

Indonesia's Implementation of the Paris Agreement: A Global Governance Perspective Through the Directorate General of Climate Change Control (2020-2024)

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ABSTRACT

The purpose of this qualitative study is to identify how the implementation of the Paris Agreement has been carried out by Indonesia in the period 2020-2024 through the Directorate General of Climate Change Control under the Ministry of Environment and Forestry as Indonesia's national focal point for the UNFCCC seen through the perspective of the concept of global governance. The concept has components in the form of structural involvement from the national and subnational scope and deliberation which will produce two other components in the form of substantive and behavioral results from multistakeholder. Indonesia, in the context of implementing the Paris Agreement, needs to carry out the components contained in the concept of global governance to become a good governance. Until 2024, stakeholders in the implementation of the Paris Agreement from the national, subnational, to the community have shown behavioral changes as a result of the substantive results that have been issued by state actors involved in deliberation. At the local level, there are Masyarakat Peduli Api groups that are tasked with the prevention and management of forest and land fires. In addition, there is ProKlim which has a village-level scope managed by the Regional Government to increase community participation with the aim of reducing greenhouse gas emissions in the region. The research method used is descriptive qualitative with document study as a data collection technique.

Keywords: *Global Governance, Paris Agreement, Climate Change*

ABSTRAK

Tujuan dari kajian kualitatif ini adalah untuk mengidentifikasi bagaimana implementasi Perjanjian Paris telah dilakukan oleh Indonesia pada periode 2020-2024 melalui Direktorat Jenderal Pengendalian Perubahan Iklim di bawah Kementerian Lingkungan Hidup dan Kehutanan sebagai *focal point* nasional Indonesia untuk UNFCCC dilihat melalui perspektif konsep tata kelola global. Konsep tersebut memiliki komponen berupa keterlibatan struktural dari ruang lingkup dan musyawarah nasional dan subnasional yang akan menghasilkan dua komponen lainnya berupa hasil substantif dan perilaku dari multi *stakeholder*. Indonesia, dalam rangka implementasi Perjanjian Paris, perlu menjalankan komponen-komponen yang terkandung dalam konsep tata kelola global untuk menjadi tata kelola yang baik. Hingga tahun 2024, para pemangku kepentingan dalam implementasi Perjanjian Paris dari nasional, subnasional, hingga masyarakat telah menunjukkan perubahan perilaku sebagai hasil substantif yang telah dikeluarkan oleh aktor negara yang terlibat dalam musyawarah. Di tingkat lokal, ada kelompok Masyarakat Peduli Api yang bertugas untuk pencegahan dan pengelolaan kebakaran hutan dan lahan. Selain itu, ada ProKlim yang memiliki ruang lingkup tingkat desa yang dikelola oleh Pemerintah Daerah untuk meningkatkan partisipasi masyarakat dengan tujuan mengurangi emisi gas rumah kaca di

daerah. Metode penelitian yang digunakan adalah deskriptif kualitatif dengan studi dokumen sebagai teknik pengumpulan data.

Kata kunci: Tata Kelola Global, Perjanjian Paris, Perubahan Iklim

INTRODUCTION

Global warming refers to the gradual increase in the Earth's heat caused by anthropogenic human activities that emit greenhouse gases in the form of methane (CH₄), carbon dioxide (CO₂), chlorofluorocarbons (CFCs), and nitrous oxide (N₂O). Evidence of global warming was first discovered by a scientist named Guy Callendar through manual calculations on 147 weather stations in 1938 which showed evidence that carbon dioxide and industrial emissions in the form of CFCs were responsible for increasing the earth's temperature by 0.3° C in the previous 50 years (Renner, n.d.). A global climate change research institute focusing on the Antarctic and Arctic regions of the United Kingdom called the British Antarctic Survey also confirmed the discovery of the first hole in the ozone layer in 1985 that had appeared since they began measuring ozone concentrations over Antarctica since the 1950s (Walker, 2022).

This condition then became an international concern with the establishment of The United Nations Environment Programme in 1972 which focused on environmental monitoring including climate change. The formation of The United Nations Environment Programme led to the formation of The Intergovernmental Panel on Climate Change in 1988, a body of the United Nations responsible for assessing the science of climate change globally (United Nations Climate Change, n.d.). The IPCC issued its first assessment report in 1990, which played an important role in the establishment of the United Nations Framework Convention on Climate Change (UNFCCC). Then, the parties that have signed the convention have an annual meeting known as the Conference of the Parties (COP). COP 1 was a milestone in global efforts to address climate change held in 1995, in Berlin, Germany (Conference of the Parties (COP), n.d.). Their 21st meeting, held in Paris, and the IPCC's fifth assessment report provided the basis for the Paris Agreement adopted in 2015, which aims to hold the increase in global average temperature to well below 2°C above pre-industrialization levels and continue the mission to limit the temperature rise to 1.5°C above pre-industrialization levels (Walker, 2022). The agreement is binding for ratifying countries, but it is also flexible as each country's target is tailored to its own capabilities, in accordance with the UNFCCC's principle of "common but differentiated responsibilities".

As a developing country, as well as a member state of the climate change convention, Indonesia is faced with the necessity to ratify the Paris Agreement due to domestic conditions that make GHG emissions increase such as forest burning, rampant industrialization, high energy use, and waste management.

Year	Sector	CO2	CH4	N2O
2000	Energi	284503	29728	3378
2016	Energy	506473	26021	5531
2000	IPPU	42391	70	149
2016		53892	82	1286
	AFOLU (include Peat			
2000	Fire)	510140	50912	39518
2016		638542	61486	52110
2000	Limbah	2216	60398	2218
2016	Waste	2940	106212	3198
2000	Jumlah	839250	141108	45263
2016	Total	1201847	193801	62125

Figure 1. Emission Capacities in Indonesia

Source: Indonesia Second Biennial Update Report (BUR) 2018, Ministry of Environment and Forestry Republic of Indonesia

Later in 2016, the Minister of Environment and Forestry on behalf of the Government of Indonesia declared its intention to ratify the Paris Agreement. This decision was made in consideration of Indonesia's status as an archipelagic country that is highly vulnerable to the adverse effects of climate change, as well as the state's mandate and obligation under Law Number 32 of 1999 to ensure its citizens have a quality and healthy environment.

There are three previous studies that discuss the implementation of the Paris Agreement in Indonesia chosen by the author. Research by Nadia Afiya with the title "*Strategi Sektor Energi Indonesia Terhadap Paris Agreement dalam Menciptakan Net Zero Emission Periode 2020-2023*" which focuses on the country's strategy in creating net zero emission conditions in the energy sector (Afiya, 2023). The research took the range of 2020-2023, where in 2020 the energy sector was the largest emitter in Indonesia. The research conducted by Adhitya Nugraha with the title "*Assessment of Indonesia's Position on the Net Zero Emission*" with a research year of 2024 which focuses on the importance of global and national collaboration to effectively address emission problems. The research explains that the NZE concept is in line with the goals of the Paris Agreement, which then the agreement triggers a shift in priorities towards sustainability (Nugraha, 2024). The third research by Rizky Hikmatullah entitled "*Realization of Climate Change Management in Indonesia Through the Implementation of Sustainable Development Goals (Sdgs): Goal-13.1.3*" with a span of 2017-2019 which discusses the goal of dealing with climate change by implementing Goal-13.1.3 by emphasizing environmental sustainability will form sustainable development in the country in accordance with Indonesia's National Action Plan (Hikmatullah, 2024). Some of these studies focus on the Indonesian Government's efforts to implement the ratified Paris Agreement through the Nationally Determined Contributions that have been set.

While the purpose of this research is to discuss the variables contained in the concept of global governance that Indonesia has carried out in the Joko Widodo Government in 2020-2024 in the implementation of the Paris Agreement with the formulation of the problem in the form of "How is the implementation of global governance in the Paris Agreement that has been implemented by Indonesia by the Jokowi Government in 2020-2024?". The year was chosen by the author because it is based on the RJP MN which is updated every 5 years and the 2020 RPJMN has contained goals that are in line with the Paris Agreement, where in the RPJMN for the first period of President Jokowi's leadership in Indonesia which was approved on January 6, 2015 through Presidential Regulation No. 2 of 2015 has not contained a design that is in line with the objectives of the Paris Agreement which only came into force on October 31, 2016 through Law No. 16 of 2016. Therefore, this research is needed to find out how the implementation of the Paris Agreement by Indonesia in the perspective of the concept of global governance.

Global Governance

The dynamic interaction between state and non-state actors consisting of the private sector, civil society and the public sector is the definition of Global Governance according to Timothy Cadmann (2011). Cadman (2012) explains that the analytical framework below can be applied in various areas of environmental policy, one of the most topical being climate change. This is due to the exploration of the relationship between process structure, and problem-solving capacity, which would be helpful if used for a comparative analysis of whether a market-based environmental governance system would be more effective or otherwise when compared to a multilateral environmental agreement model. The analysis is also based on the assumption that structure and process are fundamental to understanding the quality of participant interactions in contemporary global institutions, with the terms 'governance as structure' understood as the models used by different institutions, and 'governance as process' referring to the notion of direction or coordination, and encompassing joint arrangements to achieve common goals (Cadman, T., 2012). In order to make these concepts more effective, the terms were developed into 'participation as structure' and 'deliberation as process'.

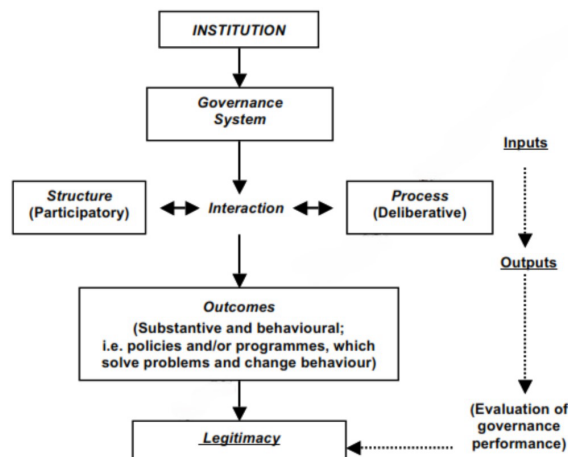


Figure 2. Theoretical Model of Global Governance Evaluation

The concept of Global Governance according to Cadman is described as a relationship involving state and non-state actors referred to as a structure (participatory) and has a process (deliberation), which was originally formed by global institutions as institutions that implement governance systems, and as institutions that have a significant contribution in solving a problem (Cadman, T., 2011). The result of this integration is a substantive component in the form of policy, and a behavioral component which is defined as a change in behavior.

Cadman's analytical model emphasizes that the success of a government institution or the fulfillment of criteria as good governance is determined by the coordination of structural components as well as procedural components that have an influence in obtaining maximum results to be reviewed for legitimacy, which includes implementation, transparency, equality, conflict resolution, accountability, representation and participation, resources, behavioral change, deliberation, and inclusiveness through the evaluation of governance (Cadman, T., 2011).

International Agreement

An international treaty is an agreement formed by two or more countries, set forth in a written document and regulated by international law in the relevant instrument, the definition is based on the 1969 Vienna Convention. Meanwhile, the definition of an international treaty that refers to the 1989 Vienna Convention is an agreement that is subject to international law and is also formed by agreement between two or more states, two or more international organizations, and between states and international organizations in written form either with one or more related instruments and is not bound by naming. International treaties also have definitional benchmarks in the form of elements or criteria within their scope in the form of 1) international agreements; 2) based on the subject of international law; 3) in written form; 4) governed by international law that gives rise to rights and obligations in the field of public law; 5) in any form (Kaczorowska, 2005).

International treaties have characteristics in the form of those concerned in making agreements agreeing to give birth to obligations and rights at the world level, in accordance with the 1969 and 1989 Vienna Conventions which classify the role of a state in international treaties in two groups, namely party states (party) or countries that declare to be bound to international treaties and non-party states (third state) or countries that are not included in the initial making of international treaties so that rights and obligations do not arise without the consent of the party state. In Article 7 of the 1969 Vienna Convention, countries included in drafting international agreements or also called state parties will go through several processes, namely, 1) adoption of the text, namely approval of the text of the agreement shows the agreement of all countries involved in the initial making of the international agreement. In an international conference, the ratification of the text of the agreement can be carried out if it is approved by two-thirds of the total participating countries, unless there are other provisions stipulated by the conference; 2) authentication of the text, namely the authentic text that can be submitted in the form of text and has been agreed upon by the countries included in the making of an international agreement; 3) consent to be bound, namely a form of action that states to be bound by an international agreement.

Then, non-party states must undergo a series of processes to be considered bound by international treaties in accordance with the explanation of the International Law Commission, namely: 1) there must be an agreement from a state party to a treaty that has the intention to establish obligations on a non-party state; 2) an express statement must be made by a third country to be bound by international treaty obligations in writing. Then, to declare being bound in an international treaty and perform the capacity as a state party, a state needs to declare in the form of agreed actions. The form of action such as signing (signed), namely the state declares its willingness to be bound to the agreement through the signing of a representative, under the conditions that a) the agreement states that signing will result in the state being bound to the agreement; b) if there are no other provisions, the countries involved in the negotiations agree that signing must result in the state being bound to the international agreement; c) the attachment due to signing arises because the representative has full authority. The next form of action is the exchange of instruments constituting a treaty in the form of an agreement from the state to be subject to a treaty based on the exchange of instruments stipulated to have the binding effect of an international treaty. Another form of action is ratification, approval, or acceptance or an agreement of the state to submit to the treaty through ratification, acceptance, or approval.

When a country has undergone a series of processes above and has acted as a state party to an international agreement, then the country has become part of the international agreement and has legal consequences, namely rights and obligations that must be implemented in accordance with the agreed agreement (Situngkir, 2018).

RESEARCH METHODS

In conducting research, the author uses a type of qualitative research with descriptive research. Lexy J. Moleong defines qualitative research as a type of research that uses naturalistic methods and aims to describe a phenomenon within a specific contextual setting. In a study, qualitative research is used as a tool to be able to understand a phenomenon in depth related to the object of research. Qualitative research can also be used to examine phenomena related to the experiences of research subjects, such as actions, perceptions, and motivations that are studied holistically through descriptions in verbal and linguistic forms in a particular context (Lexy, 1989). In this research, the author has a focus on the Joko Widodo administration in 2020-2024 which is based on Indonesia's Nationally Determined Contributions which are updated every 5 years and the long- and medium-term development plan known as RPJMN in 2020-2024 has contained goals that are in line with the Paris Agreement. In collecting the data needed to be analyzed in this paper, the author uses a literature study or document study which aims to collect secondary data or data that has been processed in previous papers.

RESULTS AND DISCUSSION

The Paris Agreement also aims to multiply the international response to the threat of climate change by setting more specific and binding targets for state parties in accordance with Article 2 of the Paris Agreement, which explicitly states its aim to improve the implementation of the convention (United Nations, 2015). The global response with more specific targets referred to in the agreement is that state parties that have ratified this agreement, are required to make Nationally Determined Contributions or NDCs to minimize greenhouse gas emissions that are regularly updated with increased targets every 5 years and submitted to the UNFCCC through the national focal point of each country that has been directly appointed by the UNFCCC. The implementation of nationally determined contributions by state parties will need to be coordinated by the national ministries or agencies of each country that have been appointed by the UNFCCC as national focal points effectively through mitigation and adaptation, and capacity building involving multi-stakeholders from the national level such as ministries and subnational levels in the form of local governments that aim to increase public and private sector participation in accordance with Article 6 of the Paris Agreement (United Nations, 2015).

The Ministry of Environment and Forestry established an institution by the name of the Directorate General of Climate Change Control or DJPPI which will later be appointed as the country's national focal point for the UNFCCC through the instruction of the Minister of Environment and Forestry Regulation Number P.18/MENLHK/-II/2015, which means that DJPPI serves as the main point of contact between the country and the UNFCCC secretariat and is responsible for coordinating the preparation, participation, and implementation of UNFCCC and Paris Agreement decisions at the national level (Ministry of Environment and Forestry, 2022). The

Directorate General of Climate Change Control is also responsible for formulating and implementing policies on climate change. Indonesia's Enhanced Nationally Determined Contributions updated in 2022 contains the ENDC implementation strategy that has also been included in the RPJMN 2020-2024 (Government of Indonesia, 2020), which consists of 9 programs to achieve the 2030 NDC targets and accelerate changes aimed at low-carbon development and climate resilience, some of which emphasize that multi-stakeholder support from national to subnational levels is needed to achieve these targets (Ministry of Environment and Forestry, 2022), namely: 1) building ownership and commitment among ministries and other government agencies, local governments, civil society, the private sector and financial institutions; 2) increasing the capacity of human resources and institutions at the top to the lowest level, covering all aspects of climate change, especially on mitigation and adaptation actions, implementation of transparency frameworks, and climate finance; 3) creating an enabling environment for the involvement of a wider range of stakeholders in mitigation and adaptation activities and resource mobilization, through appropriate regulatory frameworks and measures; 4) developing networks and frameworks to cooperate and build synergies between sectors, regions, and actors (Government of Indonesia, 2022). In accordance with the Enhanced Nationally Determined Contributions implementation strategy program, the Directorate General of Climate Change Control will coordinate with local governments to carry out programs that have been determined by the Ministry of Environment and Forestry and cooperate with non-governmental organizations and local communities. In the next section, it will contain the structure of actors involved in a policy formulation process in climate change adaptation and mitigation efforts.

Ministry of Environment and Forestry

With the enactment of Indonesian Law No. 32 of 2009 on Environmental Protection and Management, it became the basis for climate change affairs to be in the control of the Ministry of Environment and Forestry. This regulation gives great authority to the Minister of Environment and Forestry to carry out all government affairs in the environmental protection and management sector on climate change which includes inventory and reduction of greenhouse gas (GHG) emissions, conservation of forests and biodiversity, adaptation and mitigation of climate change, preparation and reporting of NDC to UNFCCC, and the Ministry of Environment also has the authority to cooperate with other agencies (Government of the Republic of Indonesia, 2009).

As the national authority that manages climate change issues and represents the country in any international climate negotiations under the UNFCCC framework, the Minister of Environment and Forestry was appointed as a delegate to the 21st Conference of the Parties held in Paris on November 30 to December 12, 2015 in Paris which later resulted in the Paris Agreement (National Law Development Agency, n.d.). Then in 2020 or the second term of President Joko Widodo's administration with the Indonesia Maju cabinet, President Joko Widodo updated his cabinet based on Presidential Regulation No.92 of 2020 concerning the Ministry of Environment and

Forestry which aims to refine the structure of the ministry. Referring to Minister of Environment and Forestry Regulation Number 18/Menlhk-II/2015, the Minister of Environment and Forestry is given broad authority to coordinate government interests in the environmental and forestry sectors to assist the head of state in the administration of state government (Directorate General of Climate Change Control, 2020). These improvements include updating the function of the Directorate General of Climate Change Control, namely providing technical guidance and supervision in the climate change sector Article 30 in the new Presidential Regulation as a step in implementing the Paris Agreement.

Directorate General of Climate Change Control

One of the work units in the Ministry of Environment and Forestry that is tasked with formulating and implementing policies in the field of climate change control is Directorate General of Climate Change Control or commonly abbreviated as DJPPI. As stated in Presidential Regulation No.92 of 2020 concerning the Ministry of Environment and Forestry (Directorate General of Climate Change Control, 2020). In fulfilling its duties, DJPPI carries out functions in the form of: 1. formulating and implementing policies; formulating standards, procedures, norms, and criteria; cooperation and synchronization in the implementation of regulations; providing technical guidance and supervision; conducting evaluations and reporting on related matters that can reduce GHG emissions, control forest and land fires, implement mitigation, reduce the use of materials that can damage ozone, adaptation, mobilize resources, strengthen resilience, inventory greenhouse gases, as well as monitoring, reporting and verification of climate change; 2. implementing administration; and 3. carrying out other functions assigned through the Minister of Environment and Forestry (Government of the Republic of Indonesia, 2020).

Local Government

Local governments have a vital role in determining the success of a policy and the process of implementing government activities that have been determined by the central government, because local governments have the authority to coordinate and implement programs in the regions (Soares, 2015). Local governments also have the right to manage their own affairs within the framework of regional autonomy, which is the right, authority, and obligation of autonomous regions to organize government and meet the needs of their residents of the region in the Republic of Indonesia system, this regional autonomy is regulated in Law Number 23 of 2014 concerning Regional Government (Government of the Republic of Indonesia, 2014). Therefore, in addition to implementing programs from the central government, local governments can freely create their own programs according to what suits the area based on plans or directions from central government policies.

Manggala Agni

Manggala Agni is a firefighting task force under the Ministry of Environment, responsible for carrying out activities related to prevention, control, and post-fire

rehabilitation. Manggala Agni has a vision and mission as stated on the website of the Directorate of Land and Forest Fire Control (This directorate falls under the jurisdiction of DJPPI), that is sipongi.menlhk.go.id. Manggala Agni's vision is to realize an optimal forest fire management system and create conditions where people are protected from the threat of fire and free from haze pollution. Manggala Agni's three missions are prevention, to raise awareness of the dangers of fire through education and forest management practices that reduce the risk of fire. Initial action, to extinguish fires as quickly as possible with trained personnel and adequate equipment. Rehabilitation & law enforcement, to deal with burnt land by rehabilitating affected areas and taking an action against violations according to regulations and technical guidelines (Directorate of Forest and Land Fire Control, n.d.).

Masyarakat Peduli Api

The implementation of forest and land fire control activities needs to involve communities around forests that are often and prone to forest and land fires, because one form of forest fire prevention action is the need for coordination built by stakeholders, especially the involvement of local communities as the closest party to the location and who can respond quickly before the fire gets wider and the effects are more severe (Asian Agri, n.d.). Therefore, a group called Masyarakat Peduli Api was formed under the Climate Change Control Center, which also engaged Manggala Agni as a facilitator. The establishment of the Masyarakat Peduli Api aims to strengthen community involvement in maintaining and protecting forests and to prepare volunteers who can assist in the prevention and control of forest and land fires, both for forest area managers (Perhutani) and sub-district level governments (Directorate General of Climate Change Control, 2020).

Masyarakat Peduli Api was formed along with providing education, education and understanding to the community to preserve the forest, so that through this activity it is expected to increase community awareness and technical capabilities in protecting the environment, especially those related to forest and land fire control, which is expected to be able to prevent forest fires and reduce the risk of fires that can damage the environment and forest ecosystems. In addition, other material presented in the formation and technical briefing of the Fire Care Community consists of theoretical material, namely the introduction and basic techniques of forest and land fire control, introducing climate change adaptation and mitigation measures, forming groups and practical material in the form of using tools and practicing forest and land fire-fighting (Balai TN Gunung Ciremai, n.d.).

Financial Services Authority

The Financial Services Authority, known as Otoritas Jasa Keuangan (OJK) as a state institution formed by Law Number 21 of 2011, has the obligation to provide rules and provide supervision of all activities in the financial services sector in an integrated manner. Article 4 of Law Number 21 of 2011 concerning the Financial Services Authority (OJK) stipulates that the establishment of the OJK is intended to

ensure that all activities within the financial services sector are conducted in an orderly, fair, transparent, and accountable manner. It also aims to contribute to the development of a stable and sustainable financial system, while safeguarding the rights of the public and financial service consumers. Furthermore, the establishment of the OJK is expected to enhance comprehensive governance of the financial sector and strengthen national economic competitiveness (OJK, n.d.).

Substantive Components and Behavior Change by Stakeholders for Climate Change Mitigation and Adaptation

The success of a government institution in fulfilling the criteria for good governance is determined by the cooperation of structural components that have influence to optimize results. Later, the integration between structures that has been carried out by stakeholders in the deliberation process will produce output, in this case in the form of 2 components, namely the substantive component which includes the legal basis, regulation, or policy and the behavioral component or behavior change as a form of implementation of the substantive component, in accordance with the global governance system (Cadman, T., 2011).

Substantive Component

Indonesia aims to achieve island climate resilience by 2030 through comprehensive mitigation and adaptation efforts, including disaster risk reduction strategies. Consequently, Indonesia's climate change agenda, as outlined in the RPJMN 2020-2024 and reflected in the ENDC 2022, provides the framework for both national and subnational governments to establish substantive components related to climate change adaptation and mitigation. (Government of Indonesia, 2022).

Minister of Environment and Forestry Regulation No. P.32/MenLHK/Setjen/Kum.1/3/2016

This ministerial regulation is prepared as a guide for norms, standards, criteria and guidelines for the planning organization and implementation of forest and land fire control activities for relevant stakeholders at national and regional scales so that the efficiency and effectiveness of land and forest fire control can be guaranteed (MoEF, 2016). The regulation underlies the formation of Manggala Agni groups, or organizations in charge of controlling forest and land fires owned by the government consisting of civil servants under the Ministry of Environment and Forestry who have been equipped with related insights in accordance with Article 9. Manggala Agni consists of 3 levels, namely central Manggala Agni, regional Manggala Agni, and regional Manggala Agni operations or daops. Then in Article 22, the Directorate General of Climate Change Control through Manggala Agni facilitates the formation and development of Fire Care Community groups consisting of civilians in villages around locations prone to forest fires with a minimum number of 2 teams, with 15 community members per team. Article 76 describes the coordination of the work of each stakeholder, including Manggala Agni and Masyarakat Peduli Api, to harmonize and collaborate all planned actions to prevent, extinguish and manage the

aftermath of forest and land fires. Such management is the responsibility of the minister, governor, regent/mayor, and the head of each regional unit (MoEF, 2016).

Minister of Environment and Forestry Regulation No. P.84/MenLHK/Setjen/Kum.1/11/2016

Through this policy, the Minister of Environment and Forestry implemented a program called Proklim or Climate Village Program, which is a program with the Ministry of Environment and Forestry as its manager and has a national scope that covers administrative areas with the lowest level of community association and the highest level of village (MoEF, 2016). The program was created to increase community participation, aiming to strengthen community capacity to cope with climate change impacts and lower greenhouse gas emissions. In addition, this program also provides recognition for various adaptation and mitigation measures that have been implemented by the community, with the hope of increasing the welfare of local communities that reflect the specific conditions of the region (MoEF, 2016).

Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number P.71/MENLHK/SETJEN/KUM.1/12/2017

Considering Article 13 of the Paris Agreement on the management of the transparency framework, the Ministry of Environment established the National Registry System for Climate Change Control or known as Sistem Registri Nasional (SRN) as stipulated in this regulation. SRN is a web-based system managed by DJPPI that is used to manage and provide information and data related to climate change adaptation and mitigation efforts in the country (MoEF, 2017). The system is intended as a forum for integration of climate change-related efforts and resources to prevent double counting, as well as an integration and evaluation tool for the extent to which climate change mitigation and adaptation actions have been implemented (MoEF, 2016). All activities that have been, will be, and are ongoing related to climate change actions in the country are expected to be registered through this system, and the recorded data will later be used as a basis for reporting to the UNFCCC Secretariat. The implementation of SRN is a form of implementation of the mission of good governance, openness, and transparency of information (MoEF, 2016).

Regulation of the Directorate General of Climate Change Control Number P.3/PPI/SET/KUM.1/2018

This regulation, established by DJPPI in 2018, is based on the establishment and guidance of Fire Care Community groups. This regulation replaces the Director General of Forest Protection and Nature Conservation Regulation No. P.2/IV-Set/2014 on the Establishment and Guidance of Fire Care Communities which is no longer relevant. This was due to changes in the structure of the Ministry of Environment and Forestry at the beginning of President Joko Widodo's administration through the merger of two different ministries, the Ministry of Environment and the Ministry of Forestry. The regulation was in effect when

President Susilo Bambang Yudhoyono was still president in 2004-2014, which meant that the environment and forestry sectors were still 2 different sectors. The change was also intended to increase the effectiveness of the group, as the new regulation requires members of the Masyarakat Peduli Api to obtain a technical briefing certificate to become permanent members (MoEF, 2018).

The Directorate General of Climate Change Control updated the guidelines and directives on the establishment of Fire Care Communities through the Directorate General of Climate Change Control Regulation Number P.3/PPI/SET/KUM.1/2018. The purpose of the regulation is stated in Article 2, which is to establish and strengthen the institution of Fire Awareness Communities; increase the capacity of members; provide insights and skills in the forest and land fire control sector and climate change adaptation and mitigation efforts at the local level, as well as increase community self-reliance on the same (MoEF, 2018).

The regulation also contains the stages of preparation and implementation activities in the formation of Fire Awareness Communities written in Chapter II Article 5, which begins with the determination of an area at the same level as the targeted village based on data on the level of vulnerability of an area and the incidence of forest fires by the sub-district. After the target village is determined, the next stage is the recruitment of members with several conditions that must be met by prospective members in accordance with Article 7 paragraph 1. At the recruitment stage, prospective members are also provided with material on the socialization of the formation of the Masyarakat Peduli Api which aims to introduce general knowledge about climate change and the purpose of forming the group. After the recruitment stage is completed, a technical briefing of prospective members on land and forest fire control and climate change mitigation and adaptation efforts will be carried out with parties from DJPPI and other relevant institutions as needed as resource persons in accordance with what is referred to in Article 9. Prospective members who have attended the technical briefing will receive a certificate of technical briefing and then be designated as members through a sub-district decision and/or village head or equivalent. In Article 14, it contains the last stage of fostering members of the Masyarakat Peduli Api which is realized through mentoring, training, technical guidance, supervision, debriefing, learning, in-house training, on-the job training, institutional strengthening, comparative studies, climate change adaptation and mitigation efforts, facilitation and counseling, and development of forest and land fire prevention innovations (MoEF, 2018).

Chapter IV Article 15 Paragraph 4 states the duties of the Fire Care Community, among others: 1. preventing land and forest fires from occurring; 2. acting at the beginning of extinguishing and supporting extinguishing efforts with Manggala Agni and/or related parties; 3. increasing the sense of community awareness in the village related to activities in controlling land and forest fires and/or climate change adaptation and mitigation efforts; 4. identifying climate change adaptation and mitigation efforts; 5. proposing prospective ProKlim locations; 6. conveying information about forest fire events; 7. disseminating knowledge of the

level of threat of land and forest fires; 8. organizing socialization without involving and/or involving other parties; 9. holding periodic meetings to strengthen institutions (MoEF, 2018).

Presidential Regulation Number 98 of 2021

To achieve the goals in the ENDC in 2022, Presidential Regulation No. 98 of 2021 regulates the management of carbon economic value to achieve national contribution targets and control GHG emissions in national development. This is one of the tools used to fulfill the government's goal of reducing GHG emissions (Indonesia, 2021). The implementation of carbon economic value is a form of climate change adaptation and mitigation efforts, which in its implementation will be applied through carbon trading mechanisms. Article 53 explains that businesses with surplus emissions can sell the remaining emissions from the set target to other parties, and vice versa or businesses with emission deficits can buy from those with surplus or vice versa (Indonesia, 2021). A business that wants to sell its carbon must first record its carbon units through the SRN to be sorted and sold through a carbon exchange or sold directly. This is an anticipatory measure to prevent carbon units from being sold in the carbon exchange and sold directly simultaneously or double counting (Ministry of Environment and Forestry, n.d.). The Presidential Regulation also contains rules on the SRN in Chapter V, section three, that to conduct carbon trading, a party must obtain certification to minimize GHG emissions, which can be obtained through the registration and verification stages in the SRN.

Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 12 Year 2022

Based on Presidential Regulation Number 92 of 2020 concerning the Ministry of Environment and Forestry which regulates the position, duties, and functions of institutions under the Ministry of Environment and Forestry, including DJPPI, a Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 12 of 2022 was issued which describes the work procedures and organization within the Climate Change Control Center. This regulation replaces the Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number P.13/Menlhk/Setjen/Otl.0/1/2016 concerning the Organization and Work Procedure of the Center for Climate Change and Forest and Land Fire Control which has been revoked and replaced by the new regulation. In the old regulation, only 5 Climate Change Control Centers were established, located in Palembang for the Sumatra region, Denpasar for the JaBalNusra (Java, Bali, Nusa Tenggara) region, Palangkaraya for the Kalimantan region, Makassar for the Sulawesi region, and Manokwari for the Papua and Maluku regions. While in the new regulation, the division of working areas in 8 provinces is further divided into several regional sections aimed at increasing the effectiveness of the work of the Climate Change Control Center.

This Ministerial Regulation explains the duties and functions of the Climate Change Control Center as stated in Article 3. The Climate Change Control Center has

functions and tasks to increase regional capacity on climate change actions, provide vulnerability index data, and monitor, report, and validate climate change data and actions registered in the regions which will later be reported to the Directorate of GHG Inventory and Verification Reporting Monitoring to be incorporated into the national report and uploaded on the SRN website (MoEF, 2022).

Local Regulations Related to Climate Change Adaptation and Mitigation

Local governments have their own authority regarding the formulation of policies in their areas, whether policies are adopted from the Ministry of Environment and Forestry on climate change. The following is a table related to climate change mitigation adaptation regulations at the regional level.

Table 1. Local Regulations Related to Climate Change Adaptation and Mitigation

Source: Taken from Various Sources

Regional	Local Regulation	Regional	Local Regulation
Nanggroe Aceh Darussalam	Circular Letter of the Governor of Aceh No. 660/7395 on the Implementation of the Climate Village Program (PROKLIM) in Aceh; and Regent Regulation of Bener Meriah Number 26 Year 2022 About Implementation of Efforts Adaptation and Village Level Climate Change Mitigation through the Village Program Climate	Banten	Banten Governor Regulation No. 43/2016 on the Integrated Climate Village Program
North Sumatra	Circular Letter Number 660/3466/2021 on Strengthening Local Action for Climate Change Control.	Central Java	Central Java Governor Regulation Number 51 of 2019 on Climate Village Program; Sragen Regent Regulation Number 74 of 2021 on Climate Village Program; Pati Regent Regulation Number 34 of 2021 on Climate Village Program in Pati Regency;

			<p>Kudus Regent Regulation Number 32 of 2020 on Climate Village Program in Kudus Regency; Cilacap Regent Regulation Number 182 of 2019 on Climate Village Program; and Banyumas Regent Regulation Number 43 of 2023 on Climate Village Program in Banyumas Regency.</p>
<p>Riau Islands</p>	<p>Batam Mayor Regulation Number 62 Year 2023 About the Village Program Climate of Batam City.</p>	<p>East Java</p>	<p>East Java Governor Regulation Number 56 of 2023 concerning Guidelines for the Assessment of Clean and Sustainable Villages; East Java Governor Circular Letter Number 660/260/111.2/2018 Regarding the Establishment of Climate Villages in East Java Province; Trenggalek Regent Regulation Number 10 of 2022 concerning the Climate Village Program; Lumajang Regent Regulation Number 4 of 2022 concerning the Climate Village Program; and Surabaya Mayor Regulation Number 92 of 2024 concerning the Climate Village Program in Surabaya City</p>
<p>Bangka Belitung</p>	<p>West Bangka Regent Number 22 Year 2016 About the Village Program Climate.</p>	<p>West Sulawesi</p>	<p>West Sulawesi Governor Regulation Number 30 of 2021 concerning Community Empowerment</p>

			in Supporting Waste Management through the Marasa Program
Central Kalimantan	Regulation of the Governor of Central Kalimantan Number 36 of 2020 Concerning the Facilitation of the Climate Village Program; and Regulation of the Regent of West Kotawaringin Number 35 of 2023 Concerning Guidelines for the Establishment and Development of Fire Care Communities within the Government of West Kotawaringin Regency.	South Sulawesi	Regulation of the Regent of Bulukumba Number 40 of 2019 on the Implementation of Village-Level Climate Change Adaptation and Mitigation Efforts through the Climate Village Program
North Kalimantan	North Kalimantan Governor Regulation Number 16 of 2020 concerning Facilitation of the Climate Village Program	Maluku	Ambon Mayor Regulation Number 51 of 2022 on the Climate Village Program
West Kalimantan	Mempawah Regent Regulation Number 32 of 2020 on Guidelines for the Establishment of Fire Awareness Community Groups in Mempawah Regency	Southeast Sulawesi	Regulation of the Regent of Buton Number 47 of 2020 concerning the Climate Village Program in Buton Regency.

Behavioral Component

After the substantive component in the form of policies is issued at the central and local levels, there will be outcomes in the form of behavioral changes by stakeholders. Behavioral change cannot be separated from the substantive

component of governance (Cadman, T., 2011), because policies that have been issued need to be implemented.

Distribution of Manggala Agni Operation Area

Manggala Agni at the operation area level is officially only assigned to priority forest and land fire areas that are historically and ecologically prone to fires (MoEF, 2024). This is the reason that until 2024 the placement of Manggala Agni teams and numbers are only on 3 large islands in Indonesia with operating areas or daops of North Sumatra, Riau, Riau Islands, Jambi, South Sumatra, West Kalimantan, Central Kalimantan, East Kalimantan, South Kalimantan, South Sulawesi, Southeast Sulawesi, North Sulawesi with a total of 2,000 members.

Distribution of Masyarakat Peduli Api

Masyarakat Peduli Api was formed as a government behavior change on substantive results through the Ministry of Environment and Forestry. By 2023, 5,819 Fire Awareness Communities have been formed in 29 provinces in Indonesia with a distribution in areas that have a high level of forest and land fire vulnerability.

Achievements of Manggala Agni and Fire Care Communities

The following achievements of Manggala Agni at the central level under the Directorate of Land and Forest Fire Control, regional and daops levels, and Masyarakat Peduli Api are quoted from a report by the Directorate of Land and Forest Fire Control. This report only contains detailed achievements for 2023, because the previous year was not uploaded on the Directorate of Land and Forest Fire Control's sipongi.menlhk.go.id page.

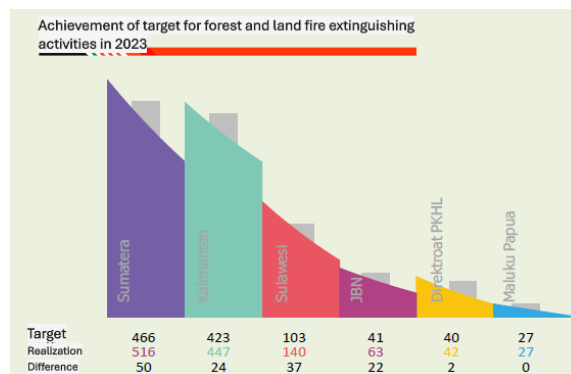


Figure 3. Target and Realization of Forest Suppression Activities

Figure 3 shows the details of the target and realization of the output of forest and land firefighting activities of the Fire Care Community group in 2023. The figure shows that the targets of the work plan in 2023 have been achieved.

Table 2. Target and Realization of Manggala Agni Operations

Source: Directorate of Land and Forest Fire Control 2023 Performance Achievement Report.

No.	Work Unit	Target (land/air)	Realization (land)	Realization (air)
1	Sumatra Regional Climate Change Control Center	400/0	1.097	-
2	Kalimantan Climate Change Control Center	370/0	717	-
3	Sulawesi Regional Climate Change Control Center	150/0	126	-
4	Java Bali Nusa Tenggara Climate Change Control Center	50/0	91	-
5	Maluku Papua Regional Climate Change Control Center	30/0	30	-
6	Directorate of Land and Forest Fire Control	200/100	200	100

Implementation of ProKlim

ProKlim or Climate Village Program is a state initiative run by the Ministry of Environment and Forestry through DJPPI through Minister of Environment and Forestry Regulation Number P.84/MenLHK/Setjen/Kum.1/11/2016. ProKlim has an adaptation component that includes activities such as controlling floods, landslides, and droughts; increasing food security; controlling climate change diseases; preventing sea level rise and wind erosion. The second component is mitigation, which includes waste management activities in liquid and solid form and waste management; use of renewable energy; energy saving; increasing vegetation cover; and anticipating or handling forest and land fires (DJPPI Secretariat, 2017). To propose the location of a Climate Village, it can be done through the srn.menlhk.go.id website and fill in the required data on the page.

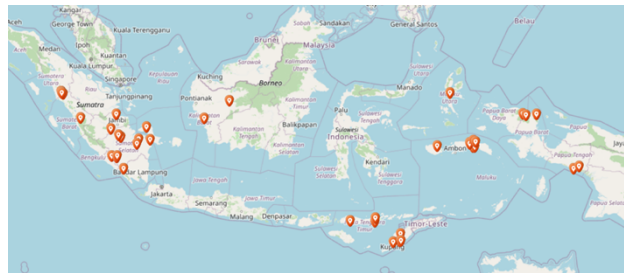


Figure 4. Central Government Proklim



Figure 5. Local Government ProKlim

Two pictures above is the distribution of Climate Villages initiated by the Central Government and Local Government. Until July 2024, a total of 10,113 village-level areas have been designated as Climate Villages.

Establishment of the National Registry System for Climate Change Control

DJPPI as the national focal point on climate change issues as mandated in Ministerial Regulation P.18/MENLHK-II/2015, has the obligation to coordinate the preparation and implementation of policies related to climate change control, including aspects of mitigation and adaptation, reduction of greenhouse gas emissions, control and reduction of ozone-damaging objects, resource mobilization, preparation of emission inventories, and implementation of climate change monitoring, reporting and verification, including actions in controlling forest and land fires (Ministry of Environment and Forestry, n.d.). To carry out these obligations, a National Registry System or known as Sistem Registri Nasional (SRN) was established through the srn.menlhk.go.id website that aims to measure climate change actions and integrate national data into one place. Handling complex climate change requires an integrated, synergistic, and measurable approach. The success of climate change control actions depends on the extent to which the process and results can be measured, tracked, and carried out transparently. The existence of information and data sources that support climate change control activities is crucial. Highly credible data, which includes statistical, spatial and administrative accuracy and is always updated, can describe the normal situation and the real situation on the ground. Such data is an important basis for assessing the readiness of an area or community group in facing the impacts of climate change, as well as an indicator of the effectiveness of

mitigation and adaptation programs and policies in increasing community resilience and reducing GHG emissions (Ministry of Environment and Forestry, n.d.).

The National Registry System has a role as a means of managing information and data on mitigation adaptation efforts and resources related to climate change in the country. This provides the possibility of standardization, integration of data and information, which can reduce classic problems such as inaccurate, outdated, redundant and inconsistent data. In accordance with Article 69 of Presidential Regulation No. 98 of 2021, to achieve the objectives in the NDC, every business actor is required to record and report climate change mitigation and adaptation efforts, data on carbon, and the use of climate change resources through the National Registry System for Climate Change Control. Along with the government's efforts to incorporate climate change issues into policies, various parties including the community independently or through partner assistance have implemented climate change control actions. Through the National Registry System, all data and information about these activities and resource support are collected, as a form of official recognition of collective contributions to climate control. The National Registry System also encourages information disclosure through a dashboard that provides access and map sharing, facilitating the delivery of climate change action data to the public and stakeholders. Ultimately, with the availability of integrated data and information, the site becomes an effective tool for monitoring vulnerability, planning and evaluating climate change control activities (Ministry of Environment and Forestry, n.d.). The site also contains the SIGN-SMART site, the SIDIK site, and the kccpi.org site. which function as follows:

- SIGN-SMART: Aims to provide valid, accurate and up-to-date information and data related to greenhouse gas emissions and has a function to improve the effectiveness of greenhouse gas data processing at the national and subnational levels. The system is designed to facilitate the electronic inventory of greenhouse gas emissions with TACCC principles (Transparency, Accuracy, Completeness, Comparability, Consistency).
- SIDIK: Processes input data into data on the level of vulnerability and risk from drought and flooding. This site is managed by the Directorate of Climate Change Adaptation which aims to determine a program and activities to reduce the level of vulnerability to drought and flooding caused by changes in weather and climate or hydrometeorology.
- kccpi.org: The content is designed for the general public by presenting data and information through easy-to-understand narratives, supported by infographic media, videos, animations, and maps. The material displayed includes the definition of climate change, its various impacts, global responses and concrete steps that have been taken, to Indonesia's role in climate change issues.

Carbon Trading

Indonesia committed to a low-emission future through the Enhanced Nationally Determined Contribution document, which sets a voluntary GHG emission reduction target of 31.89%-43.20% below the Business as Usual (BaU) scenario by 2030. Presidential Regulation No. 98 of 2021 then provides guidelines for the NEK or Carbon Economic Value mechanism, through the implementation of carbon trading as one of the emission reduction instruments (Government of the Republic of Indonesia, 2020). Carbon trading in Indonesia is a market mechanism to minimize greenhouse gas emissions through the buying and selling of carbon units, which was authorized on September 26, 2023 by President Jokowi. Carbon trading in Indonesia is directly supervised by OJK and can be done through the official platform for domestic carbon unit trading on the idxcarbon.go.id website (Indonesia Stock Exchange, 2023). There are two types of carbon units that can be traded in accordance with the Indonesian carbon exchange mechanism, the first unit is the Allowance Market or the Technical Approval of Emission Ceilings-Business Operator (PTBAE-PU) product, which is a buying and selling mechanism and restrictions implemented in the carbon market. Business actors that have been determined by the government will receive a "stamp" in the form of an emission quota allocation for a certain period. If a business exceeds the emission limit set for a certain period, it can buy carbon units from other businesses with excess or unused quota. Then, the second unit is the Offset Market, which is the Greenhouse Gas Emission Reduction Certificate (SPE-GRK) with another name carbon offset. This is a scheme where businesses trade carbon units sourced from greenhouse gas emission reductions by certain parties, as well as from other climate mitigation actions. Thus, companies can acquire these carbon units to meet their emission reduction targets and ensure commitment to a carbon neutral or net-zero state (Indonesia Carbon Exchange, n.d.).

IDXCarbon is connected to the Ministry of Environment and Forestry's National Registry System, avoiding double counting and simplifying the administration of carbon unit transfers. The Company, as a business that has a voluntary commitment and/or obligation to minimize greenhouse gas emissions, can purchase carbon units in the carbon exchange. The Company can register its business on the website www.idxcarbon.co.id. in advance through the available registration form. The Company as a business actor that has officially registered carbon units in the National Registry System can sell its carbon units through IDXCarbon (Indonesia Stock Exchange, 2023).

Working Area Division of the Climate Change Control Center

As referred to in Article 20 of the Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 12 of 2022 concerning Organization and Work Procedures of the Climate Change Control Center, the Climate Change Control Center has 5 centers with a more detailed division by placing regional section offices in 3 regions of each center, with the following details.

- Sumatra Regional Climate Change Control Center with the location of the center in Palembang, and placing the regional section offices I in Medan, II in Pekanbaru, and III in Palembang.
- Java Bali Nusa Tenggara Regional Climate Change Control Center with the location of the center in Denpasar, and placing the regional section offices I in Bandung, II in Yogyakarta, and III in Mataram.
- Kalimantan Regional Climate Change Control Center with the location of the center in Palangkaraya, and placing the regional section offices I in Palangkaraya, II in Pontianak, and III in Samarinda.
- Sulawesi Regional Climate Change Control Center with the location of the center in Makassar, and placing the regional section offices I in Makassar, II in Palu, and III in Manado.
- Maluku Papua Regional Climate Change Control Center with the location of the center in Manokwari, and placing the regional section offices I in Ambon, II in Jayapura, and III in Sorong.

With the results on the substantive component and behavior change by stakeholders that have been presented, there are shortcomings in the substantive component at the regional level, where there are still many regions that do not have regulations on adaptation and mitigation related to climate change. This can be interpreted as a lack of interaction between the government at the national level and the relevant regional levels, which can have an impact on less optimal behavior change at the regional level.

CONCLUSIONS AND SUGGESTIONS

This research aims to examine how the implementation of global governance in the Paris Agreement that has been implemented by Indonesia by the Joko Widodo Government in 2020-2024. Through DJPPI as Indonesia's national focal point for UNFCCC on climate change, the Government of Indonesia has applied the components contained in global governance to become good governance. This research has explained how the involvement between structures as a process that then produces substantive components at the national and subnational levels. After the output in the form of substantive components is determined, there is a change in behavior by stakeholders or outcomes related to climate change adaptation and mitigation. These behavioral changes include the division of the Climate Change Control Center into a more structured one with 3 sections in each center. Then the formation of *Manggala Agni* and *Masyarakat Peduli Api* that have been formed in all places in Indonesia with the aim of preventing and dealing with forest and land fires, the formation of Climate Villages in ProKlim initiated by the Regional Government and the Central Government which aims to increase community participation, the formation of a National Registry System that records all adaptation and mitigation actions, and the implementation of carbon trading. However, there are shortcomings in Indonesia's implementation of the Paris Agreement under Jokowi in 2020-2024, namely that there are still many regions that do not establish substantive components related to climate change

adaptation and mitigation, which illustrates the lack of interaction between the national and subnational levels of government. This can lead to suboptimal implementation of central government policies by local governments.

In this study there are still shortcomings in the form of incomplete data in 2024, because the process of compiling data by government agencies takes a lot of time and uploading data is carried out in the following year to be accessible to the public. Therefore, the author hopes that future research can include more complete data on the work achievements of related institutions.

BIBLIOGRAPHY

- Afiya, N. (2023, August 23). *STRATEGI SEKTOR ENERGI INDONESIA TERHADAP PARIS AGREEMENT DALAM MENCIPTAKAN NET ZERO EMISSION PERIODE 2020-2023*. Repository UIN Jakarta. Retrieved November 7, 2024, from <https://repository.uinjkt.ac.id/dspace/bitstream/123456789/74582/1/NA-DIA%20AFIYA.FISIP.pdf>
- Arikunto, & Suharsini. (2016). *Prosedur Penelitian: Suatu Pendekatan Statistik*. Jakarta: Rineka Cipta.
- Asian Agri. (n.d.). *Masyarakat Peduli Api (MPA): Bersama Relawan Cegah Kebakaran Hutan dan Lahan*. asianagri.com. Retrieved Mei 6, 2025, from <https://www.asianagri.com/id/media-publikasi/artikel/masyarakat-peduli-api-mpa-bersama-relawan-cegah-kebakaran-hutan-dan-lahan/#:~:text=MPA%20adalah%20kumpulan%20sukarelawan%20yang,kecamatan%20Maru%20Sebo%20Ilir%20ini>.
- Balai TN Gunung Ciremai. (n.d.). *MPA*. Retrieved Mei 6, 2025, from <https://tngciremai.menlhk.go.id/mpa/>
- Cadman, T. (2011). *Quality and Legitimacy of Global Governance*. Palgrave Macmillan UK.
- Cadman, T. (2012). *Evaluating the Quality and Legitimacy of Global Governance*. Amsterdam.
- Conference of the Parties (COP). (n.d.). UNFCCC. Retrieved January 30, 2025, from <https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop>
- Directorate General of Climate Change Control. (2020). *Tentang Kami*. ditjenppi.org. <https://www.ditjenppi.org/indonesia/tentang-kami>
- Directorate of Land and Forest Fire Control. (2024). *LAPORAN KINERJA TAHUN 2023*. Direktorat Pengendalian Kebakaran Hutan dan Lahan.
- Directorate of Land and Forest Fire Control. (n.d.). *Tentang Kami*. Retrieved Mei 5, 2025, from <https://sipongi.menlhk.go.id/hard-manggala-agni>

- Government of the Republic of Indonesia. (2009). *Undang-Undang Republik Indonesia Nomor 32 Tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup*. <https://peraturan.bpk.go.id/Home/Details/38705/uu-no-32-tahun-2009>
- Government of the Republic of Indonesia. (2014). *Undang-Undang Republik Indonesia Nomor 23 Tahun 2014 tentang Pemerintahan Daerah. Lembaran Negara Republik Indonesia Tahun 2014 Nomor 244*. <https://peraturan.bpk.go.id/Details/38685/uu-no-23-tahun-2014>
- Government of the Republic of Indonesia. (2020). *Peraturan Presiden Republik Indonesia Nomor 92 Tahun 2020 tentang Kementerian Lingkungan Hidup dan Kehutanan. Lembaran Negara Republik Indonesia Tahun 2020 Nomor 209*. <https://peraturan.bpk.go.id/Details/146510/perpres-no-92-tahun-2020>
- Hikmatullah, R. (2024, Januari). Realisasi Penanganan Perubahan Iklim di Indonesia Melalui Implementasi Sustainable Development Goals (Sdgs): Tujuan-13.1.3. *Indonesian Journal of International Relations, Vol. 8, No. 1, pp. 77-100.*, 77-100. 10.32787/ijir.v8i1.509
- Indonesia Carbon Exchange. (n.d.). *Home*. IDX Carbon. Retrieved May 5, 2025, from <https://idxcarbon.co.id/id#myCarousel1744273477417>
- Indonesia Stock Exchange. (2023, September 26). *Bursa Karbon Indonesia*. IDX. Retrieved May 5, 2025, from <https://www.idx.co.id/id/berita/siaran-pers/2016>
- Indonesia. (2021). *Peraturan Presiden Nomor 98 Tahun 2021*.
- Kaczorowska, A. (2005). *Public International Law, 3rd revised edition*. London: Old Bailey Press.
- Kusumaatmadja, M. (2003). *Pengantar Hukum Internasional*. Bandung: PT Alumni.
- Lexy, M. J. (1989). *Metodologi Penelitian Kualitatif*. Bandung: PT Remaja Rosdakarya.
- Ministry of Environment and Forestry. (2016). *Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.32/MenLHK/Setjen/Kum.1/3/2016*.
- Ministry of Environment and Forestry. (2016). *Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.84/MenLHK/Setjen/Kum.1/11/2016*. Ministry of Environment and Forestry.
- Ministry of Environment and Forestry. (2016). *USER MANUAL SISTEM REGISTRASI NASIONAL PENGENDALIAN PERUBAHAN IKLIM*. Ministry of Environment and Forestry.
- Ministry of Environment and Forestry. (2017). *Peraturan Menteri Lingkungan Hidup Dan Kehutanan Republik Indonesia Nomor*

P.71/MENLHK/SETJEN/KUM.1/12/2017. Ministry of Environment and Forestry.

Ministry of Environment and Forestry. (2017). *Sistem Registri Nasional*. SRN - Sistem Registri Nasional. Retrieved May 8, 2025, from <https://srn.menlhk.go.id/index.php?r=tentang%2Ftata-cara-penggunaan>

Ministry of Environment and Forestry. (2018). *Peraturan Direktorat Jenderal Pengendalian Perubahan Iklim Nomor P.3/PPI/SET/KUM.1/2018*.

Ministry of Environment and Forestry. (2022). *Indonesia's Enhanced Nationally Determined Contribution (ENDC)*. https://unfccc.int/sites/default/files/NDC/2022-09/Indonesia_ENDC_2022.pdf

Ministry of Environment and Forestry. (2022). *Peraturan Menteri Lingkungan Hidup dan Kehutanan Republik Indonesia Nomor 12 Tahun 2022*. Ministry of Environment and Forestry.

Ministry of Environment and Forestry. (2022). *Sistem Informasi dan Data Indeks Kerentanan Perubahan Iklim (SIDIK)*. Perpustakaan Kementerian Lingkungan Hidup dan Kehutanan.

Ministry of Environment and Forestry. (2024). *Statistik Kementerian Lingkungan Hidup dan Kehutanan 2023 (Vol. IX)*. Ministry of Environment and Forestry.

Ministry of Environment and Forestry. (n.d.). *KCPI*. KCPI. Retrieved May 5, 2025, from <https://kcpi.ditjenppi.org/tentang/knowledge-center>

Ministry of Environment and Forestry. (n.d.). *Tentang SIGNSMART*. signsmart.menlhk.go.id. Retrieved Mei 05, 2025, from https://signsmart.menlhk.go.id/v2.1/app/frontend/about?utm_source=chatgpt.com

Ministry of Environment and Forestry. (n.d.). *Tentang SRN Pengendalian Perubahan Iklim*. srn.menlhk.go.id. Retrieved Mei 05, 2025, from <https://srn.menlhk.go.id/index.php?r=tentang%2Fabout-us>

National Law Development Agency. (n.d.). *The 21st Session of the Conference of the Parties to the United Nations Framework Convention*. Retrieved May 2, 2025, from https://bphn.go.id/data/documents/na_ruu_ratifikasi_paris_agreement.pdf

Nugraha, A. (2024). Assessment of Indonesia's Position on the Net Zero Emission. *Earth and Environmental Science* 1395 012007, (3).

OJK. (n.d.). *FAQ Otoritas Jasa Keuangan*. Otoritas Jasa Keuangan. Retrieved May 6, 2025, from <https://ojk.go.id/id/pages/faq-otoritas-jasa-keuangan.aspx>

- Pemerintah Indonesia. (2020). *LAMPIRAN PERATURAN PRESIDEN REPUBLIK INDONESIA NOMOR 18 TAHUN 2020 TENTANG RENCANA PEMBANGUNAN JANGKA MENENGAH NASIONAL 2020-2024*. Pemerintah Indonesia.
- Pemerintah Indonesia. (2022). *Enhanced Nationally Determined Contributions Republic of Indonesia*. Pemerintah Indonesia.
- Renner, A. (n.d.). *A brief history of climate change discoveries*. Discover UKRI. Retrieved November 7, 2024, from <https://www.discover.ukri.org/a-brief-history-of-climate-change-discoveries/index.html>
- Secretariat of DJPPI. (2017). *Program Kampung Iklim*. perpustakaan.menlhk.go.id. Retrieved Mei 6, 2025, from <http://perpustakaan.menlhk.go.id/pustaka/images/docs/PROKLIM%20PROGRAM%20KAMPUNG%20IKLIM.pdf>
- Situngkir, D. A. (2018, April). TERIKATNYA NEGARA DALAM PERJANJIAN INTERNASIONAL. *Jurnal Ilmu Hukum, Volume 2 Nomor 2*, 167 - 180.
- Soares, A. (2015). Peranan Pemerintah Daerah Dalam Perencanaan Pembangunan Daerah. *Jurnal Ilmu Sosial dan Ilmu Politik, Vol. 4, No. 2*.
- Sukmadinata, & Nana, S. (2017). *Metode Penelitian Pendidikan*. Bandung: Remaja Rosdakarya.
- United Nations Climate Change. (n.d.). *Background - Cooperation with the IPCC*. UNFCCC. Retrieved November 7, 2024, from <https://unfccc.int/topics/science/workstreams/cooperation-with-the-ipcc/background-cooperation-with-the-ipcc>
- United Nations. (2015). *Paris Agreement*. United Nations Treaty Collection. https://unfccc.int/sites/default/files/english_paris_agreement.pdf
- Walker, K. (2022, March 21). *What happened to the world's ozone hole?* BBC. Retrieved November 7, 2024, from <https://www.bbc.com/future/article/20220321-what-happened-to-the-worlds-ozone-hole>