

Law diversities for climate change: legal pluralism and climate governance in Indonesia

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Abstract

This study explores global governance dynamics affecting climate change governance in Indonesia, focusing on legal pluralism as a framework for integrating state law, customary law and Islamic law. Considering the context of legal diversity, this study investigates the emergence of models of climate change governance approaches in Indonesia after the 2015 Paris Agreement, specifically examining the consequences of climate change governance on legal mechanisms related to the climate crisis in Indonesia. The study then specifically analyzes ocean-based solutions, highlighting the importance of a focused concentration on climate change governance and legal frameworks in Indonesia. The process of formulating regulations in Indonesia is mainly top-down and neglects to consider the socio-economic rules of the society. As a result, the role of communities at the grassroots level or other social groups is not represented. Therefore, the formulation of Indonesia's NDC policy documents, especially those related to the forest and land use (FOLU) sector, is recommended to increase the inclusiveness of local communities, local governments, and non-governmental organizations. The current paradigm of legal pluralism has the opportunity to improve climate change governance in Indonesia. Climate change policies through international law can be integrated into state law, customary law, and Islamic law in Indonesia in a harmonious way.

Keywords: diversity, legal pluralism, climate change, ocean governance

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Introduction

The issue of climate change is undoubtedly the major critical collective action dilemma confronting the international community. In light of the problem is global in scope, that the release of greenhouse gases from any part of worldwide are able to foster an upward trend in the worldwide average temperatures, and that a boost in worldwide mean temperatures poses a multitude of significant risks to all countries, it is clear that this problem will not be solved without a solid international governance. The established global governance institutions, such as the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, along with their related initiatives, laws and regulations, and governing bodies, have demonstrated significant ineffectiveness owing to fundamental deficiencies in their conceptualization and implementation (Cole, 2011).

Notwithstanding the discourse, the global governance framework instituted since the 1980s and extending into the early 2000s has persisted. This process, which has been shaped by legal products and centralized policies from the United Nations

(UN), has been marked by a series of developments and challenges (van Asselt & Zelli, 2014). Furthermore, it inspired a number of subjects within the field of international law to incorporate climate change issues into a variety of legal instruments. During the 2000s, there was a notable shift in focus towards initiatives that were not directly associated with the UNFCCC. This required a number of programs to be launched at various levels of government with the goal of lowering emissions of greenhouse gases (Oulu, 2014). The bottom-up greenhouse gas emission elimination pledges made by different countries under the Copenhagen Accord and the 2015 Paris Agreement represent alternative climate initiatives that operate independently of the top-down UNFCCC framework (Bradley & Levin, 2010; Sabel & Victor, 2017). This exclusively "bottom-up" strategy, reliant on the consolidation of voluntarily national asserts, has been demonstrated insufficient in its effect on global greenhouse gas emission reduction initiatives (Peel et al., 2012). Therefore, it is possible to view both the top-down and bottom-up methods as manifestations of two distinct perspectives of the identical issue, which is how to minimize greenhouse gas emissions in the most efficient, economical, etc. means possible (Hermansen & Sundqvist, 2022).

The proliferation of climate change mitigation and adaptation initiatives coincides with the evolution of governance for strategies to combat climate change. A number of experts from a variety of disciplines have presented their arguments on climate change governance in their respective scientific works. For example, Ostrom presents a "polycentric governance" model, which posits that this approach acknowledges the existence of diverse institutional roles and scopes in the delivery of public services (Ostrom, 2009). Moreover, data indicates that individuals in smaller groups exhibit greater trust and a higher propensity to adhere to regulations. In addition, the adoption of multilevel governance, which includes regional, national, and sub-national tiers, might enhance the attainment of global goals pertaining to curbing emissions and climate change adaptation (Oulu, 2014). Multi-level governance entails a decentralised approach, wherein the formulation of climate change regulations occurs in disparate geographical areas and forums, et ultimately operates with regard to the variables set by higher tiers of authority (including national, multinational, or global institutions) (Peel et al., 2012). Indeed, both top-down and bottom-up strategies can be regarded as manifestations of two distinct perspectives on the same issue, namely, the optimal means of reducing GHG emissions in a cost-effective manner (Hermansen & Sundqvist, 2022). Nevertheless, the numerous theoretical and legal proposals concerning the reform of existing governance structures do not offer a straightforward solution to this problem. It can be argued that institutional design has the potential to influence outcomes, yet it is unlikely to be a panacea for the entrenched political conflicts that characterise climate change governance (Andresen, 2015). This occurs from a multitude of variables. The diversity of timescales, requirements, and adaption strategies across various locations indicates that adaptation governance, similar to mitigation, operates at numerous levels with varied reactions to policies from various interested parties (Bennett & Dearden, 2014).

Indonesia, a tropical archipelagic nation regarding an enormous populace primarily dependent on agricultural production, is especially vulnerable to changes in the environment, intensified by increasing ocean levels and catastrophic storms, leading to more frequent and serious cases of extreme droughts, flooding, and landslides (Gregorio & Moeliono, 2023). Under the Paris Agreement, Indonesia is obligated to formulate and convey its Nationally Determined Contribution (NDC). Indonesia's NDC establishes an unconditional reduction target of 29% and a

conditional objective of up to 41% relative to the business-as-usual scenario by 2030 (Sulistiawati, 2020). Indonesia aims to attain archipelagic climate resilience by establishing targets that encompass comprehensive adaptation and mitigation initiatives, along with catastrophe risk reduction measures. There are yet to be direct local and regional legislation that properly complement the prevailing national NDC implementation strategy (Sulistiawati, 2024). This indicates a substantial disparity and disjunction in municipal legislation, suggesting a divergent perception of climate change legislation between the national and local authorities, such as districts or cities (Sulistiawati, 2024; Gregorio & Moeliono, 2023). Inadequate understanding and forecasting of the fundamental nature of the atmospheric disruption matter in the domain. The government's participation in climate adjudication is crucial. The employing of climate change is a foundation for legal claims by law enforcement and people in general signifies substantial advancement in Indonesia (Sulistiawati, 2024). This indicates that climate change issues are recognized not only as a threat but also as integral to the solution. These circumstances demonstrate that climate change governance in Indonesia remains inadequately established.

This paper aims to investigate the way in which Indonesia serves as a study in progress for the examination of the way in which global governance dynamics are reflected in climate change policy on a nationwide basis. This article analyzes the advancement of climate change governance approach paradigms in Indonesia after the 2015 Paris Agreement, taking into account the background information provided above. This article examines the impact of climate change policymaking on climate change-related legal procedures in Indonesia. The details of ocean-based solutions are then examined in this article, highlighting the necessity of a focused effort on Indonesia's legal framework and governance of climate change.

Research Methods

This article provides an extensive review of the status quo of the climate change governance across Indonesia and evaluates potential future enhancements considering the escalating immediacy of impacts associated with climate change. We accomplish this by (1) identifying laws and regulations that align with the Paris Agreement, (2) highlighting the potential of the maritime sector as a fundamental component of climate change governance, (3) scrutinizing the future systems for climate change governance and legislation in Indonesia. The data is generated from widely accessible internet sources, primarily from reputable journal websites and the official sites of institutes dealing with climate change, both nationally and internationally.

This study is based on socio-legal research conducted using an interdisciplinary approach. Law fundamentally consists of two essential components: the normative and the empirical. The experimental foundation comprises official materials, such as government reports, legal and statutory documents, scientific investigations, academic writing, and news reports pertinent to climate change governance in Indonesia.

Strategies for adapting to climate change and their impact on coastal ecosystems are the primary topics of this course of study. Moreover, Indonesia is an archipelago with significant potential for leveraging its extensive coastal resources to combat climate change. As a result, government and legislation will be reformed to adapt to these advancements. Given the aforementioned facts, the author can examine the characteristics of current and future climate change governance and legal frameworks. The data was subsequently corroborated with supplementary literature sources to derive the outcome and inferences throughout this investigation.

The relevant laws and regulations were thoroughly examined, with a focus on the limitations placed on the Indonesian governmental capacity to execute the Paris Agreement. Furthermore, it critiques signs of attempts to centralize climate change governance in Indonesia.

Results and Discussion

Climate change governance in Indonesia Post-Paris Agreement 2015

On 12 December 2015, 196 Parties to the United Nations Framework Convention on Climate Change (UNFCCC) ratified the Paris Agreement, developing a novel legally enforceable structure to ensure an international effort to respond over the effects of climate change (Falkner, 2016). In terms of international legal system, the Paris Agreement is an international treaty, which means that when it goes into force, ratifying governments will be obligated by its stipulations. Nevertheless, despite its binding nature, it includes few obligatory clauses that establish clear and enforceable terms. Notably, NDCs and their carbon reduction commitments represent a political objective rather than a legal requirement (Streck et al., 2016). Instead, the Paris Agreement instills confidence in the processes, evaluation protocols, and interactive follow-up to encourage mitigation initiatives (Bulmer et al., 2017).

The 2015 Paris Agreement represented a fundamental transformation in international climate defensive strategy, transitioning throughout a top-down framework to a bottom-up one (Sabel & Victor, 2017). This indicates an alteration through a worldwide allocation of emissions reductions to a focus on geographically declared commitments to the global initiative (Hovi et al., 2014). In order to address this challenge, the Paris Agreement establishes two key targets: a temperature target and a time target. The objective is to sustainably maintain the increase in the average worldwide temperature below 2 degrees Celsius over the historical average, as stated in Article 2.1(a), and to pursue efforts to restrict rising temperatures to 1.5 degrees Celsius exceeding the pre-industrial average. This strategy would markedly mitigate the dangers and effects of climate change. To attain the projected future temperature objective outlined in Article 2, Member states strive to achieve global peak emission limits of greenhouse gases at the earliest possible time. In the last decade of this century, carbon dioxide emissions must be cut quickly in order to equalize greenhouse gases. This must be accomplished in accordance with equitable and within the framework of environmentally friendly growth and alleviating poverty.

The Paris Agreement has established a bottom-up, country-driven mechanism with the objective of attaining common goals. According to the Paris Agreement, state parties must outline the economic trajectory of their respective nations, with the objective of attaining low-greenhouse-gas, climate-resilient development. This approach, driven by national considerations, is based on a differentiation between immediate responses and long-range plans (Cochran & Pauthier, 2019). In accordance with Article 4 of the Paris Agreement, the member states must ascertain their immediate commitments to the prospective defense objective throughout generating short-term oriented Nationally Determined Contributions (NDCs). Moreover, Article 4.19 of the Paris Agreement (2015) suggests member states to establish and convey "the mid-century, perpetual low greenhouse gas emission advancement approaches," although compliance is not obligatory.

In response to the Paris Agreement, Indonesia consented to the treaty through Law No. 16/2016, thereby demonstrating its willingness to contribute in global

initiatives aimed at eliminating greenhouse gas emissions. In compliance with the stipulations of the Paris Agreement, every member state, including Indonesia, is obligated to submit its domestic climate change mitigation commitments as a NDC (Wongkar, 2021). Indonesia was one of the nations that conveyed the UNFCCC Secretariat its NDC in 2016. Indonesia committed to a 29% reduction in GHG emissions through individual efforts and a 41% reduction with assistance from other nations in a routine operations scenario by 2030 in its NDC (Fulton et al., 2017). Indonesia's NDC consists of ten sections, including adaptation, mitigation, and measures for environmentally friendly and climate stability strategies.

Indonesia's determination to reducing atmospheric greenhouse gases was strengthened in 2022 by adopting the Enhanced NDC. The Enhanced NDC entails an increase of 31.89% (Hastuti, 2024) in the unconditional emission reduction target, in comparison to the 29% stipulated in the initial NDC (Hastuti, 2024). Furthermore, the Enhanced NDC enhances Indonesia's pledge to contribute up to 43.20% of conditionally reduced emissions by 2030, a notable increase from the 41% outlined in the initial NDC (Gregorio & Moeliono, 2023). The condition is international assistance, encompassing financing, technology transfer and development, and capacity building (Sulistiawati, 2020). In both NDCs, Indonesia has pledged to achieve GHG reduction targets through a multi-sector approach. This approach encompasses the following sectors: agriculture, energy, household and waste, industry, and land use, land-use change and forestry (LULUCF). Consequently, the NDC includes excessive mitigation targets for the forest and land use (FOLU) sectors, alongside energy, which together represent about 97% of the whole national commitment (Wongkar, 2021).

With regard to Indonesia's commitment to cutting its global greenhouse gas emissions contributions, a comprehensive multi-sectoral and multi-level strategy is crucial to proper climate change governance. Consequently, in assessing the accomplishment of its pledge, it is crucial to analyze the climate change governing structure which was established on behalf of the Indonesian government. The term "governance" can be understood in terms of its structural, institutional, and decision-making aspects (Bennett & Satterfield, 2018). In this context, the term "structure" encompasses the legal, policy, regulatory, and normative frameworks that shape the governance landscape. In contrast, institutions relate to stakeholders and entities, including the bodies that whose responsible to make decisions. The approaches, in turn, concerns the involvement of stakeholders to facilitate the production of quality decisions and to preclude conflicts (Bennett & Satterfield, 2018).

Regarding the structural dimension of the forestry industry, the mission is to enhance the governance of the original naturally occurring forests and peatlands to mitigate emissions resulting from forestry and forest loss, the Ministry of Environment and Forestry has issued Minister of Environment and Forestry Decree No. SK. 4945/MENLHK-PKTL/IPSDH/PLA.1/8/2020 concerning the Determination of Indicative Maps for the Termination of Granting New Primary Natural Forest and Peatland Licenses in 2020 Period II. The issuance of this regulation is as mandated in Presidential Instruction No. 5 of 2019 on the Termination of New Permits and Improvement of Primary Natural Forest and Peatland Governance, as a follow-up and improvement of Presidential Instruction No. 6 of 2017 (Gregorio & Moeliono, 2023). Likewise, the Indonesian government has also promoted community-based climate change governance. Minister of Environment and Forestry Regulation No. 83/2016 (*LHK* 83/2016) constitutes a milestone in the history of social forestry in Indonesia. The regulations has demonstrated an implicit link between community empowerment and

the necessity for climate change management through healthy forests constructing and preservation methods (Wongkar, 2021).

The forestry sector continues to serve as the anchor of Indonesia's endeavors to attain the GHG emission reduction objectives delineated in the NDC. This is reinforced through a legislative instrument, notably Presidential Regulation (PP) No. 98 of 2021. The regulation promotes Indonesia's accomplishment of its NDC target through the establishment of a robust carbon economy, which includes the competence to manage greenhouse gas (GHG) emission levels. Article 3 of PP No. 98 of 2021 emphasizes that the forestry sector's GHG emission control primarily supports the reduction of GHG emissions. This control will evolve into a carbon offset or reinforcement by 2030, employing a carbon dioxide net sink strategy derived from forestry and other land use sectors (FOLU Net Sink 2030). The definition of the FOLU Net Sink 2023 is contained in the Appendix of the Decree of the Minister of Environment and Forestry of the Republic of Indonesia, Number SK.168/MenLHK/PKTL/PLA.1./2/2022. Climate change mitigation efforts to decrease GHG releases coming from the FOLU sectors are necessary to attain this objective, aiming for an absorption rate that surpasses emissions by 2030. The target projected net sink figure is 140 million tons CO₂e, or negative emissions of 140 million tons CO₂e (Hastuti, 2024). In summary, the aforementioned rules and policies represent a governance structure for the forestry sector in Indonesia, with the objective of controlling GHG emissions.

In the energy sector, Indonesia has made structural adjustments to reduce GHG emissions. One such initiative is converting from petroleum and natural gas to sustainable sources of energy in the production of electricity. Consequently, to swiftly accelerate climate change mitigation projects, there is essential for creating regulations, procedures, along with standards throughout the energy industry. In 2014, the government issued an energy policy through Government Regulation No. 79 of 2014 concerning the National Energy Policy (NEP). Article 2 of PP No. 79 of 2014 underscores that NEP describes an energy governance system that emphasizes the notions for justice, sustainability, including human dignity, while also considering environmental factors. However, following Indonesia's ratification of the 2015 Paris Agreement, efforts were made to optimize energy sector governance through legal means, namely through the ratification of Presidential Regulation No. 22/2017 on the National Energy General Plan (NEGP) on March 2, 2017. The aforementioned Presidential Regulation sets a target of 23% renewable energy in the national energy mix by 2025, in addition to a 1% reduction in energy intensity (Gregorio & Moeliono, 2023). According to Article 1, paragraph (1) in this Government Regulation, the NEGP is the government's national regulation with regard to the national energy governance strategy. The strategy is a cross-sectoral development and enforcement scheme for NEP that has been constructed to achieve NEP. Furthermore, the NEGP initiative aims to achieve a renewable energy mix comprising 23% of the total primary energy supply by 2025 and 31% by 2050. The aforementioned legal bases facilitate the ongoing development of national energy management policies in both the electricity and transportation sectors. The enactment of Presidential Regulation No. 112 Year 2022 serves as evidence of the dedication to expediting the attainment of NEP and NEGP objectives. The legislation aims to accelerate the adoption of solutions for utilizing new sources of sustainable energy in power generating.

Furthermore, initiatives to mitigate and cut GHG emissions in Indonesia are specifically targeted at the energy and transportation sectors. The Indonesian government's efforts to construct and develop an electric vehicle ecosystem are legally

grounded in Presidential Regulation Number 79 of 2023, which amends Presidential Regulation Number 55 of 2019. The legislative framework serves as a mechanism to expedite the transition of motorized vehicles to battery electric powered vehicles. The regulation signifies a substantial advancement with regard to the automotive products sector's endeavors to reduce carbon footprints as well as respond with globally accepted commitments. Furthermore, the utilisation of electric vehicles represents a potential avenue for the reduction of emissions within the transportation sector (Barton & Schütte, 2016). As indicated in the 2020 Climate Transparency Report (Susanto, 2022), this sector is responsible for 27% of emissions. In consequence, the Presidential Regulation provides a framework culminating in the prohibition of the distribution of automobiles powered by fossil fuels, effective from 2030 (Susanto, 2022). The European Union has set a date of 2035 for the prohibition of the sale of fossil energy-based vehicles. This is regulated through Regulation (EU) 2023/851 of the European Parliament and of the Council of April 19, 2023, which amends Regulation (EU) 2019/631. This revision strengthens the CO₂e emission efficiency requirements for forthcoming passenger cars and future light commercial automobiles. This aligns with the Union's heightened climate aspirations. Nevertheless, the initiative to expedite the transition of motor vehicles to battery electric vehicles will continue to encounter a number of obstacles. The following section will not address these challenges.

A comprehensive investigation of the structural elements of climate change governance across Indonesia, concentrating on two sectors that serve as the main instruments in climate change mitigation efforts within the Indonesian context. The following table lists regulations that the author considers closely related to efforts to reduce GHG emissions in Indonesia.

Table 1. Laws and Policies on Climate Governance in post-Paris Agreement Indonesia

No	Laws and Policies	Sector	Institutional	Remarks
1.	Law Number 16 of 2016 Concerning the Ratification of the Paris Agreement on the United Nations Framework Convention on Climate Change.	Electricity (including transportation), forests, garbage, manufacturing, and food production	Government of Indonesia	The two primary components are: 1) The Paris Agreement, and 2) The pledge to implement the Agreement by NDC.
2.	Presidential Instruction No. 5 of 2019 on the Termination of New Licenses and Improvement of Primary Natural Forest and Peatland Governance	Forestry	Ministry of Environment and Forestry, Ministry of Home Affairs, Ministry of Agrarian Affairs and Spatial Planning/Head of the National Defense Agency, Ministry of Agriculture, Ministry of Public Works and Housing, Provincial and District/City Governments	Limit on newly issued permits for conserving forests, protected forests, production forests, and other designated regions' principal natural forests and peatlands.

3.	Minister of Environment and Forestry Regulation No. 83/2016 on Social Forestry	Forestry	Ministry of Environment and Forestry, Local Government, Village Forest Management Organization	Social forestry schemes leverage forest ecosystem services for sustainable tourism, water conservation, biodiversity, and capture of carbon or storage capacity.
4.	Presidential Regulation (PP) Number 98 of 2021 concerning the Implementation of Carbon Economic Value (CEV) for Achieving Nationally Determined Contribution Targets and Controlling Greenhouse Gas Emissions in National Development	Energy, Waste, Industry, Agriculture, Forestry and other sectors according to the development of science.	Ministries/state institutions, local governments, private actors and communities	Regulating economic instruments to reduce GHG emissions, enhance climate adaptability, and promote CEV to meet NDC targets.
5.	Decree No. SK.168/MenLHK/PKTL/PLA. 1/2/2022 on Indonesia's Forestry and Other Land Use (FOLU) Net Sink 2030	FOLU	Ministry of Environment and Forestry	a planning document that sets out targets, policies and action steps for greenhouse gas emission reductions by 2030.
6.	Presidential Regulation No. 22/2017 on the National Energy General Plan (NEGP)	Energy	Central Government and National Energy Council	Policy as an elaboration and implementation plan of Government Regulation No. 79/2014 on National Energy Policy.
7.	Presidential Regulation No. 112 of 2022 on the Acceleration of Renewable Energy Development for Electricity Supply.	Energy	Ministry of Energy and Mineral Resources	To enhance capital and expedite the attainment of the renewable energy mix prioritize in alignment with the National Energy Policy, while also mitigating the emissions of greenhouse gases, it is essential to govern the expedited proliferation of power stations utilizing sources of clean electricity.
8.	Presidential Regulation Number 79 of 2023 on the Amendment to Presidential Regulation Number 55 of 2019 on the Acceleration of Battery-Based Electric Motor Vehicle Program	Energy	Central Government through relevant Ministries.	Utilizing electric automobiles is a method to diminish pollution in the automotive industry.

Source: processed by author, 2024

In terms of institutional aspects, climate change governance in Indonesia is conducted at various levels of government. With regard to the legislation and policy measures applicable to the aforementioned key sectors, it can be observed that there is a function for the government, along with the wider community in general. Local governments have also taken measures to address climate change by formulating GHG Emission Reduction Axis Plans. Indeed, a number of provinces and districts have enacted legislation pertaining to climate change mitigation. Nonetheless, the subject is significant that the enforcement of regulations throughout the district-scale seems to be inconsistent. The majority of measures relevant to climate change are incorporated into rules concerning environmental preservation and management, as well as disaster management (Sulistiawati, 2020).

In light of the regulations pertaining to GHG (greenhouse gas) reduction together with climate change at the provincial and district scales in Indonesia, there appears to be a lack of clarity among local governments regarding this matter. The extant regulations are too abstract and unclear for local governments. Moreover, the absence of discourse on this matter, especially concerning the national framework that underpins municipal governments in focusing on it, exacerbates the prevailing misunderstanding (Sulistiawati, 2020). It is therefore imperative that the central, provincial, and district/city governments collaborate more effectively. National bureaucratic interests seem to compete with provincial governments for authority over forestry, land use, and climate change rules and regulations, rather than collaborating. Furthermore, differing perspectives regarding the prospective consequences of climate and forests among national together with provincial concerns impede effective collaboration. The emergence of a more inclusive national climate change institution, which is prepared to delegate resources and decision-making authority to regional entities, could contribute to the attainment of both universal and national climate change curbing goals, as well as significant achievements in sustainable development that align with regional visions and concepts (Gregorio & Moeliono, 2023).

These regulations dictate a top-down approach to the formulation process, failing to consider the socio-economic principles that underpin community order. Consequently, the role of individuals at the grassroots level and other social communities is not included during the phase of making decisions. This is a crucial consideration, given that environmental and climate challenges in Indonesia are shaped by the unique geographical range and cultural wisdom of each region. Consequently, a national policy that is one-size-fits-all is inadequate to address the diverse regional needs (Zuhir, 2017). It is therefore recommended that the formulation of Indonesia's NDC policy documents, in particular those pertaining to the FOLU sector, should aim to enhance the inclusiveness of local communities, local governments up to the district level, and other non-governmental organisations (Wongkar, 2021). At present, Indonesia's Enhanced NDC document recognizes the vital function of local wisdom in strategies designed toward cutting deforestation and promoting the preservation and restoration of natural ecosystems. The extent of local community involvement, particularly that of indigenous peoples, in the execution of these strategies is not well defined.

Navigating the marine sector into climate change governance in Indonesia

It is widely acknowledged that the growth of a region's Gross Domestic Product (GDP) and population is closely linked to the state of the region's coastal areas. The maintenance of healthy coastal ecosystems is of significant economic and social

benefit, providing essential goods and services (ecosystem services) that support local economies and communities. These encompass the fishing industry, tourist activity, raw minerals, and safeguarding against catastrophes and destruction (Schueler, 2017). Since coastal regions undergo expansion and an influx of people emerging from deprivation occurs, consumer appetite for physical facilities, electrical power, water, food, and extra supplies will escalate. Nonetheless, such development places additional strain on coastal habitats, thereby have been facing numerous pressures, notably the adverse consequences of climate change (Schueler, 2017). Consequently, the international objectives of reducing inequality and preventing harm to the environment are inherently interconnected while ought to be tackled simultaneously.

This is highlighted in Sustainable Development Goals 13 and 14 (climate action and life below water) and the Aichi Target to preserve 10% of ocean and coastal environments. Moreover, numerous NDC declared pursuant to the Paris Agreement encompass particular approaches to mitigation and adaptation related to marine and coastal ecosystems (Schueler, 2017). For instance, the Enhanced NDC from Indonesia indicates that the strategy for achieving the NDC targets is implemented through a landscape approach. The work is undertaken in response to the inherent multisectoral nature of adaptation as well as mitigation initiatives. Indonesia utilizes a comprehensive landscape-scale strategy that encompasses earth-based, the coastline, along with marine ecological systems (Gregorio & Moeliono, 2023).

Recently, there has been a significant increase in both intellectual and policy consideration of the deployment of nature-based solutions (NbS) for climate change mitigation and adaptation. Specifically, NbS depend exclusively on coastal vegetation. The implementation of effective coastal ecosystem protection measures can prevent the discharging of carbon that has been sequestered in sediments (Turley et al., 2021). NbS through coastal natural resources represent an invaluable structure for adapting to the labor consequences of climate change, such as raising sea levels (Temmerman et al., 2013). Indonesia constitutes an extensive archipelago made up of numerous small islands which are especially susceptible to adverse effects of rising sea levels. Indonesia, recognized as the most extensive archipelago globally, consists of over 17,500 islands and features a coastline that exceeds 81,000 kilometers (Zikra et al., 2015).

Nevertheless, Indonesia possesses the capacity to deploy its profound coastal natural resources as adaptive resources to help minimize the detrimental impacts of changing climates in the coastal regions. Indonesia is home to the second largest coral reef system globally, encompassing an impressive area of 39,500 kilometers, which accounts for 16% of the world's total (Burke et al., 2012). Coral reefs serve as natural buffers, mitigating the impact of storm surges and tidal waves. In addition to coral reefs, Indonesia also has considerable potential in other coastal ecosystems, namely blue carbon ecosystems. Blue carbon ecosystems, which include mangrove forests, seagrass gardens, and salt marshes have been recognized as having substantial potential for carbon absorption along with storage capacity (Hilmi et al., 2021).

Coastal ecological systems are crucial for the safeguarding as well as preservation of coastal areas. In general, the coastal environment play an essential function in mitigating wave impacts, regulating water circulation and floods, reducing stormwater discharge, along with facilitating the phenomena which acquire, capture, as well as disseminate sediment along the shoreline, ultimately contributing to the development of the coast. Mangroves serve to dampen waves and thereby reduce the extent of storm surges and the depth of flooding. Seagrasses have the capacity to

attenuate storms along with consolidate sediments. Coral reefs are thought to mitigate wave energy and promote the absorption and burial of sediment (Schueler, 2017).

Notwithstanding its mention in the Enhanced NDC and its anticipated capability to withstand the detrimental impacts of climate change through coastal areas, the ocean sector has not become a central priority for the Indonesian government in climate change mitigation and adaptation initiatives. Legislation has not explicitly addressed blue-carbon ecosystems, despite their scientific recognition as ocean-based solutions to climate change. Nevertheless, various legislative and regulatory frameworks, such as the 2009 Environmental Protection and Management Law, the 2014 Coastal Areas and Small Islands Management Law, and the 2014 Marine Affairs Law, address the safeguarding of blue-carbon ecological settings. Nevertheless, such laws and regulations are not yet oriented toward climate change control, given that they were enacted prior to the 2015 Paris Agreement, which was adopted globally.

In light of this, it is the imperative of the Indonesian government to formulate policies and regulations pertaining to the marine sector with the objective of exerting control over climate change. The passage of statutes constitutes a crucial element in the implementation of a government program. Laws and regulations can function as a framework for stakeholders in developing mechanisms for the management and utilization of blue carbon, with the goal of regulating climate change, including ensuring legal certainty in Indonesia. It can be reasonably argued that legal certainty represents a significant part in the effectiveness of blue carbon management and protection programs implemented in Indonesia (Sofia, 2019).

A notable deficiency exists in the legislative landscape pertaining to blue carbon in Indonesia. Indeed, Presidential Regulation No. 98 of 2011 on the Carbon Economic Value, which has recognized blue carbon as a climate change adaptation strategy, does not define or delineate the scope of blue carbon. One legal instrument that addresses blue carbon ecosystems is Presidential Regulation No. 73/2012 on the National Strategy for Mangrove Ecosystem Management. This regulation simultaneously regulates the protection and sustainability of mangrove ecosystems (Sofia, 2019). Nonetheless, the regulation has yet to be extended to the holistic management of blue carbon ecological systems, remaining solely focused on the control and safeguarding of mangroves.

The regulation of Blue Carbon Ecosystems is still subject to a variety of legislative frameworks, which consequently affects institutions operating across these regimes. It is therefore essential to ensure clarity and coherence in institutional aspects with regard to guarantee the quality of Blue-Carbon Ecosystem (BCE) management in a sustainable and equitable manner (Indonesia Ocean Justice Initiative, 2023). Prior to integrating the ocean sector into climate change governance, it is imperative for Indonesia to guarantee the efficacy and efficiency of blue carbon governance.

In order to ensure optimal effectiveness, the implementation of blue carbon ecosystem governance must be accompanied by clearly defined mandates and authorities among the relevant government stakeholders. It is essential that the assignments of a particular organization be distinctly established, precise, and non-redundant within the framework of the appropriate regulations and laws. This is to prevent the overlap or absence of authority and responsibility. Additionally, this strategy is designed to prevent the emergence of a regulatory lacuna with regard to the limitations of legitimacy, responsibilities, and serves of each pertinent ministry and possibly agency (Indonesia Ocean Justice Initiative, 2023). Bennett emphasizes that the alignment of the duties, tasks, and obligations of different government agencies may

represent facilitated through generating a coordinating body or agency. This approach is designed to ensure the quality of policy and facilitate the resolution of trade-offs (Bennett & Satterfield, 2018).

In addition to the regulatory and institutional aspects, the governance of the marine sector must also be strengthened in order to enhance coastal resilience through the development of blue carbon ecosystems. This procedure would be substantially aided by a more sophisticated comprehension of the obligations of different stakeholders. Moreover, enhanced cooperation and participatory approaches that engage actors throughout every business sector, especially the commercial sector, offer exciting opportunities for growth. The development of awareness through strategic and programmatic communication represents a crucial element in this context (Schueler, 2017). There is mounting evidence that the involvement of communities and decision-makers is necessary for the effective execution of blue carbon control and preservation initiatives.

Legal pluralism and climate governance: Indonesia perspectives

Climate change represents a worldwide crisis that requires a multi-tiered governance strategy encompassing multiple sectors for effective solutions. Conversely, it is clear that climate change adaptation along with mitigation must occur within comprehensive and standardized rules and regulations at the global scale, which should establish a definitive obligation regarding financing as well as allocate resources in those developing nations that most urgently need adaptation resources. Consequently, Indonesia has formally accepted the terms set forth in the United Nations Framework Convention on Climate Change (UNFCCC) through the enactment of Law No. 6 of 1994 on the Ratification of the UNFCCC. Indonesia ratified the Kyoto Protocol through Law No. 17 of 2004, which pertains to the ratification of the Kyoto Protocol to the UNFCCC. Subsequently, in 2014, Indonesia adopted the Doha Amendment to the Kyoto Protocol. Subsequently, on October 24, 2016, Indonesia ratified the Paris Agreement through Law No. 16 of 2016 on the Ratification of the Paris Agreement to UNFCCC.

The 2015 Paris Agreement advocates for state parties to uphold and advance the interests of people of indigenous backgrounds and local peoples in all measures undertaken to combat the effect of climate change. Indeed, Article 7, paragraph 5 of the 2015 Paris Agreement underscores the necessity for all participating countries (parties) to consider traditional knowledge systems and indigenous and local knowledge when implementing adaptation measures. Indonesia has demonstrated its commitment to fulfilling its obligations as a participant in the Paris Agreement of 2015 through the enactment of Law No. 16 of 2016 and the submission of an Enhanced NDC. In the Enhanced NDC, the Indonesian government claims stated Indonesia has undertaken significant actions in the land use sector to mitigate emissions. This encompasses the enactment of a restriction on newly issued permits, enhancements in the regulation of genuine forests and peatlands, and decreasing in deforestation and destruction of forests. Furthermore, the government has enabled the rehabilitation of ecosystem services and the environmentally friendly care of forests. These endeavors encompass social forest management, which involves the proactive involvement of local governments, private businesses, medium- and small-sized businesses, non-governmental institutions, native and indigenous peoples, and women during both the design and execution phases (Toledo, 2013).

This evidence demonstrates the possibility of regulating climate change governance through a multitude of legal systems, spanning from international law to national law and customary law. The Paris Agreement of 2015 provides support and encouragement for all actors at all levels of government to engage in the process of designing, forming, and interpreting of climate change legislation. It is clear that, much as in cases of legal pluralism within states, local stakeholders in a worldwide statutorily pluralistic system employ together with select legislative forums strategically, playing off each other's legal frameworks to accomplish the common aim of cutting the production of greenhouse gases.

According to the midst of globalization, certain scholars have begun to investigate the interplay between international law, state legislation, even diverse local or regional legal frameworks (Johnstone, 2010). A particular form of globalization and law that connects the three domains outlined by Santos is "local globalism". This idea involves the precise effect of international standards and conditions on local circumstances, which are consequently altered and reconfigured to address transnational demands (Bennett & Dearden, 2014). The idea of legal pluralism is not static; rather, it evolves in conjunction with social change (Anders, 2015). Accordingly, the flexibility inherent in legal pluralism makes it an appropriate framework for addressing contemporary climate change concerns.

Pluralism is relevant to Indonesia because of its diverse religions, cultures, tribes, and customs (Huizenga, 2018). Indonesia as a multicultural country should put legal pluralism in the perspective of a common issue that requires collective efforts to fight for the 2015 Paris Agreement targets. Legal pluralism serves as a framework that aims to redefine the interplay between the legal system and society. Legal pluralism endeavors to ascertain the legitimacy of legal anomalies functioning on an international scope (Flambonita, 2021).

In Indonesia, the concept of legal pluralism has been employed to integrate disparate legal systems, including customary law, Islamic law, and state law (positive law), into a unified legal framework. This approach has been employed to address complex legal issues. It is therefore recommended that all legal systems currently in operation in Indonesia should be encouraged to regulate efforts to control climate change. The advancement of customary and Islamic law occurs within the context of specific communities and is not intended to be universally applicable, in contrast to state law. Nevertheless, customary law and Islamic law are more readily accepted on the grounds of their spiritual and cultural proximity to indigenous peoples and Muslim communities (Hamida, 2022). Consequently, the internalization of climate change governance by Muslim communities will be more readily achieved through the medium of Islamic law, whereas indigenous peoples will be more receptive to it through the lens of certain customary laws. However, the advent of novel governance structures (and a shift in emphasis from existing structures) is also attributable to the ascendance of climate change on the global policy discourse.

Conclusion

The manifestation of climate change demonstrates among the foremost serious issues that global entities are obliged to confront in the present era. Effective governance through various approaches is essential for confronting climate change. In Indonesia, climate change governance is conducted through a multi-level approach, with the involvement of the central government, local governments, and communities.

Moreover, climate change governance in Indonesia is implemented across multiple sectors as a strategy to achieve GHG emission targets. Nevertheless, the marine sector has yet to be designated as a key instrument for curbing GHG emissions in Indonesia. Indeed, based on scientific evidence, coastal ecosystems possess significant capabilities for mitigation and adaptation to the detrimental effects of climate change. Therefore, the development of climate change governance with a multi-level and multi-sector approach remains a necessity.

Legal pluralism, which is already established in Indonesia, provides a foundation for developing climate change governance. Climate change policies through international law would be integrated into state law, customary law and Islamic law in Indonesia in a harmonious and mutually reinforcing manner. Legal pluralism is therefore a potential avenue for climate change governance, although it can also pose challenges. However, the opportunities and challenges presented by this concept have not been the subject of analysis in this article. Therefore, it is recommended that this be the subject of future research. In addition, the synchronization of climate change laws between levels of government also needs to be further investigated.

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