, Sep. 2019, doi: 10.1002/bse.2312.
- [14] H. Ames, C. Glenton, and S. Lewin, "Purposive sampling in a qualitative evidence synthesis: A worked example from a synthesis on parental perceptions of vaccination communication," *BMC Med Res Methodol*, vol. 19, no. 1, pp. 1–9, 2019, doi: <https://doi.org/10.1186/s12874-019-0665-4>.
- [15] K. Jachimowicz-Rogowska and A. Winiarska-Mieczan, "Initiatives to Reduce the Content of Sodium in Food Products and Meals and Improve the Population's Health," *Nutrients*, vol. 15, no. 10, p. 2393, 2023.
- [16] S. N. G. Indonesia, "Komitmen Indonesia terhadap Perubahan Iklim di tengah Pandemi COVID-19," *Badan Kebijakan Fiskal, Kementerian Keuangan*, 2021.
- [17] J. Matheus, N. F. Delicia, and Rasji, "Implementation of the Carbon Tax Policy in Indonesia," *Ajudikasi: Jurnal Ilmu Hukum*, vol. 7, no. 1, pp. 91–114, 2023, doi: 10.30656/ajudikasi.v7i1.6464.