

CHAPTER 1

INTRODUCTION

A. Background

Climate change is one of humanity's most significant global challenges in the 21st century. Climate change is defined as significant changes in regional and global climate over a long period, including important changes in average temperature, humidity, atmospheric pressure, precipitation, wind patterns, water salinity, and a decrease in the size of ice sheets and polar glaciers.¹ It has a significant impact, including frequent catastrophic natural disasters, changes in animal migration patterns, and threats to the availability of clean water in various regions of the world. The impact of climate change can be seen in the paragraph below:²

1. **Rising Sea Levels:** Climate change contributes to melting polar ice sheets and glaciers, leading to rising sea levels. This phenomenon poses a significant threat to coastal communities, increasing the risk of flooding and erosion.
2. **Extreme Weather Events:** Rising global temperatures increase extreme weather events such as storms, droughts, heat waves, and high rainfall. These events result in widespread damage, loss of life, and economic losses.
3. **Loss of Biodiversity:** Climate change is disrupting ecosystems and habitats, leading to a decline in biodiversity. Species face the challenge of adapting to rapidly changing environmental conditions, resulting in the risk of extinction.

¹Franchini, D. P. M. Mannucci, 2015 "Impact on Human Health of Climate Changes," European Journal of Internal Medicine, Vol. 26, No. 1, 2015: 1–5.

²European Environment Agency, "Climate Change Impacts, Risks and Adaptation", <https://www.eea.europa.eu/en/topics/in-depth/climate-change-impacts-risks-and-adaptation>, accessed on March 3, 2024.

4. Food Insecurity: Changes in temperature and rainfall patterns affect agricultural productivity, leading to food insecurity in many regions. Crop failures, water scarcity, and disruptions to food supply chains are some consequences of climate change.

Climate change, which occurs globally, commenced in the 18th century using fossil fuels like coal. The gases released into the atmosphere are called Greenhouse Gas (hereinafter referred as GHG) emissions, which work like a blanket that wraps the world to raise the temperature on the earth's surface.³ The increase in global average temperature is mainly due to an increase in GHGs in the atmosphere, which the Intergovernmental Panel on Climate Change (hereinafter referred as IPCC) has identified as a direct result of human activities. According to the IPCC, global surface temperatures could rise by 1.1 to 6.4 degrees Celsius, which would seriously impact life on Earth.⁴ Climate change significantly impacts the production and distribution of air pollutants such as surface ozone (hereinafter referred as O₃). Therefore, climate change also affects the height of the planet's boundary layer, which plays a crucial role in the mixing, transport, and liquefaction of air pollutants.⁵

GHG is an atmospheric component that can absorb and emit infrared radiation, so it plays an essential role in the global warming phenomenon. These gases include carbon dioxide (hereinafter referred as CO₂), methane (hereinafter referred as CH₄), nitrous oxide (hereinafter referred as N₂O), and fluorinated gases such as hydrofluorocarbons (hereinafter referred as HFCs),

³United Nations in Indonesia, <https://indonesia.un.org/id/172909-apa-itu-perubahan-iklim>, accessed on February 19, 2024.

⁴Bambang Prasetyo, "Upaya mereduksi emisi gas rumah kaca yang menjadi tren dunia itu mendorong penetapan standar internasional untuk pengukurannya", Perpustakaan Kementerian Lingkungan Hidup dan Kehutanan, http://perpustakaan.menlhk.go.id/pustaka/home/index.php?newsid=474&page=detail_news.1, accessed on 16 March 2024.

⁵A. J. McMichael, 2013, "Globalization, Climate Change, and Human Health," *New England Journal of Medicine*, Vol. 368, No. 14, 2013.

perfluorocarbons (hereinafter referred as PFCs), and sulfur hexafluoride (hereinafter referred as SF6). This definition refers to the natural process that keeps the earth's temperature warm, known as the greenhouse effect.⁶

One of the GHGs that has a significant influence on global environmental change is CO₂. Increased concentrations of CO₂ due to human activities such as burning fossil fuels, deforestation, and intensive agriculture have led to rapid and unpredictable changes. As a result, global average temperatures are increasing, weather patterns are changing, the frequency and intensity of extreme weather events are increasing, sea levels are rising, and ecosystems are disrupted.⁷

Climate change caused by GHG affects human life in many ways, including health, agriculture, the economy, and the sustainability of natural resources. Due to the global aspect, the GHG will be able to affect health by increasing heat-related illnesses, deaths, and the spread of infectious diseases like malaria and dengue due to rising temperatures and expanding habitats for disease vectors, with the World Health Organization (hereinafter as WHO) estimating an additional 250,000 annual deaths from malnutrition, diarrhea, and heat stress between 2030 and 2050,⁸ It also disrupts agriculture by altering temperature and rainfall patterns, reducing crop yields, nutritional value, and food security despite initial benefits from elevated carbon dioxide levels. Its economic effects, including \$6 trillion in global losses between 1990 and 2014, are driven by reduced agricultural productivity, higher food prices, increased healthcare costs, and diminished labor productivity due to extreme heat.

⁶Dinas Lingkungan Hidup, "PENGERTIAN DAN EFEK RUMAH KACA", <https://dlh.slemankab.go.id/pengertian-dan-penyebab-efek-rumah-kaca/>, accessed on 7 February 2024.

⁷KOMPAS, 2024 "6 Gas Rumah Kaca" , Accessed on 6 January 2024, <https://www.kompas.com/skola/read/2019/12/06/155959869/6-gas-rumah-kaca?page=all>.

⁸World Health Organization. "Climate Change and Health" <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>. Accessed on November 3, 2024.

Therefore, mitigation and adaptation efforts to GHG emissions are essential to reduce negative environmental impacts and ensure the survival of species on Earth.⁹ In 2018, Indonesia recorded the world's second-highest carbon emissions at 37 billion tons, highlighting a persistent lack of significant reduction in the primary causes of the greenhouse effect.¹⁰ Indonesia significantly contributes to global greenhouse gas emissions, ranking as the fourth-largest emitter in 2015. This is primarily due to peat forest burning for oil palm cultivation and fossil fuel combustion.¹¹ This situation has worsened in recent years, with Indonesia now among the top 10 largest emitters in the world. This is mainly due to the forest fires that occurred in Kalimantan and Sumatra, which directly demonstrate the impact of human activities on the increase in GHG.¹² These facts underscore the importance of global and national efforts to address climate change and reduce carbon emissions.

Indonesia is among the most significant global GHG emitters, occupying the 4th position in 2019, with emissions exhibiting a consistent upward trajectory since 2015. The predominant sources of GHG emissions in Indonesia are carbon dioxide emissions from various sectors, including land use, agriculture, waste management, buildings, transportation, industry, and electricity.

⁹*Ibid*

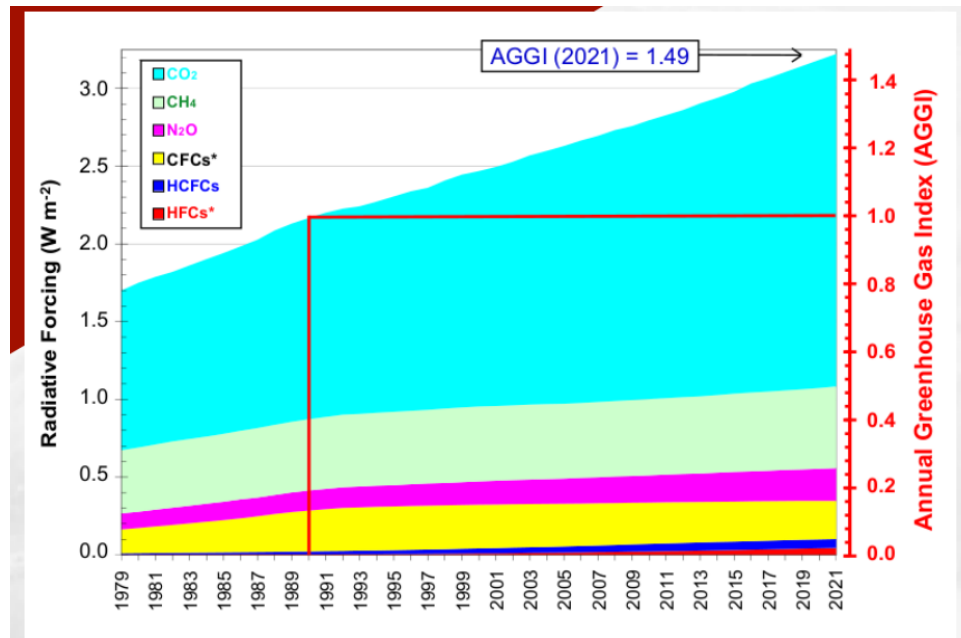
¹⁰Global Carbon Project, “Carbon Budget and Trends 2018” Global Carbon Project, <https://www.globalcarbonproject.org/carbonbudget/18/highlights.htm>. accessed on March 16 2024.

¹¹Ministry of Environment and Forestry of the Republic of Indonesia, “Status and Trends of Greenhouse Gas Emissions in Indonesia” Ministry of Environment and Forestry, <https://www.menlhk.go.id/berita-123-status-dan-tren-emisi-gas-rumah-kaca-di-indonesia.html>. accessed on March 16, 2024.

¹²Badan Nasional Penanggulangan Bencana, “Laporan Kebakaran Hutan dan Lahan Tahun 2019” BNPB, <https://www.bnpb.go.id/home/detail/5293/Laporan-Kebakaran-Hutan-dan-Lahan-Tahun-2019> Accessed on 7 March 2024, .

The annual GHG index from 1979 to 2021 can be seen in detail in figure 1 below:¹³

Figure 1: Annual Greenhouse Gas Index (AGGI) from 1979 to 2021.



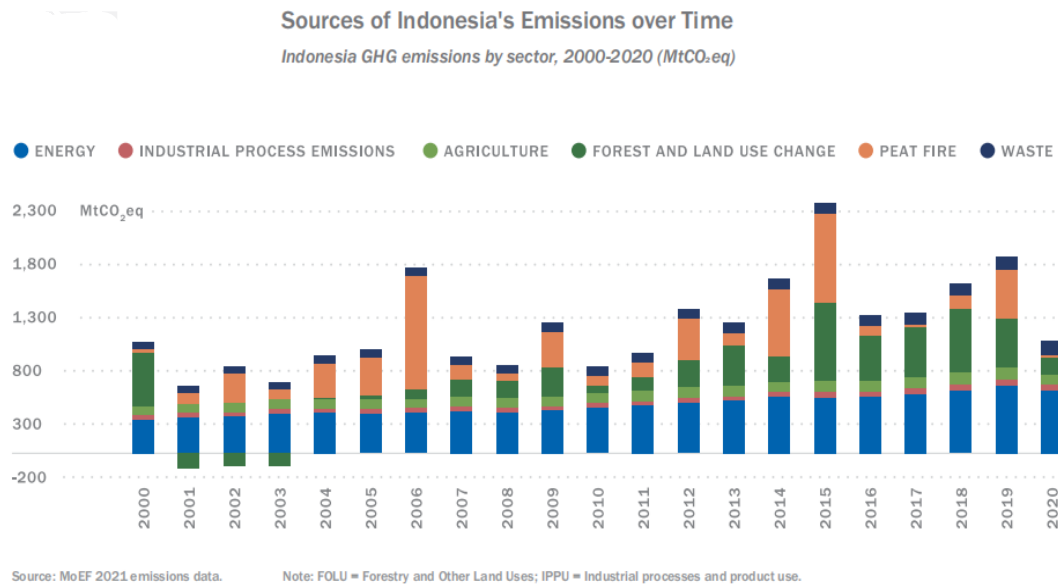
Source: Greenhouse Gas Bulletin Volume 02 Number 02 August 2022 Bmkg.

GHG emissions in Indonesia mainly come from two primary sources: land use and the energy sector. About 42% of Indonesia's GHG emissions come from land-based sources, including deforestation and forest fires, which have historically been major contributors. Agricultural and forestry activities, especially timber extraction for export, pulp and paper plantations that have flourished since the 1980s and 1990s, and oil palm plantations that emerged in the 1990s and 2000s, have been major drivers of land cover change. These activities impact carbon-rich ecosystems such as peatlands, partially submerged low-lying areas in Kalimantan, Sumatra, and Papua, with carbon-rich soils, and mangrove conversion for agriculture and aquaculture in coastal areas,

¹³Universitas Gadjah Mada, "Kepala BMKG: Indonesia Keluar dari 10 Besar Penyumbang Emisi Gas Rumah Kaca," <https://ugm.ac.id/id/berita/kepala-bmkg-indonesia-keluar-dari-10-besar-penyumbang-emisi-gas-rumah-kaca/>. accessed March 19, 2024,

contributing to high emissions. The sources of emissions in Indonesia can be seen from the figure below:¹⁴

Figure 2: Sources of Emissions in Indonesia



Source: World Bank Group, Indonesia Country Climate and Development Report 2023 (Washington, DC: World Bank Group, 2023). Page 7.

The above figure shows that GHG emissions in Indonesia in the last two decades have fluctuated from 2000 to 2020. The energy sector mainly contributes to agriculture, land use change, and industrial processes. There was a slightly decline in 2020. So broadly speaking, in the energy and land use sectors, Indonesia must realize much stronger emission reduction efforts to achieve the target of reducing GHG.

Given the role of GHG emissions in driving climate change, the Polluter Pays Principle (hereinafter as PPP) has become a key concept in international environmental law emphasizing that those responsible for pollution should bear the costs of its environmental impacts and is enshrined in Principle 16 of the

¹⁴World Bank Group, “Indonesia Country Climate and Development Report 2023” (Washington, DC: World Bank Group, 2023). Page 6.

1992 Rio Declaration on Environment and Development, which states that:¹⁵

“National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution.”

PPP asserts that those responsible for environmental degradation must bear the full costs associated with the negative impacts they cause. This principle aims to internalize environmental externalities, such as ecosystem damage and public health risks into the cost structure of polluting entities, whether businesses or states, thereby encouraging a transition toward more sustainable practices. The implementation of PPP is reflected in policy instruments such as carbon taxes, pollution fines, and obligations for environmental restoration. Beyond promoting environmental justice, the principle also enhances economic efficiency by creating incentives for emissions reduction.¹⁶

In the international context, climate change has been stipulated under the Paris Agreement. The Paris Agreement is an international agreement addressing climate change. The agreement limits global temperature rise below 2°C above pre-industrial levels, seeking to limit it to 1.5°C to reduce the risks and impacts of more extreme climate change. Each country must set emission reduction targets called Nationally Determined Contributions (hereinafter referred as NDC) to be reviewed every five years to increase its level of ambition. The goal is to achieve zero greenhouse gas emissions between 2050 and 2100.

¹⁵United Nations Conference on Environment and Development. (1992). *Rio Declaration on Environment and Development* (Principle 16). Retrieved from https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf United Nations

¹⁶E. Syahrudin, R. Saputra, A. Cardenas, dan A. Ali, 2024 “Carbon Trading as a New Paradigm for Indonesia's Polluter Pays Principle,” *Journal of Law and Legal Reform*, 2024.

The Paris Agreement, agreed at the UN Climate Change Conference in 2015, is an effort to confront climate change.¹⁷ The international community has come together to find effective solutions. The agreement aims to reduce the impact of climate change by setting a global goal to limit the rise in global average temperature below 2 degrees Celsius above pre-industrial levels.¹⁸ The Paris Agreement 2015 is an international agreement that aims to address global climate issues. Nearly 200 countries adopted it at the UN Climate Change Conference (hereinafter referred as COP21) in Paris on December 12, 2015.

The Paris Agreement aims to mitigate climate change by encouraging countries to reduce greenhouse gas emissions through NDC Contributions. Each country sets this commitment according to its national capacity and conditions. The agreement also recognizes the importance of adapting to climate change and strengthening countries' ability, especially developing countries, to deal with its impacts.¹⁹

Indonesia, as a country vulnerable to the effects of climate change, ratified the Paris Agreement in 2016 through Law Number 16 of 2016 on the Ratification of the Paris Agreement on the United Nations Framework Convention on Climate Change, which shows Indonesia's commitment to climate change mitigation and adaptation efforts. Indonesia has strong commitment to reducing GHG by 29% through its efforts and up to 41% with international assistance from normal conditions by 2030. Therefore, Indonesia has taken steps to address climate change, including controlling deforestation, implementing

¹⁷J. Kuriakose, C. Jones, K. Anderson, C. McLachlan, dan J. Broderick, 2022 "What Does the Paris Climate Change Agreement Mean for Local Policy? Downscaling the Remaining Global Carbon Budget to Sub-National Areas," Renewable and Sustainable Energy Transition, Vol. 2, 2022: 3, <https://doi.org/10.1016/j.rset.2022.100030>.

¹⁸*Ibid.* Page 3

¹⁹"The Paris Agreement," United Nations Framework Convention on Climate Change, <https://unfccc.int/process-and-meetings/the-paris-agreement>, accessed on 16 March 2024,

sustainable land management practices, developing renewable energy, and improving energy efficiency.²⁰ Indonesia's ratification of the Paris Agreement also reflects its conformity with its constitution and defence of national interests. It also allows Indonesia to fight for its interests related to climate change in the international Arena.

High-carbon industries in Indonesia have a significant role in the country's GHG, which includes the energy, mining, and manufacturing sectors. As a country with a rapidly growing economy, Indonesia faces the challenge of balancing economic growth with carbon emission reduction. One of the elements in high-carbon industries, carbon emissions, refers to the release of GHG, especially carbon dioxide, into the atmosphere,²¹ where companies operating in this sector produce significant amounts of carbon emissions, which are engaged in the fields of building sources, iron, and aviation.²² The carbon released by these business entities can increase the GHG effect, which could exacerbate global warming.

In the global and national context, Indonesia has taken strategic steps to reduce the impact of climate change by using carbon exchanges stipulated in article 23-24 Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector as one of the mechanisms to reduce carbon emissions. The introduction of the carbon exchange in Indonesia is also in line with the country's commitment to the Paris Agreement to reduce GHG. Through ratifying this

²⁰Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia, "Indonesia Menandatangani *Paris Agreement* tentang Perubahan Iklim," https://ppid.menlhk.go.id/siaran_pers/browse/298. Accessed on 16 March 2024,

²¹H. Ben Ameur, X. Han, Z. Liu, dan J. Peillex, 2022 "When Did Global Warming Start? A New Baseline for Carbon Budgeting," *Economic Modelling*, 2022, <https://doi.org/10.1016/j.econmod.2022.106005>.

²²J. Zou, P. Chen, X. Fu, and C. Gong, 2023, "Does Carbon Trading Affect the Bond Spread of High-Carbon Enterprises? Evidence from China," *Journal of Cleaner Production*, Vol. 417, 2023, <https://doi.org/10.1016/j.jclepro.2023.137882>.

agreement, Indonesia has set ambitious emission reduction targets, including efforts to reduce emissions from the energy and industrial sectors. Implementing a carbon exchange is one of the concrete steps in achieving this target, as it provides a framework for companies to participate actively in decarbonization efforts. In addition, the carbon exchange also supports Indonesia's transition to a low-carbon economy through the development and application of clean technologies.

Carbon exchanges or carbon markets are economic instruments that aim to reduce GHG emissions by providing financial incentives for companies and other entities to reduce their emissions.²³ The carbon trading system is a market-based approach to addressing GHG emissions, which cause the GHG effect and global warming. Under this system, companies can buy and sell emission permits, thus creating an economic incentive to reduce the amount of carbon emissions they generate.²⁴

The carbon exchange in Indonesia is supported by various legal foundations designed to support national commitments to reduce GHG emissions by the NDC. The main legal basis includes Law No. 16 of 2016, which ratified the Paris Agreement, and Presidential Regulation No. 98 of 2021 on the Economic Value of Carbon. The regulation establishes mechanisms such as carbon trading, performance-based payments, and carbon levies as climate change mitigation measures. In addition, Law No. 7 of 2021 on the Harmonization of Tax Regulations and Law No. 4 of 2023 on the Development

²³T. Fawcett dan Y. Parag, 2017, "An Introduction to Personal Carbon Trading," dalam *Personal Carbon Trading*, Taylor and Francis, page. 6–15, <https://doi.org/10.3763/cpol.2010.0649>.

²⁴J. Zou, P. Chen, X. Fu, and C. Gong, 2023, "Does Carbon Trading Affect the Bond Spread of High-Carbon Enterprises? Evidence from China," *Journal of Cleaner Production*, Vol. 417, 2023, <https://doi.org/10.1016/j.jclepro.2023.137882>.

and Strengthening of the Financial Sector are also important in regulating taxation aspects related to carbon trading.

Additional provisions are made through the Financial Services Authority (*Otoritas Jasa Keuangan*) Regulation No. 14 of 2023 on Carbon Trading through the Carbon Exchange and Financial Services Authority Circular Letter No. 12 of 2023 on the Procedures for Organizing Carbon Trading through the Carbon Exchange, which regulates the procedures for implementing carbon trading through carbon exchanges. In this case, the Financial Service Authority has the authority to regulate, license, and supervise carbon trading, ensuring that carbon units are treated as securities or securities that must be registered with the National Registry for Climate Change Control (*Sistem Registri Nasional Perubahan Iklim*) and carbon exchange operators.

A carbon exchange is a market-based environmental regulatory scheme called a cap-and-trade system. In this system, regulators (governments) set overall emission reduction targets and appropriate allocation of carbon emission permits based on carbon emissions in previous years. Each participant, who is a key, is allocated a carbon emission permit based on their previous emissions. Participants must pay their annual carbon emission permits on time. The carbon trading market provides a trading and investment platform for participating companies with excess or under-allocation. External investors can also buy carbon allocations and corresponding financial products in these markets. As a result, carbon trading is considered an investment, thereby increasing the ability of high-carbon companies to reduce their emissions and costs.

The implementation of carbon exchanges supports the reduction of global warming by driving environmental responsibility and facilitating the transition to

a low-carbon economy among high-carbon companies. Market-based solutions such as carbon trading have been widely applied to drive the green transformation of high-carbon industries.²⁵ As a manifestation of this commitment, Indonesia has also issued Law No. 4 of 2023 on developing and strengthening the Financial Sector. One of the ways to reduce the GHG stipulated in the law is regarding the carbon exchange stated in Articles 23 to 26. The following article 23, paragraphs 1 and 2:

One of the issues stipulated in the law is regarding the carbon exchange in Articles 23 to 26. The following article 23, paragraphs 1 and 2:

- (1) Perdagangan karbon merupakan mekanisme berbasis pasar untuk mengurangi emisi gas rumah kaca melalui kegiatan jual beli unit karbon.*
- (2) Unit karbon sebagaimana dimaksud pada ayat (1) merupakan efek berdasarkan Undang-Undang ini.*

Article 24, paragraphs 1 to 7, reads as follows:

- (1) Perdagangan karbon dalam negeri dan/atau luar negeri dapat dilakukan dengan mekanisme bursa karbon.*
- (2) Bursa karbon sebagaimana dimaksud pada ayat (1) merupakan suatu sistem yang mengatur perdagangan karbon dan/atau catatan kepemilikan unit karbon.*
- (3) Bursa karbon hanya dapat diselenggarakan oleh penyelenggara pasar yang telah memperoleh izin usaha dari Otoritas Jasa Keuangan.*
- (4) Berdasarkan peraturan Otoritas Jasa Keuangan, penyelenggara pasar dapat mengembangkan kegiatan atau produk berbasis unit karbon sebagaimana dimaksud pada ayat (2).*
- (5) Perdagangan karbon melalui bursa karbon sebagaimana dimaksud pada ayat (1) dilakukan dengan: a. pengembangan infrastruktur perdagangan karbon; b. pengaturan pemanfaatan penerimaan negara dari perdagangan karbon; dan/atau c. administrasi transaksi karbon.*
- (6) Pengembangan infrastruktur perdagangan karbon sebagaimana dimaksud pada ayat (5) dilakukan secara terkoordinasi antara kementerian/lembaga dengan otoritas pengawas bursa karbon.*
- (7) Pusat bursa karbon berkedudukan di Indonesia.*

Article 25:

Perdagangan karbon melalui bursa karbon wajib memenuhi persyaratan dan telah memperoleh izin dari Otoritas Jasa Keuangan.

²⁵ *Ibid*

Article 26:

- (1) *Ketentuan lebih lanjut mengenai perdagangan karbon melalui bursa karbon sebagaimana dimaksud dalam Pasal 25 diatur dalam Peraturan The financial Services Authority setelah dikonsultasikan dengan DPR.*
- (2) *Dalam rangka penyusunan Peraturan The financial Services Authority sebagaimana dimaksud pada ayat (1), The financial Services Authority berkoordinasi dengan kementerian dan/atau lembaga berwenang lain terkait.*

In English:

Article 23, paragraphs 1 and 2:

- (1) Carbon trading is a market-based mechanism to reduce greenhouse gas emissions through the buying and selling of carbon units.
- (2) Carbon units, as referred to in paragraph (1), shall constitute securities under this Law.

Article 24, paragraphs 1 to 7, reads as follows:

- (1) Domestic and/or overseas carbon trading may be conducted through a carbon exchange mechanism.
- (2) Carbon exchange, as referred to in paragraph (1), is a system that regulates carbon trading and/or carbon unit ownership records.
- (3) Carbon exchange can only be held by a market organizer who has obtained a business license from the Financial Services Authority.
- (4) Based on the regulations of the Financial Services Authority, market organizers may develop activities or products based on carbon units, as referred to in paragraph (2).
- (5) Carbon trading through carbon exchange, as referred to in paragraph (1), shall be carried out by: a. developing carbon trading infrastructure; b. regulating the utilization of state revenue from carbon trading; and/or c. administering carbon transactions.
- (6) The Development of carbon trading infrastructure, as referred to in paragraph (5), shall be coordinated between ministries/agencies and the carbon exchange supervisory authority.
- (7) The carbon exchange center shall be domiciled in Indonesia.

Article 25:

Carbon trading through carbon exchanges must meet the requirements, and a license from the Financial Services Authority must be obtained.

Article 26:

- (1) Further provisions regarding carbon trading through carbon exchange, as referred to in Article 25, shall be stipulated in the Regulation of The Financial Services Authority after consultation with the Parliament.
- (2) In the context of drafting the Regulation of The Financial Services Authority as referred to in paragraph (1), The Financial Services Authority shall coordinate with ministries and or other relevant authorized institutions.

To implement Articles 23–26 mentioned above, technically, carbon exchange trading is further regulated through Regulation of The Financial Services Authority No. 14 of 2023 on Carbon Trading through the Carbon Exchange.

With the issuance of the Financial Services Authority Regulation, the Indonesian government hopes to realize its commitment to the Paris Agreement, which Indonesia has ratified. This policy marks the government's commitment to creating a market mechanism that encourages the reduction of GHGs.

Based on the explanation above, this study will investigate more deeply the role of the government in encouraging Indonesia's commitment, and examine the effectiveness of carbon exchange by employing the theory of Economic Analysis of Law by Richard Posner. Thus, this study is entitled **“ANALYSIS OF THE ROLE OF THE INDONESIAN CARBON EXCHANGE IN ENCOURAGING THE ACHIEVEMENT OF INDONESIA'S COMMITMENTS AT THE UN CLIMATE CHANGE CONFERENCE (COP21) (STUDY ON THE IMPLEMENTATION OF THE PARIS AGREEMENT 2015)”**.

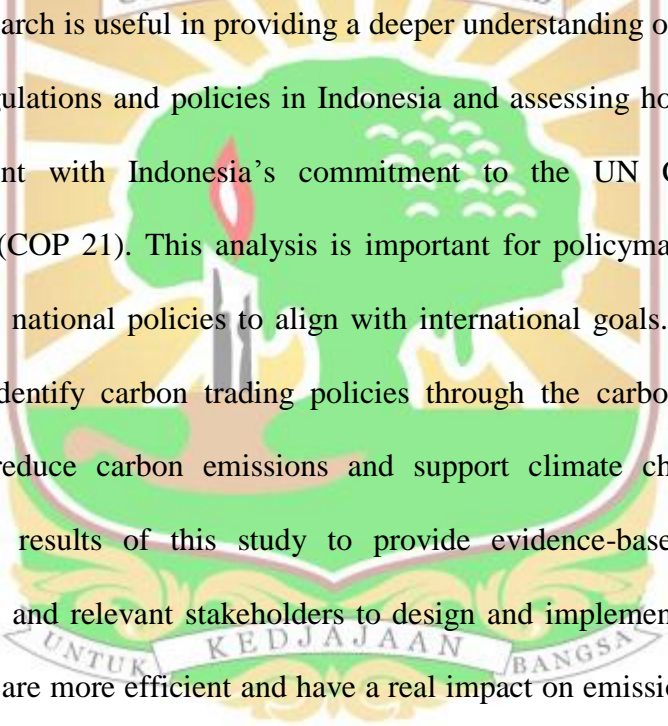
B. Research Question

1. What are the regulations carried out by Indonesia as a participant in the UNCCC (COP21) to mitigate carbon emissions regarding carbon exchange?
2. What kind of effective mechanism of carbon exchange to mitigate carbon emissions in Indonesia?

C. Research Objectives

1. Analyze or investigate Indonesia's regulations and policies regarding carbon emissions, considering the extent to which these policies are consistent with Indonesia's commitment to the UN Climate Change Conference (COP 21).
2. Analyze and investigate the carbon trading mechanism through Carbon Exchanges that effectively reduce carbon emissions and support mitigation efforts.

D. Research Advantages



This research is useful in providing a deeper understanding of existing carbon emission regulations and policies in Indonesia and assessing how these policies are consistent with Indonesia's commitment to the UN Climate Change Conference (COP 21). This analysis is important for policymakers to evaluate and improve national policies to align with international goals. In addition, the study will identify carbon trading policies through the carbon exchange that effectively reduce carbon emissions and support climate change mitigation efforts. The results of this study to provide evidence-based guidance for governments and relevant stakeholders to design and implement carbon trading policies that are more efficient and have a real impact on emission reduction and environmental protection.

E. Research Methodology

Each study shall use a research method. A research method aims to provide guidance on how a writer studies, analyzes, and understands the law until reaching a relatively correct and comprehensive conclusion.²⁶ In order to collect

²⁶Muhaimin, 2020, *Metode Penelitian Hukum*, Mataram University Press, NTB, page. 115..

concrete data that serve as the foundation for this written work, the author uses the research method described in the following points:

1. Research Typology

To answer the formulation of the research question mentioned above, this study will use the Judicial-empirical research method.²⁷ Normative-empirical research is legal research that examines the enactment or implementation of normative legal provisions in real situations. It involves analyzing how the law operates in society, including the interaction between legal norms and social behavior. Therefore, the author using Normative-empirical method, to see the enforcement of the law, in-depth observation of the events on the Carbon Exchange, and mitigation carried out by the Indonesian government in reducing the impact of Climate Change on the environment.

2. Research Approaches

The research approaches in this study are the statute approach and the conceptual approach. The statute approach examines all rules and regulations related to the discussed legal issues. Meanwhile, the conceptual approach in legal research provides an analytical perspective to solve problems by studying the underlying legal concepts. This approach can also consider the values in the regulations related to the concepts used. The researcher also uses Ricard Posner's theory of economic analysis of law to look at legal phenomena through the lens of economic theory.

3. Nature of Research

The nature of this research is descriptive. Descriptive research is a research method that aims to describe the characteristics of a population or a

²⁷Sigit Sapto Nugroho, Anik Tri Haryani, dan Farkhani, 2020, *Metodologi Riset Hukum*.

certain phenomenon.²⁸ The researcher uses a descriptive method to provide an overview of the formulation of the problems in this research proposal.

4. Data Type

a. Primary Data

Primary data in legal research is obtained mainly from empirical research results, namely, research conducted directly in the community. Primary data sources are taken from the field through interviews with informants or interested parties, which can provide relevant information about the researched topic.²⁹ In this bachelor's thesis, the author conducted with the Ministry of Environment as a stakeholder and also the Non-government Organization (NGO), with which the author conducted with Forest Watch Indonesia as the representative of the NGO, focusing on the environment.

b. Secondary Data

Secondary data is obtained from research, official documents, books related to the research object, and research results in reports, theses, dissertations, laws, and regulations.³⁰

1) Primary Legal Sources

Primary legal sources are binding legal sources consisting of laws and regulations relevant to the research object.³¹ Primary legal sources related to the content of this proposal include:

²⁸Nur Indriantoro dan Bambang Supomo, 2002, *Metodologi Penelitian Bisnis untuk Akuntansi dan Manajemen*, BPFE, Yogyakarta.

²⁹Mukti Fajar dan Yulianto Achmad, 2010, "*Dualisme Penelitian Hukum Normatif & Empiris*", Pustaka Pelajar Yogyakarta, Page.156.

³⁰Zainuddin Ali, 2009, "*Legal Research Methods*", Jakarta: Sinar Grafika, page. 106

³¹*Ibid*

- a) Kyoto Protocol to The United Nations Framework Convention On Climate Change
 - b) Paris Agreement to The United Nations Framework Convention On Climate Change.
 - c) Law No. 16 of 2016 on Ratification of the Paris Agreement To The United Nations Framework Convention On Climate Change.
 - d) Law No. 7 of 2021 on the Harmonization of Tax Regulations.
 - e) Presidential Regulation No. 98 of 2021 on the Economic Value of Carbon.
 - f) Law No. 4 of 2023 on Developing and Strengthening the Financial Sector.
 - g) Financial Services Authority Regulation No. 14 of 2023 on Carbon Trading Through Carbon Exchanges.
- 2) Secondary Legal Sources

Secondary legal sources play a supporting or complementary role. According to Soerjono Soekanto, secondary data includes official documents, books, and research results presented in reports. Soerjono Soekanto explained that secondary data is a source of information that complements the primary data in the research.³²

c. Tertiary Data

In legal research, tertiary data serves as supplementary sources that assists in understanding and navigating other legal sources. This data

³²Soerjono Soekanto. 2007. *"Pengantar Penelitian Hukum."* UI Press, Jakarta. page.12

type typically comes in the form of summaries, indexes, or reference guides that help researchers locate relevant legal resources. Examples of tertiary data include legal dictionaries, legal encyclopedias, legislation indexes, and directories of legal literature.³³

5. Data Collection Techniques

The author uses data collection techniques in several ways, such as:

a. Document Sourcing

Kathy E Green stated that data collection techniques in legal research can be carried out through literature studies on various legal sources, including primary, secondary, and tertiary legal sources.³⁴ In this research for data about the mechanism of carbon exchange from OJK, the author collected from the National Webinar in an official source delivered by the Financial Services Authority (OJK) in a webinar with the International Law Students Association (ILSA Chapter UNAND) on October 19, 2024.

b. Field Research

Two data collection techniques are used in legal research that examine phenomena in the field: interviews and questionnaires.

1) Interview

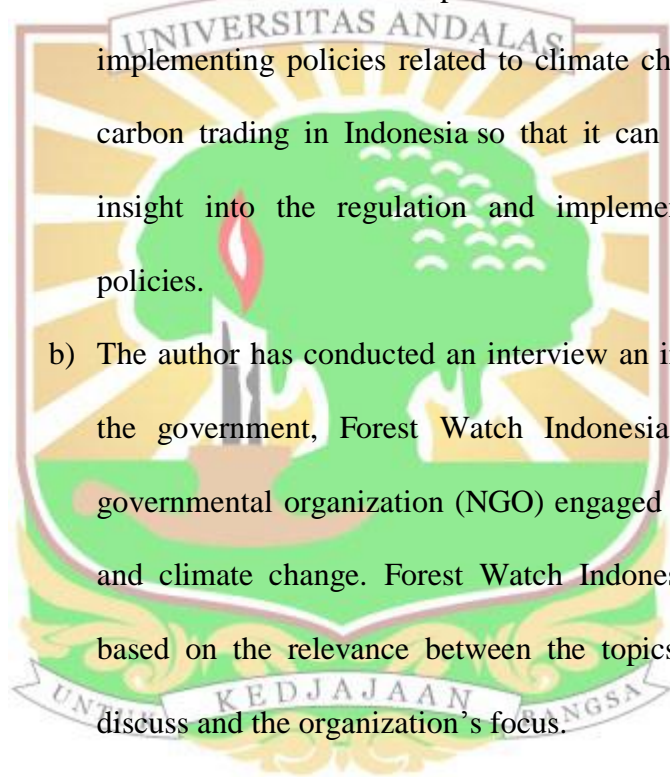
Interviews are direct question and answer activities between researchers and informants or resource persons to obtain information. This interview is used in empirical legal research to obtain information that can only be obtained by asking the informant directly. The author conducted an interview using the

³³ *Ibid.*

³⁴ Arlene Fink, 2010, *Conducting Research Literature*, ed. 3, SAGE, Los Angeles, page. 290–291.

interview guidelines that the author prepared related to the formulation of the problem of this bachelor thesis. The following is a list of informants that the author had interviewed:

- a) The author has conducted an interview with Ministry of Environment of the Republic of Indonesia (*Kementrian Lingkungan Hidup Republik Indonesia*). Interviewing the Ministry of Environment become a key stake holder because this institution is responsible for formulating and implementing policies related to climate change control and carbon trading in Indonesia so that it can provide in-depth insight into the regulation and implementation of these policies.
- b) The author has conducted an interview an institution outside the government, Forest Watch Indonesia (FWI), a non-governmental organization (NGO) engaged in environmental and climate change. Forest Watch Indonesia's selection is based on the relevance between the topics that the author discuss and the organization's focus.



6. Data Analysis Techniques

a. Secondary data

The secondary data collection technique records and studies books on the problem discussed through library research. According to Soerjono Soekanto, a literature study is a document study that is a data collection tool that uses written data using “content

analysis,” commonly called content analysis.³⁵ Literature study or literature can also be interpreted as a series of activities related to collecting library data, reading and taking notes, and processing research sources.³⁶

b. Primary data

The primary data is essential for empirical research as it offers direct insight into legal phenomena. Methods such as content analysis used to examine statutes or court decisions and thematic analysis of interviews with legal practitioners help identify patterns in interpretation and practice. These approaches ensure legal data is analyzed within an appropriate legal framework, enhancing the validity of research findings.³⁷

F. Outline of the Thesis

This writing is arranged in such a way as to provide an overview and instructions related to what is intended to be conveyed, and that explain by the author in the interpretation of the topic raised. The structure of this writing is divided into four chapters as follows:

CHAPTER I: INTRODUCTION

The first chapter includes an explanation of the problem's background, the problem's formulation, the research's purpose, the research, the benefits of the research, the research method, and the writing procedure.

CHAPTER II: LITERATURE REVIEW

³⁵Soerjono Soekanto dan Sri Mahmudji, 2010, *Penelitian Hukum Normatif*, Raja Grafindo, Jakarta, Page. 14.

³⁶Supriyadi, 2016, “Community of Practitioners: Solusi Alternatif Berbagi Pengetahuan Antar Pustakawan”, *Lentera Pustaka, Interdisciplinary Islamic Studies Konsentrasi Ilmu Perpustakaan Dan Informasi Islam*, Vol. 2, Nomor. 2, 2016, Page. 85.

³⁷J. Smith, 2020, *Legal Research Methods*, Oxford University Press, Oxford.

In this second chapter, the author provide an overview of the substances to be studied. This literature review will discuss climate change internationally and also discuss regulation. It also review carbon exchanges internationally, including the national scope of Indonesia due to the regulation that exist.

CHAPTER III: RESEARCH RESULTS AND DISCUSSION

In this chapter, the author describes the research results on the research question made in this bachelor's thesis within the ratification of the Paris Agreement, nationally determined contribution, greenhouse gases, the mechanism of carbon exchange in Indonesia, and its impact on the environment.

CHAPTER IV: CLOSING

The last chapter summarizes the entire discussion's conclusions and provides suggestions that the author expresses regarding the research result.

