Sylviana Andhella. "The Interplay of Law, Local Wisdom, and Carbon Policy: Historical Foundations of Indonesia's Environmental Regulation." Law Review Vol. 24 no. 1 (2024): 44-57. DOI: http://dx.doi.org/10.19166/lr.v24i1.9752

Law Review

P-ISSN: 1412-2561| E-ISSN: 2621-1939
Volume 24 No. 1 - March 2024

The Interplay of Law, Local Wisdom, and Carbon Policy: Historical Foundations of Indonesia's Environmental Regulation

Sylviana Andhella

DASSA CORP, Indonesia
sylviana@dassacorp.com

Abstract
Carbon emissions are one of the leading causes of climate change. Carbon consumption or carbon footprint has been a colossal topic because sustainability can be achieved through carbon emission reduction, as carbon emissions are one of the leading causes of climate change. Indonesia is actively working on environmental conservation, but it continues to face various challenges that require attention. Indonesia's commitment to reducing carbon emissions can be shown through its effort to shift toward low-carbon development. Implementing natural resource management laws in Indonesia has not gained popularity, as they are often viewed as unsupportive of environmental sustainability. The regulation is continuously updated and adjusted to address emerging environmental issues. This research aims to explore how local wisdom contributes to forest conservation using qualitative methodology in the Seruyan District, Central Kalimantan. While regulation on carbon trading in forestry is still ongoing, it can be enriched which states that the community has the same rights and opportunities to actively participate in environmental protection and management. The role of society can be providing advice, opinions, suggestions, objections, and complaints. In this case, the society is the local community that lives near the forest. Incorporating their knowledge of preserving nature and preventing forest fires into the policy can be beneficial.

Keywords: Carbon Emission; Local Wisdom; Environmental Law

A. Introduction

The tropical forests in Indonesia are home to the most diverse habitats and even some endangered species. Environmental law has been a significant topic of discussion, mainly as awareness grows about the widespread effects of ecological degradation. Restoring and conserving forests and peatlands has become essential. However, illegal logging, forest fires, and illegal land clearing in Indonesia pose a challenge to protecting the forests, peatlands, and coastal ecosystems. The regulation is continuously updated and adjusted to address emerging environmental issues. Environmental harm should be criminalized as it infringes upon the

rights of current and future generations to a clean and healthy environment. Such actions can detrimentally affect ecosystems' ecological functions and overall health in various ways.[1] Especially since most agricultural businesses still adopt the illegal land-clearing method called the slash and burn technique, which is regarded as one of the leading causes of deforestation and carbon emissions.

Indonesia is home to the third-largest tropical rainforest and the second-largest peatland globally, crucial for storing 30% of the world's carbon. Accordingly, the Indonesian government aims to regulate greenhouse gas (GHG) emissions. It has set a Nationally Determined Contribution (NDC) target of 31.89% without international support or 43.20% with such support, both goals to be achieved by 2030. The forestry sector bears the most significant GHG emission reduction target, at over 60%. Consequently, all holders of Forest Utilization Business Permits (*Perizinan Berusaha Pemanfaatan Hutan* or PBPH) must incorporate climate change impact mitigation strategies into their forestry activities. The Forest Utilization Business Work Plan (*Rencana Kerja Usaha Pemanfaatan Hutan* or RKUPH) is the reference framework for PBPH holders in managing forests. However, the current RKUPH lacks a climate change mitigation strategy. Thus, it needs to be revised into a Forestry Multi-Business RKUPH by integrating a climate change mitigation plan focused on carbon absorption and/or storage.

Carbon emissions are one of the leading causes of climate change. Carbon consumption or carbon footprint has been a colossal topic because sustainability can be achieved through carbon emission reduction, as carbon emission is one of the leading causes of climate change. Carbon emission reduction is one of the main factors that could contribute to reaching the goal of limiting global warming to 2 degrees Celsius, as stated in the Paris Agreement. More countries, especially in the European region, have stressed the need to implement a zero-carbon policy and move toward a decarbonized economy. Indonesia's goal in supporting the Paris Agreement can be achieved through sustainable carbon emission reduction. Supporting the given statement, Riley recognized that the production of agricultural commodities causes deforestation and climate change in Indonesia, mainly because agricultural development companies use fire as a cheaper option for illegal land clearing purposes.[2]

Restoring and conserving the environment can achieve sustainable carbon emission

[1] Todd S. Aagard, "Environmental Harm, Use Conflicts, and Neutral Baselines in Environmental Law," *Duke Law Journal* 60, no. 7 (2011): 1505–1564, https://scholarship.law.duke.edu/dlj/vol60/iss7/1/.
[2] Trevor Riley, "Companies 'Zero Deforestation' Pledges: Everything You Need to Know," *The Guardian*, September 29, 2017, https://www.theguardian.com/sustainable-business/2017/sep/29/companies-zero-deforestation-pledges-agriculture-palm-oil-environment.

reduction. Indonesia's carbon trading market system includes cap-and-trade schemes, carbon offset projects (REDD+), and voluntary carbon markets as part of its emissions reduction strategy. This paper examines the legal evolution, essential regulations, and challenges in Indonesia's carbon emission regulation. The environmental discourse branches from the ecology, equity, and economy triumvirate; ideally, these elements should coexist equally. However, the legal system often prioritizes ecology over equity and economy. This imbalance creates ongoing debates in environmental law, especially concerning natural resource management.[3] Research on emission reduction and market-based mechanisms in the forestry sector will enhance the understanding of carbon emission regulation in Indonesia.

Due to the urgency of supporting Indonesia's commitment to achieving its NDC, further research was done using qualitative methodology in the Seruyan District, Central Kalimantan. This research aims to explore how local wisdom contributes to forest conservation.

B. Discussion

B.1. Legal History of Sustainability

Early frameworks related to sustainability can be linked to the law in ancient and medieval traditions. Since ancient times, cultures have protected natural resources and managed environmental impacts. During ancient Mesopotamia, the Code of Hammurabi (circa 1754 BC) established a comprehensive set of laws encompassing 282 articles. Many of these focused on agriculture and irrigation, emphasizing their importance to the economic prosperity of Babylon. The provisions within the Code reflect Hammurabi's dedication to justice and include regulations on leasing and cultivating of land, securing loans for agricultural investments, and the subsequent repayment of those loans.[4]

> "If a man opens his canal for irrigation and neglects it and the water damages adjacent fields; he shall pay out grain based on the area of adjacent fields" (page 47).[5]

In Ancient Egypt, Egyptians used flood control and irrigation to support agriculture,

[3] Andreas Tedy Mulyono, "Relaksasi Pengelolaan Sumber Daya Alam Dalam Diskursus Hukum Lingkungan Hidup Di Indonesia," *Law Review* XIX, no. 1 (2019): 25–53, https://doi.org/10.19166/lr.v19i1.1594.
[4] Nasrat Adamo and Nadhir Al-Ansari, "In Old Babylonia: Irrigation and Agriculture Flourished Under the Code of Hammurabi (2000-1600 BC)," *Journal of Earth Sciences and Geotechnical Engineering* 10, no. 3 (2020): 1792–9660.
[5] Chad Montrie, "Water Power, Industrial Manufacturing, and Environmental Transformation in 19th-Century New England," *Yale University*, 2023, https://energyhistory.yale.edu/water-power- industrial-manufacturing-and-environmental-transformation-in-19th-century-new-england/.

demonstrating advanced techniques in environmental management. They also established water supply systems for distant villages by transporting water manually or digging wells. Ancient Egyptians built dams to manage the Nile floods.[6] During medieval times, socioeconomic structures, religious beliefs, and customary laws significantly influenced environmental practices and regulations. Land use was governed by feudal systems, where lords owned extensive estates and peasants worked the land. Crop rotation and fallow periods were used to preserve soil fertility and prevent overexploitation. Monasteries served as agricultural innovation and conservation centers, preserving knowledge about sustainable practices.

Thus, religious institutions often contributed to environmental stewardship by advocating for the care of creation. Furthermore, medieval towns frequently faced issues related to waste disposal, prompting some to establish basic regulations for managing refuse and sewage to protect public health. However, these regulations were basic compared to contemporary standards. Despite being less formalized than modern environmental laws, these medieval practices reflect an awareness of ecological management and the need to balance resource exploitation with sustainability.

In the Industrial Revolution (18th–19th centuries), rapid industrialization caused significant environmental degradation, including air and water pollution. The adverse effects on health and the environment sparked early reform movements for regulation and protection.[7] The late 19th century witnessed the emergence of the conservation movement, promoting the management of natural resources and the establishment of national parks, contributing to the creation of the U.S. National Park Service in 1916. Legislation aimed at safeguarding natural resources began in the late 19th and early 20th centuries, with significant measures like the Antiquities Act of 1906 created to protect American historical sites and locations that housed artifacts.[8]

The post-World War II era brought heightened awareness of environmental issues. Works like Rachel Carson's Silent Spring (1962) heightened public consciousness regarding the dangers of pesticides and pollution. According to the book, individuals encounter hazardous chemicals from the moment of conception until death. In less than twenty years of usage, synthetic pesticides have proliferated so extensively that they are nearly ubiquitous. These

[6] Ahmed, Abdelkader T., et al. "Egyptian and Greek Water Cultures and Hydro-Technologies in Ancient Times." *Sustainability (Switzerland)* 12, no. 22 (2020): 1–26. https://doi.org/10.3390/su12229760

[7] Montrie, "Water Power, Industrial Manufacturing, and Environmental Transformation in 19th- Century New England."

[8] Jack Jones, "Conserving America: A History of America's Conservation Movement and the Establishment of the National Park Service," *Senior Independent Study Theses*, 2021, https://openworks.wooster.edu/cgi/viewcontent.cgi?article=12066&context=independentstudy

chemicals have been identified in nearly all significant river systems and groundwater streams lying deep beneath the Earth's surface.[9]

Furthermore, the key aspect of 1960s and 1970s environmentalism was its ability to bridge deep political divides. In the US, the Republican party backed environmental policies and had historically supported conservation throughout the 20th century, exemplified by the Endangered Species Act (1973).[10] The late 20th and early 21st centuries witnessed increased international cooperation on environmental issues, demonstrated by treaties such as the Kyoto Protocol (1997) and the Paris Agreement (2015) addressing climate change. However, the results indicate climate change negotiations are dynamic and often unpredictable from year to year. The Ad Hoc Working Group's Draft Agreement, the Paris Agreement 2015, has been adopted by over 156 countries, demonstrating a significant direction for future low-carbon sustainable development.[11]

B. 2. Legal History of Indonesian Carbon Trading Regulation

Indonesia is actively working on environmental conservation, but it continues to face various challenges that require attention. Indonesia's commitment to reducing carbon emissions can be shown through its effort to shift toward low-carbon development. Implementing natural resource management laws in Indonesia has not gained popularity, as they are often viewed as unsupportive of environmental sustainability. Expansion of the economic sector through natural resource exploitation continues to be perceived as counteractive to environmental conservation efforts. On certain occasions, central and regional governments have enacted moratoriums on licensing activities, citing the need for environmental preservation.[12] Uribe-Jaramillo wrote that the effort to preserve the forest and its resources is encouraged through the Forest Moratorium (Presidential Instruction Number 10 of 2011) and its extension (Presidential Instruction Number 6 of 2013).[13]

---

[9] Rachel Carson, *Silent Spring* (Greenwich: Fawcett Publication, 1964), https://library.uniteddiversity.coop/More_Books_and_Reports/Silent_Spring-Rachel_Carson- 1962.pdf.

[10] Thomas Dietz, "Earth Day: 50 Years of Continuity and Change in Environmentalism," *One Earth* 2, no. 4 (2020): 306–308, https://doi.org/10.1016/j.oneear.2020.04.003

[11] Andreas Pramudianto, "Dari Kyoto Protocol 1997 Ke Paris Agreement 2015: Dinamika Diplomasi Perubahan Iklim Global Dan ASEAN Menuju 2020," *Jurnal Politik Internasional* 18, no. 1 (2016): 76–94, https://doi.org/10.7454/global.v18i1.119.

[12] Andreas Tedy Mulyono, "Relaksasi Pengelolaan Sumber Daya Alam Dalam Diskursus Hukum Lingkungan Hidup Di Indonesia," *Law Review* XIX, no. 1 (2019): 25–53, https://doi.org/10.19166/lr.v19i1.1594

[13] Maria Teresa Uribe-Jaramillo, "Indonesia's Forestry Policy at a Crossroads in the Sustainable Development Approach: A Case Study on the Forest Moratorium, 2011-2014," *Climate Change and the 2030 Corporate Agenda for Sustainable Development* 19 (2016): 193–225, https://doi.org/10.1108/S2051-503020160000019010.

Before 2009, Indonesia's environmental policies, outlined in Law Number 41 of 1999 on Forestry, prioritized conservation and deforestation management. From 2009 to 2016, the focus shifted to enhancing environmental governance under Law Number 32 of 2009 on Environmental Protection and Management. Between 2017 and 2021, a carbon trading market mechanism was established under Government Regulation Number 46 of 2017 on Environmental Economic Instruments and Presidential Regulation Number 98 of 2021 on Carbon Economic Value (Perpres 98/2021). Since 2022, Minister of Environment and Forestry Regulation Number 21 of 2022 (Permen LHK 21/2022) has regulated carbon trading in the forestry sector, which is currently still undergoing legal and policy adjustments.[14]

Forest Moratorium is an official order from former Indonesian president Susilo Bambang Yudhoyono to suspend new logging licenses and convert primary forest and peatlands into industrial crops (palm oil and pulp/paper). The goal is to reduce deforestation and carbon gas emissions. The Forest Moratorium has a positive impact: protecting the peatland ecosystem. Indonesia's commitment means it considers forestry and land-use sectors significant contributors to carbon emission reduction. Indonesia aims to change its forestry and land-use sector to become a carbon sink and reduce carbon emissions.[15]

The first policy initiatives to curb deforestation and carbon emissions occurred before formal carbon trading mechanisms were established. The implementation of carbon economic value for achieving the target of NDC and controlling carbon emissions within the national development is written in Perpres 98/2021. Under Perpres 98/2021, the government has ratified the Paris Agreement, setting out the government's obligation to contribute to reducing greenhouse gas emissions and to limit the increase of the global average temperature to well below 2 degrees Celsius above the preindustrial levels. Therefore, Perpres 98/2021 concerns implementing carbon economic value (NEK) to achieve NDC and Greenhouse Gas Emission Control in National Development.[16]

Carbon emissions are crucial for maintaining sustainable environmental quality. Permen LHK 21/2022 specified rules for carbon trading in the forestry sector, including REDD+ initiatives. Issues include existing regulations with loopholes, unfair law enforcement, and a victim protection system that primarily focuses on humans. Law Number 32 of 2009 states

[14] Peraturan Menteri Lingkungan Hidup Dan Kehutanan Nomor 21 Tahun 2022 tentang Tata Laksana Penerapan Nilai Ekonomi Karbon.
[15] Dian Septriani, "With G20 Presidency in Hand, Jokowi Turns Focus to COP26," *The Jakarta Post*, November 1, 2021, https://www.thejakartapost.com/news/2021/11/01/with-g20-presidency-in-hand-jokowi-turns-focus-to-cop26.html.
[16] Peraturan Presiden (Perpres) Nomor 98 tahun 2021

that one consideration for its formation is the declining quality of the environment, which threatens the continuity of human life and other living creatures. Law Number 32 of 2009 can be seen as the general legal foundation for emission reduction.[17]

B. 3. Research Gap

Unfortunately, reports of forest fires keep coming in. Sipongi, a monitoring site created by the Indonesian Ministry of Environment and Forestry (*Kementerian Lingkungan Hidup dan Kehutanan* or KLHK), indicates that in 2019, Central Kalimantan suffered a loss of 317.749,00 hectares due to such fires.[18] This alarming statistic underscores the urgent need for forest protection, and the carbon emissions resulting from slash-and-burn methods are particularly harmful. A persistent struggle remains between the desire to safeguard the forest and the push to convert it into economically beneficial ventures, such as mining, palm oil plantations, and logging. Additionally, the slash-and-burn method for land clearing led to severe forest fires in Kalimantan. These fires triggered acute respiratory infections among residents, and neighboring countries also experienced the effects of the haze.

Land fire cases continue to occur even though KLHK and GAKKUM (*Penegakan Hukum*/Law Enforcement) continue to impose sanctions on the perpetrators. For example, as stated on the website, in one case regarding PT Kumai Sentosa's wildfire (*Kebakaran hutan dan lahan* or *Karhutla*) case to a forest fire in August 2019 on land owned by a palm oil plantation company in Sungai Cabang Village, Kumai District, West Kotawaringin Regency, Central Kalimantan. Approximately 2,600 hectares of land were burned. Gakkum LHK (*Penegakan Hukum Lingkungan Hidup dan Kehutanan* or Environment and Forestry Law Enforcement) investigators charged the corporate suspect, PT Kumai Sentosa, with Article 99 paragraph 1 or Article 98 paragraph 1 *juncto* Article 116 paragraph 1 letter a and Article 119 Letter c of Law Number 32 of 2009 with a maximum prison sentence of 10 years and a maximum fine of IDR 10 billion.[19]

The indigenous inhabitants of Kalimantan are known as the Dayak, who constitute the region's predominant ethnic group. Traditionally, Dayak communities were nomadic; they

[17] Undang-undang (UU) Nomor 32 Tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup
[18] Sistem Pemantauan Karhutla, "Indikasi Luka Kebakaran," 2025, https://sipongi.menlhk.go.id/indikasi-luas-kebakaran.
[19] Kementrian Lingkungan Hidup dan Kehutanan, "Disidik Gakkum KLHK, Kasus Karhutla PT. Kumai Sentosa Segera Disidangkan," *Kementrian Lingkungan Hidup Dan Kehutanan*, April 2, 2020, https://ppid.menlhk.go.id/siaran_pers/browse/2398.

moved until they found suitable locations to settle, often opting for riverbanks.[20] They generally inhabit the riverbanks or hills, encompassing numerous sub-tribes and languages. Fajarwati and Masruri examined the local wisdom of the Dayak tribe in preventing forest fires.[21] They found that the Dayak ethnic groups have traditional methods to address fire incidents. A fundamental belief among the Dayak communities is that natural resources are vital for human survival, emphasizing a symbiotic relationship between people and these resources. The Dayak community practices land-use management known as *Latitana*, which integrates religious, familial, societal, and economic aspects. They hold nature in high esteem, viewing the forest as vital for survival. Engaged in nature-based activities such as hunting, gathering forest products, and collecting honey, they prioritize sustainability. Their farming, called *Bahuma Batahutn*, incorporates local wisdom and sacred rituals. This agricultural practice occurs annually, allowing the land to recover before replanting. When burning fields, they use traditional techniques to prevent the fire from spreading into the forest. This process involves stages such as *mekup* (burning unfinished areas), *menugan* (rice cultivation), *mabau* (grazing), and *kelimeng* (harvesting). Following these traditional practices significantly reduces the risk of forest fires.[22]

B. 4. Local Wisdom

The researcher interviewed Seruyan District residents in Central Kalimantan to better understand local wisdom. This predominantly forested district is home to communities living along the riverbanks. They primarily use long boats for longer journeys, while small boats suffice for visits to nearby villages. The local population coexists harmoniously with the forest, depending on it for their livelihood. They consider the forest essential for food and harvesting timber to construct homes and boats. Besides foraging in the forest, community members also fish in the river. The fish and other river catch not only provide daily meals but also allow for additional income through the sale of dried fish and shrimp paste. Thus, a close-knit community flourishes based on its harmonious relationship with its natural surroundings. However, the Seruyan District residents face challenges from plantation and logging industries

[20] Clarry Sada, Yabit Alas, and Muhammad Anshari, "Indigenous People of Borneo (Dayak): Development, Social Cultural Perspective and Its Challenges," *Cogent Arts and Humanities* 6, no. 1 (2019): 1–12, https://doi.org/10.1080/23311983.2019.1665936.
[21] N. Fajarwati and M. S. Masruri, "Role of Local Wisdom Community Dayak Kanayatn in the Fire Disaster Prevention (Forest Fires for the Opening of Farming Fields in West Kalimantan)," *IOP Conference Series: Earth and Environmental Science* 271 (2019): 1–9, https://doi.org/10.1088/1755-1315/271/1/012022
[22] Fajarwati and Masruri.

that provide financial benefits but harm the environment.

The researcher is well-acquainted with life in the Seruyan District, Central Kalimantan, having visited the area frequently over the past five years. This deep familiarity with the local context offers valuable insights into the community's attitudes and behaviors related to environmental practices. Understanding that knowledge and traditions are inherited through generations helps maintain the fragile balance between utilizing and preserving the forest. By utilizing this knowledge, the researcher seeks to identify the distinct challenges and opportunities in the Seruyan District that can contribute to sustainable carbon emission reductions. During their time in the area, the researchers discovered that numerous personal stories and traditional values emphasize these communities' profound connection to the forest, highlighting the significance of preserving both the natural environment and cultural heritage. The Dayak-Banjar communities possess local wisdom handed down through generations, particularly regarding forest protection. This wisdom serves as a crucial basis for behavioral control, teaching respect for nature by establishing rules for resource extraction from the forest and preventing forest fires.

During the interview, the local community mentioned that for a long time, their education has been focused on environmental conservation. However, times have changed. Referring to the local wisdom, they only take what is needed. In the past, people went to the forest to cut down trees and build houses or boats. Since they live along the riverbank, their mode of transportation is by boat. They see the forest as their "supermarket" and are highly dependent on it for their livelihood. People in ancient times used an axe to cut down trees and only relied on human strength, not machines. According to ancient wisdom, the people would not take the tree if they couldn't fully hug it, so they would not cut down a large tree.

Therefore, trees, peat swamps, and biodiversity were well-maintained in the past. During the interview, the locals mentioned that in the old days, he could see the ironwood trees along the riverbank, but now, he must travel deep inside the forest to find one. The village leader also mentioned the fundamental aspects of culture and traditions, particularly the Dayak tribe's deep reverence for nature, viewing it as their home and primary source of sustenance.

An employee of a conservation company said that Kalimantan people have local wisdom. It would be good if this wisdom were echoed again and supported by Government policies. Meanwhile, a government official highlighted that local customs and wisdom significantly support the environment. When upheld by a large group, these norms can influence the behaviour of others in the area. When talking about the Dayak customs, in his experience

traveling from the west to the north and interacting with all Dayak tribes, he has found that their wisdom is deeply rooted in their local customs, passed down from their ancestors, and is considered a natural way of life. While some might perceive it as restrictive, for the Dayak people, it's about seeking permission from the gods. For instance, they seek permission before cutting down a tree or cultivating the land. Additionally, there are restrictions on the amount of land one family can use, water usage, and specific guidelines on what plants can be cultivated each month, which dictates their farming, fishing, or ikat weaving. Moreover, local wisdom is attainable from wise individuals and has been employed in the past. The fundamental idea is that they comprehend conservation, demonstrating their wisdom in understanding the balance of nature.

B. 5. Local Wisdom in Indonesian Laws and Regulations

The urgency to protect forests is rising, especially as carbon emissions from slash-and-burn methods are particularly harmful. The following is the relevant article that supports local wisdom. As mentioned, Permen LHK 21/2022 on carbon trading in the forestry sector also supports the technical guidelines for local participation in REDD+ projects.

Legal Instrument	Relevant Articles / Focus	Support for Local Wisdom
Law 32/2009	Art. 63(1)(t), 70	Mandates integration of local wisdom and community participation
Law 6/2014	Customary villages *(desa adat*) and resource management	Empowering local governance based on traditions
Law 41/1999	Community forests (*hutan adat*)	Enables customary forest rights and local management
Law 5/1960	Customary land rights (*hak ulayat*)	Protects communal land use and traditional claims
Perpres 98/2021	Community participation in carbon markets	Enables non-market carbon mechanisms involving communities
Permen LHK 21/2022	Operational rules for carbon trading in forestry	Includes technical guidelines for local participation in REDD+ projects

Table 1. Legal instrument regarding local wisdom

The researcher proposed that while Permen LHK 21/2022 on carbon trading in forestry is still ongoing, it can be enriched with Article 70 paragraph (1) dan (2), which states that the community has the same rights and opportunities to actively participate in environmental

protection and management; and that the role of society can be to provide advice, opinions, suggestions, objections, and complaints. In this case, the society is the local community that lives near the forest. Incorporating their knowledge of preserving nature and preventing forest fires into the policy can be beneficial. The elders offer a straightforward method that utilizes clear language, which is easier to understand and implement. The older generation sees the difference between how everything was in the past. They see the forest and peatland as a heritage from the past generation and a legacy they must pass down to the next generation. However, the older generation was not the only one who displayed the emotional aspect. Some of the younger generations also revealed the same emotion when talking about environmental damage; both generations feel that action is required.

C. Conclusion

Grasping the historical context of law in environmental protection, particularly concerning sustainability, carbon regulations, and societal roles, lays the groundwork for future research on carbon regulations in Indonesia. The issues include regulatory loopholes, biased enforcement, and a victim protection system focused mainly on humans. This research suggests that leveraging local wisdom is essential to reach the NDC target of 31.89% by 2030. Hence, it is suggested that the government can build a policy encouraging local wisdom. The older generation observes contrasts in forest conditions between the past and present. The younger generations also express emotion about environmental damage, and both agree that action is needed. Local wisdom can assist the local community's knowledge in preserving and protecting the forest and peatland as it carries a set of rules to protect the environment based on their ancestors' experience. Therefore, the Indonesian government should consider this while adjusting the policy to carbon trading in the forestry sector.

REFERENCES

Books

Carson, Rachel. *Silent Spring*. Greenwich: Fawcett Publication, 1964. https://library.uniteddiversity.coop/More_Books_and_Reports/Silent_Spring-Rachel_Carson-1962.pdf.

Journal Articles

Aagard, Todd S. "Environmental Harm, Use Conflicts, and Neutral Baselines in Environmental Law." *Duke Law Journal* 60, no. 7 (2011): 1505–64,

https://scholarship.law.duke.edu/dlj/vol60/iss7/1/.

Adamo, Nasrat, and Nadhir Al-Ansari. "In Old Babylonia: Irrigation and Agriculture Flourished Under the Code of Hammurabi (2000-1600 BC)." *Journal of Earth Sciences and Geotechnical Engineering* 10, no. 3 (2020): 1792–9660. https://www.researchgate.net/publication/339782821_In_Old_Babylonia_Irrigation_and_Agriculture_Flourished_Under_the_Code_of_Hammurabi_2000-1600_BC.

Ahmed, Abdelkader T., Fatma El Gohary, Vasileios A. Tzanakakis, and Andreas N. Angelakis. "Egyptian and Greek Water Cultures and Hydro-Technologies in Ancient Times." *Sustainability (Switzerland)* 12, no. 22 (2020): 1–26. https://doi.org/10.3390/su12229760.

Dietz, Thomas. "Earth Day: 50 Years of Continuity and Change in Environmentalism." *One Earth* 2, no. 4 (2020): 306–308. https://doi.org/10.1016/j.oneear.2020.04.003.

Fajarwati, N., and M. S. Masruri. "Role of Local Wisdom Community Dayak Kanayatn in the Fire Disaster Prevention (Forest Fires for the Opening of Farming Fields in West Kalimantan)." *IOP Conference Series: Earth and Environmental Science* 271 (2019): 1–9. https://doi.org/10.1088/1755-1315/271/1/012022.

Mulyono, Andreas Tedy. "Relaksasi Pengelolaan Sumber Daya Alam Dalam Diskursus Hukum Lingkungan Hidup Di Indonesia." *Law Review* 19, no. 1 (2019): 25–53. https://doi.org/10.19166/lr.v19i1.1594.

Pramudianto, Andreas. "Dari Kyoto Protocol 1997 Ke Paris Agreement 2015: Dinamika Diplomasi Perubahan Iklim Global Dan Asean Menuju 2020." *Jurnal Politik Internasional* 18, no. 1 (2016): 76–94. https://doi.org/https://doi.org/10.7454/global.v18i1.119.

Sada, Clarry, Yabit Alas, and Muhammad Anshari. "Indigenous People of Borneo (Dayak): Development, Social Cultural Perspective and Its Challenges." *Cogent Arts and Humanities* 6, no. 1 (2019): 1–12. https://doi.org/10.1080/23311983.2019.1665936.

Uribe-Jaramillo, Maria Teresa. "Indonesia's Forestry Policy at a Crossroads in the Sustainable Development Approach: A Case Study on the Forest Moratorium, 2011-2014." *Climate Change and the 2030 Corporate Agenda for Sustainable Development* 19 (2016): 193–225. https://doi.org/10.1108/S2051-503020160000019010.

Thesis

Jones, Jack. "Conserving America: A History of America's Conservation Movement and the Establishment of the National Park Service." *Senior Independent Study Theses*, 2021. https://openworks.wooster.edu/cgi/viewcontent.cgi?article=12066&context=independentstudy.

News Articles

Kementrian Lingkungan Hidup dan Kehutanan. "Disidik Gakkum KLHK, Kasus Karhutla PT. Kumai Sentosa Segera Disidangkan." *Kementerian Lingkungan Hidup dan Kehutanan*, April 2, 2020. https://ppid.menlhk.go.id/siaran_pers/browse/2398.

Riley, Trevor. "Companies 'Zero Deforestation' Pledges: Everything You Need to Know.*" The Guardian*, September 29, 2017. https://www.theguardian.com/sustainable-business/2017/sep/29/companies-zero-deforestation-pledges-agriculture-palm-oil-environment.

Septriani, Dian. "With G20 Presidency in Hand, Jokowi Turns Focus to COP26." The Jakarta Post, November 1, 2021. https://www.thejakartapost.com/news/2021/11/01/with-g20-presidency-in-hand-jokowi-turns-focus-to-cop26.html.

Website Contents

Montrie, Chad. "Water Power, Industrial Manufacturing, and Environmental Transformation in 19th-Century New England." Yale University, 2023. https://energyhistory.yale.edu/water-power-industrial-manufacturing-and-environmental-transformation-in-19th-century-new-england/.

Sistem Pemantauan Karhutla. "Indikasi Luka Kebakaran," 2025. https://sipongi.menlhk.go.id/indikasi-luas-kebakaran.

APPENDIX

Picture 1. Interviewing the government official at Pematang Limau Village, Seruyan District, Central Kalimantan

Picture 2. Interviewing the local community at Muara Dua Village, Seruyan District, Central Kalimantan