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Customary environmental law and its transformation models in Indonesia

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ABSTRACT
The development of modern environmental law in Indonesia has not led to significant improvements in environmental quality. A key challenge is the limited public understanding of environmental law, compounded by the predominance of traditional, religious, and mystical perspectives within Indonesian society. This study aims to investigate the existence and role of customary environmental law in Indonesia and assess its potential contribution to the national environmental legal framework. A qualitative approach was employed, involving document analysis and field observations in communities known for strong adherence to customary practices. Data were analyzed to identify principles and practices of environmental management rooted in local customs. The findings reveal that customary environmental law exists and regulates both the utilization and conservation of the environment according to indigenous norms. This legal tradition operates beyond the realm of local wisdom, suggesting the emergence of a distinct subsystem within Indonesia's environmental law. Customary environmental law offers valuable insights for the formulation and revision of national environmental legislation. Integrating these customary principles could enhance the effectiveness and cultural relevance of Indonesia's environmental governance.

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Introduction

The role of modern environmental law, originating from the Stockholm (Wang, 2023) and Rio de Janeiro Conferences as well as international jurisprudence, has been recognized worldwide for shifting the paradigm of natural resource exploitation toward more environmentally friendly practices. Environmental ethics and morals, influenced by the teachings of ecocentrism, promote a more prudent approach to exploitation. These ethics and morals, serving as the embryo of legal norms, position the environment as a legal entity with rights and obligations similar to those of humans. The environment has the same rights to be protected and should not be subjected to arbitrary treatment. The environment, when subjected to arbitrary treatment, may seek justice in court (Stone, 1997).

Observing the development of environmental law, Indonesian environmental law experts are perplexed by the current reports on the state of environmental quality. Environmental degradation continues to occur, despite significant international attention (Suzanna Ratih et al., 2017). Over the past 50 years, approximately one million species have become extinct. Global warming has become a pressing issue, threatening human existence on Earth. The implementation of international climate change conventions has not yet succeeded in significantly reducing greenhouse gas emissions, with carbon dioxide (CO_2) being the dominant contributor (Ilham Dwi, 2025). According to the *Global Carbon Budget 2021*, annual emissions from fossil fuel combustion have increased every decade, from an average of 3 billion tons of carbon (equivalent to 11 billion tons of CO_2) per year in the 1960s to 9.5 billion tons of carbon (equivalent to 35 billion tons of CO_2) per year in the 2010s (Friedlingstein et al., 2022). The issue of air pollution caused by CO_2 emissions has increasingly drawn international attention (Wang & Huang, 2022).

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Forests are shrinking by millions of hectares each year due to logging and land clearing by burning. During the period from 1984 to 1997, forest degradation in Indonesia reached 16.57 million hectares (Adiguna et al., 2020), and between 2015 and 2020, the deforestation rate was estimated at 10 million hectares per year (Food and Agriculture Organizations of the United Nations, 2020). Pollution of rivers and seas remains widespread. A recent study conducted in 2010 across 192 countries estimated that approximately 275 million metric tons (MT) of plastic waste were generated, with 4.8–12.7 million MT entering the ocean (Jambeck et al., 2015). Meanwhile, research covering 104 countries revealed that the most polluted rivers are located in low to middle-income nations (Wilkinson et al., 2022).

Land degradation caused by mining activities has yet to be effectively addressed, where the potential for land damage could impact public infrastructure and hinder development (Arij et al., 2024).

Forest Watch Indonesia, in its special report, revealed that between 2014 and 2024, deforestation has occurred across an area of 12.5 million hectares, equivalent to the size of South Korea. According to Indonesia's enhanced nationally determined contribution document submitted to the United Nations, the Indonesian government plans to carry out deforestation of 325,000 hectares annually, which will continue until 2030. Furthermore, data from the Indonesian Ministry of Transportation, as reported by the Communication and Public Information Bureau, indicate that Indonesia is the largest contributor of CO_2 emissions in the world, releasing 1.3 gigatonnes of CO_2 into the atmosphere in 2022. Forest landscape restoration has emerged as a key strategy to sequester atmospheric carbon and conserve biodiversity while providing livelihood co-benefits for indigenous people and local communities (Fischer et al., 2023).

In addition to deforestation and forest damage, another major environmental issue facing Indonesia is land degradation. Indonesia's critical land area covers 12.74 million hectares (Himaba FKT UGM, 2024). Furthermore, there is the issue of river pollution, caused by domestic, industrial, and agricultural waste. According to the Indonesian Central Statistics Agency in 2023, nearly all rivers in Indonesia are polluted, with only 8.1% meeting water quality standards.

The state of the environment, as described above, leads to an objective analysis that the quality of the environment is inconsistent with the rapid development of modern environmental law. The implementation of environmental law principles and norms appears to have little impact on improving environmental conditions. Modern environmental law, which has inspired the substance of environmental legislation, has not yet succeeded in improving environmental quality as expected. Consequently, the effectiveness of environmental law in curbing environmental degradation and pollution raises legitimate concerns. Inadequate enforcement further undermines the credibility of the legislation (Indah & Ridwan, 2020). What, then, are the root causes and what constitutes the ideal solution?

A study in Indonesia found that modern environmental law has not been effective in improving environmental quality. One of the underlying reasons is that the Indonesian people do not understand the principles, norms, and enforcement systems set out in the Environmental Law. The Indonesian population generally adheres to traditional, religious, and mystical beliefs. They tend to understand and comply with laws only when it is aligned with their customs and culture. This is evident from the fact that in various regions, many communities continue to believe in mystical forces residing in places, such as forests, large trees, mountains and boulders. Many still believe in ghosts, spirits and other supernatural beings. Their religious convictions also lead them to value the advice of religious leaders more than governmental regulations and prohibitions. Traditional cultural practices, such as taboos and prohibitions continue to be widely observed across generations. Based on these findings, enhancing the effectiveness of environmental law in improving environmental quality requires a legal system rooted in customary law, which aligns with the customs and traditions of Indonesian society. In an effort to make environmental legislation more effective in improving environmental quality, research is essential to uncover an environmental legal framework that aligns with the customs and culture of the Indonesian people. The outcomes of such research could then serve as the foundation for drafting or revising environmental legislation.

Concerning the above discussion, an important question arises: does a subsystem of environmental law exist, founded on principles, norms, enforcement mechanisms and dispute resolution systems derived from customary law? Furthermore, how does it transform within the modern context? Previous research has only identified local wisdom in environmental management, without specifically examining a customary environmental law subsystem. Prior studies have not explored the principles, forms of norms,

enforcement mechanisms or dispute resolution systems as key elements of environmental law derived from customary law.

Earlier research has only identified local wisdom in environmental management rather than recognizing customary environmental law as a subsystem of environmental law. For instance, the study *Is There a Place for Local Wisdom in Indonesia's Water Law?* only indicates and examines local wisdom in water resource management (Astriani, 2019). Similarly, the study *Legal Aspects of Granting Land Rights for the Bajo Tribe in the Coastal Areas of Indonesia* does not aim to explore customary environmental law. Instead, it focuses only on the land rights of the Bajo indigenous community in coastal areas (Surya et al., 2024).

Research on *Integration of Local Wisdom with Environmental Law* by Matnuril et al. (2019) only discusses local community wisdom in supporting environmental law and does not address the existence of customary environmental law. The study *The Role of Indigenous Peoples and Local Communities in Effective and Equitable Conservation* by Dawson et al. (2021) also does not examine the existence of customary environmental law but rather focuses on the effectiveness of environmental conservation management based on local wisdom. The research *The Effectiveness of Sasi Customary Law in Preserving Natural Resources in the Ambon Community* by Vindy and Subroto (2024) only explains the effectiveness of local customary law models in maintaining and preserving the environment, supported by customary institutions and law enforcement mechanisms, including sanctions. However, this study does not explicitly define the existence of customary environmental law.

As previously mentioned, for environmental legislation to be effectively observed and to improve environmental quality, it must align with local customs and traditions. Therefore, the environmental legal framework underpinning applicable environmental legislation should be based on customary environmental law. However, a critical question remains: does customary environmental law exist in Indonesia? If so, what is its transformation model for integration into formal legislation?

Therefore, this study aims to examine the existence of customary environmental law in Indonesia and its role in environmental management and conservation. Furthermore, the research seeks to identify the potential of customary environmental law as a subsystem that can enrich and strengthen the national environmental legal framework. In doing so, this study is expected to offer both conceptual and practical contributions to the formulation or revision of environmental legislation in Indonesia, ensuring that it becomes more contextually relevant, effective and aligned with the cultural values of society.

Method

The specification of this research is descriptive-analytical, aiming to describe and analyze how customary law communities regulate issues concerning environmental protection and management. The approach employed is normative juridical, focusing on the legal norms that govern the relationship between indigenous communities and their environment. Accordingly, the method of data inventory is carried out through a literature study. However, the literature reviewed comprises field research results in the form of research reports, dissertations and published studies including books and academic articles. Therefore, the literature data used as the basis for analysis essentially represents primary data that reflects legal practices within indigenous communities.

In this study, a qualitative juridical method was employed through several systematic stages: first, the research question was clearly defined to focus on the existence and role of customary environmental law within Indonesia's legal framework; second, relevant legal materials-including statutes, customary laws, judicial decisions and scholarly writings-were collected and examined; third, these materials were analyzed using qualitative textual analysis to interpret legal principles, norms and enforcement mechanisms, paying close attention to cultural and social contexts; fourth, the study applied a comparative approach to identify how customary law can be integrated into modern environmental legislation; finally, the findings were synthesized to propose a conceptual model for harmonizing customary and formal legal systems. This approach aligns with established qualitative legal research methodologies that emphasize in-depth understanding of legal phenomena within their socio-cultural settings and ensure rigorous, context-sensitive interpretation of legal texts and practices.

Discussion

When the Civil Law System was implemented based on the principle of legal application, Indonesia already had 19 circles of customary law (*rechtskringen*) communities (Wanma et al., 2015). Each legal circle has its own distinctive characteristics, yet, in general, their patterns are similar. Customary law governs through commands and prohibitions derived from God or ancestors, conveyed through proverbs, ancestral advice and taboos. It is considered law because its substance consists of commands and prohibitions, the violation of which results in sanctions for the offender and is enforced by the authority of customary functionaries. Customary law materializes in the decisions of legal functionaries, who hold significant authority and influence, and whose rulings are wholeheartedly obeyed by the community (Muhammad, 1986).

Customary law, as the legal system of Indonesia's traditional communities, regulates various legal matters, typically influenced by belief in God or deities (Asteria et al., 2021), forming the foundation of customary rules (Babie & Sarre, 2020). These customary rules or norms are based on religious teachings or spiritual beliefs upheld by the community (Lubin, 2023). Although ethnic communities do not formally distinguish between fields of law, theoretically, their studies recognize the existence of such subdivisions. According to Van Dijk, Indonesian customary law governs: Constitutional Law (social structure); Civil Law (citizenship law); and Criminal Law (Dijk, 1954). Meanwhile, according to Soerojo, the Indonesian customary legal system encompasses Social Structure Law; Personal Law; Family Law; Marriage Law; Marital Property Law; Inheritance Law; Land Law; Debt Law; and Criminal Law (Wignjodipoero, 1968).

By adhering to the theories of Van Dijk and Soerojo, researchers have found that Indonesian traditional communities also have regulations concerning the utilization and preservation of the environment (customary environmental law) (Rahayu et al., 2024). These norms manifest in the form of customary taboos, written regulations, proverbs, advice, life philosophies, prayers and traditions (Ahmed, 2022). Tradition, as spontaneous law, reflects how customary practices regulate group behavior (Mayali & Mousseron, 2019). The authors' justification for considering these traditions as law lies in their fundamental characteristic of maintaining social order (Izza, 2020). Law is necessary solely for maintaining order (Kelsen, 1944). According to John Austin, the law is a command that serves as a guideline for society to follow, with sanctions imposed by the authorities on those who fail to comply. He asserted that law comprises elements of command, sanction, duty and sovereignty (Huijbers, 1982). Similar to Hans Kelsen and Austin, E. Utrecht defined law as a set of norms consisting of directives for life, commands and prohibitions that regulate society and impose sanctions on violators (Utrecht, 1986). Based on these legal scholars' perspectives, it is undeniable that customary environmental law exists as a legitimate form of law.

Principles

Customary environmental law, as observed, has distinctive principles, norms, enforcement systems and dispute resolution mechanisms. These regulations are based on the principle of balance. Traditional communities strive to maintain the balance of nature, which is believed to have existed since the beginning and predates humanity. The objective of customary environmental law is to preserve this balance through prohibitions and taboos. Prohibitions against exploiting sacred forests, for example, aim to maintain equilibrium (Gilbert, 2023) as practiced by the Datok Rangkayo Mulyo and Tau Ta'a ethnic communities.

Customary environmental law is also rooted in the principle of public safety, which is prioritized above all else. Strict enforcement of environmental law serves to protect the community from harm. A violation by a single member is perceived as a threat to collective safety and must be punished. Customary environmental law is based on the public interest, which does not rely on majority consensus but rather on the welfare of nature and humanity (Sharon et al., 2022). Even if only one person voices such an interest, it is still considered a matter of public interest. There is a fundamental distinction between public interest and the majority's interest. What differentiates them is the objective of safety. Public interest is always anchored in safety and is not determined by majority votes, whereas the majority's interest is influenced by the largest number of votes, which do not necessarily prioritize the safety of nature and humanity.

The principle of equality in customary environmental law means treating ethnic communities as equal to other elements of the environment (Keraf, 2010). All living beings and objects are considered to have a spirit that must be respected. For instance, the Balinese place black-and-white cloths around trees as

a sign of reverence. Cutting down trees is prohibited to uphold equality and fairness across all beings, ensuring that all living beings and objects receive fair treatment (Biskowski, 1993).

Another principle of customary environmental law enforcement is the strict and consistent application of regulations without discretion. Every violation must be punished without exception. In the Kampung Naga community of Tasikmalaya, a rule states: '*Lamun aya nu teu damang, pek landongan kedah diala di leuweung larangan, tiasa diala ngan sampean sabeulah kadaratan sabeulah deui ka cai.*' This means that if someone falls ill and requires medicine found only in a sacred forest (Soemantri, 2003), it may be retrieved under the condition that one foot must be in the Cidurian River and the other must be in the forest. Essentially, this customary rule forbids any form of resource utilization from the sacred forest, even in urgent situations. Customary environmental law does not permit exceptions.

Norms

Indonesian ethnic communities generally categorize customary environmental law into rules concerning water and rivers, marine resources, forestry and spatial planning. The Muntei indigenous community in South Siberut, Mentawai Regency, believes that objects possess a soul or *sumangot*, and therefore must be respected and not treated arbitrarily. They are prohibited from excessive fishing. It is also taboo to dispose of any form of waste in rivers and water sources. Violators are subject to *kisei* or divine punishment, which may manifest as misfortune or disaster (Kusnadi, 2003).

Regarding water and rivers, the Serawai traditional community in Bengkulu enforces a rule known as *celako humo*, which prohibits farming in areas with natural springs and mandates the preservation of water sources by sanctifying them (Office of the Department of Social Affairs of Bengkulu Province, 2003). Similarly, *Lubuk Larangan* is a customary prohibition observed by the Mandailing Natal ethnic community in North Sumatra. This rule forbids fishing during certain months, particularly when fish are spawning and laying eggs (Ginting, 2003). The *Lubuk Larangan* custom closely resembles the *Adat Sasi* tradition practiced by the Haruku indigenous community in Maluku Province (Vindy & Subroto, 2024). The Basemah ethnic group in Lahat Regency, South Sumatra, is well-known for their *Petata Petiti Baghi* tradition, which prohibits polluting upstream bathing areas and discarding branches into rivers. The community is forbidden from disposing of waste into rivers. The *Petata Petiti Baghi* tradition includes ancestral instructions to protect rivers and lakes as customary rights or communal property (Hanifah, 2003).

Customary environmental law concerning water and rivers is practiced in written form by the Tenganan Pegringsingan traditional community in Bali, known as *Awig-awig*. It regulates the distribution of water through the *subak* system, the conservation of water, the management of rice fields in relation to water and irrigation systems. Additionally, it stipulates sanctions for violations, which include physical and religious punishments (Umiyati, 2023). Physical sanctions range from warnings and fines to water channel closures, confiscation of property and revocation of water access rights. Religious sanctions involve obligations, such as performing traditional ceremonies to restore the mystical balance disrupted by the violation (Nurjaya, 1985). These regulations, emerging from the community's real-life dynamics, have successfully maintained order and harmony in daily life (Fitria, 2020).

Regarding marine protection and utilization, relevant regulations are found in the *Adat Sasi* institution in Haruku, Maluku and the *Panglima Laot* institution in Aceh. Marine *Sasi* governs the management of coastal waters, prohibits the exploitation of certain marine resources, bans coral reef extraction, forbids marine pollution and restricts the use of fine-mesh nets (*kararo*) and motorized boats in specific marine areas (Saptenno & Timisela, 2024). Disposing of any waste into rivers, including urination and defecation, is strictly forbidden, with violations resulting in fines (Imami, 1996). Breaching the *Adat Sasi* rules can also lead to public humiliation or a curse from the local ruler or king (Imamulhadi, 2015). Similarly, the customary rules of *kenduri laut* practiced by the *Panglima Laot* institution include prohibitions on fishing during specific days, such as major Islamic holidays (Eid al-Fitr and Eid al-Adha), Fridays, and Indonesia's Independence Day (17 August). It also forbids to use destructive fishing methods, as well as catching dolphins and turtles. Sanctions for violations include fines, confiscation of fishing equipment and temporary bans on fishing activities, based on Text of the Decision from the Deliberation of the Panglima Laot Customary Law Institution of Aceh, Banda Aceh, 6–7 June 2000. The *Adat Sasi* regulations closely resemble the *Lubuk Larangan* (Warawarin, 2017) rules applied among the Haruku indigenous community in Maluku Province.

The customary environmental law among the Datok Rangkayo Mulyo traditional community of Jambi Malay prohibits various activities such as clearing, selling, logging, hunting and extracting resources from the forest. It also imposes an obligation to protect forests, with penalties including fines in the form of livestock or village contributions (CIFOR, 2006). Similar rules apply among the Dayak communities in Kalimantan and the Tau Ta'a ethnic group in Marowali, Central Sulawesi, where forests are regarded as ancestral heritage (Department of Education & Culture, 2003) that must be preserved in their original state, with violations punishable by fines and curses (Camang, 2002).

According to *Sanghyang Siksakandang Karesihan Manuscript*. Old Sundanese Manuscript (Wahjuni, 2020), among the Sundanese ethnic groups, including the Baduy, Kampung Kuta, Kampung Dukuh, Kampung Naga and Kasepuhan Pancer Pangawinan communities, there are regulations governing the utilization of space based on spatial planning known as *Saur Sepuh*, which is regarded as ancestral commandments. These rules are in the form of instructions as follows.

Gunung Kaian (mountains must be planted with trees)

Gawir Awian (cliffs must be planted with bamboo)

Cinyusu Rumateun (springs must be maintained)

Sampalan Kebonan (fields must be cultivated as gardens)

Pasir Talunan (hills must be farmed using the *talun* system – planting various types of plants in an area

Dataran Imahan (houses must be built on flat land)

Lebak Caian (rice fields must be irrigated)

Legok Balongan (water-rich lowlands must be used for fish farming)

Situ Pulasaraeun (lakes must be preserved)

Lembur Uruseun (villages must be managed)

Walungan Rawateun (rivers must be protected)

Basisir Jagaeun (the sea must be safeguarded)

In addition to the Sundanese communities, regulations on land use are also present among the Minangkabau ethnic groups in West Sumatra. These rules take the form of proverbs, the following Minangkabau proverbs provide guidance to the community on land utilization (Novendra, 2003):

Nan tereng ditanam tabu (steep land should be planted with sugarcane)

Nan tunggang ditanam buluah (land with deep roots should be planted with bamboo)

Nan gurun buek ka parah (desert land should be turned into gardens and fields)

Nan bancah jadikan sawah (wet land should be used for rice fields)

Nan munggu ka padam pekuburan (high land should be designated for burial grounds)

Nan gauang ka tabak ikan (pitted land should be used as fish ponds)

Nan lambah kubangan kabau (valleys should be used as buffalo wallows)

Nan padek ka perumahan (solid ground should be used to build houses)

To obtain a more detailed picture of customary environmental law as the legal system of ethnic communities in Indonesia, refer to Table 1:

Types of sanctions

In return for breaking the law, customary fines can take the form of money or valuable items, such as livestock and jewellery (Camang, 2002; CIFOR, 2006; Kusnadi, 2003; Decision of Panglima Laot Customary Consultation, 2000; Imamulhadi, 2015; Nurjaya, 1985; Umiyati, 2023). In the Haruku indigenous community, physical sanctions can take the form of public humiliation and ostracism of the offender, as

Table 1. Legal forms applied in customary law.

Form of law	Customary community	Examples
Commands, Obligations	Datok Rangkayo Mulyo (Jambi) Panglima Laot (Aceh), Haruku (Maluku), Mandailing Natal, Basemah (Lahat), Sundanese and Balinese community	• What is damaged must make repaired. • Farming must be conducted collectively. • Sustainability must be jointly maintained. • Fishing must be done using nets and fishing rods. • Fruits can only be taken if the seeds are planted in return. • Sacred forests must be protected. • Customary rules must be upheld without deviation. • Obeying customary law is a matter of honor. • Sacred forests must be protected • The balance of nature must be maintained • All objects and living beings must be respected
Prohibitions, Taboos	Datok Rangkayo Mulyo (Jambi), Panglima Laot (Aceh) and Haruku (Maluku)	• Cutting down trees near river sources or on steep slopes is prohibited. • Going to sea on Khanduri Laot day is forbidden. • Extracting coral reefs is not allowed. • Catching dolphins and turtles is prohibited. • Fishing using destructive methods is forbidden. • Cutting down trees is coastal areas is prohibited. • Catching fish during breeding and spawning seasons is not allowed. • Polluting rivers is forbidden. • Extracting coral reefs is not allowed. • Damaging and polluting the sea is forbidden. • Using fine-mesh nets (*kararo*) is prohibited. • Using motorized boats in specific marine areas is not allowed. • Dumping any waste into rivers, including urination and defecation, is strictly prohibited.
Proverbs	Minangkabau and Sundanese communities	• Proverbs regarding land and space use.
Written law	Basemah community Balinese community Sundanese community	• Petata Petiti Baghi • Awig-Awig • Saur Sepuh
Unwritten law	All indigenous communities in Indonesia except Basemah, Bali and Cirebon	• Behavioral rules that exist within traditional communities and are passed down orally.

Sources: Result of Researcher's Analysis, 2024. From Novendra (2003); Wahjuni (2020); Camang (2002); Imami (1996); Department of Education and Culture (2003); CIFOR (2006); Text of the Decision from the Deliberation of the Panglima Laot Customary Law Institution of Aceh, 2000; Imamulhadi (2015); Nurjaya (1985); Umiyati (2023); Hanifah (2003); Kusnadi (2003); Kantor Dinas Sosial Provinsi Bengkulu (2003).

practiced by the Kasepuhan Pancer Pangawinan indigenous community, the sanction of being prohibited from performing certain actions as practiced by the Tengganan Pagrisingan indigenous community (Imamulhadi, 2015), and the temporary suspension of fishing activities as practiced by the Panglima Laot indigenous community (Decision of Panglima Laot Customary Consultation, 2000). In order to counterbalance the shock caused by the violation of the law, the main sanction for each offender is the performance of a traditional ceremony (Nurjaya, 1985; Imamulhadi, 2015).

As a result of the analysis in describing how the forms of customary sanctions applied to violations of the law can be seen in Table 2:

In comparative terms, an analysis grounded in legal principles reveals that both Thai and Vietnamese researchers have documented the existence of customary environmental law within their respective indigenous communities. Nonetheless, these studies have predominantly concentrated on the dimension of local wisdom rather than explicitly addressing the legal characteristics of these norms. Consequently, the researchers have not classified their findings as customary environmental law. For example, Nitthima Boonchaliew and Surasingh Sangsod's investigation of the Karen ethnic group in Ban Mae Ka Piang, Thailand, identified several customary rules governing environmental management. These include prohibitions on hunting wild fauna, felling wild banana trees within forests and establishing dwellings or agricultural activities in watershed areas. The Karen community differentiates between communal and conservation forests, with strict prohibitions on the use and burning of conservation forests, while advocating for the prudent use of communal forests. Violations of these customary rules are subject to sanctions, such as the performance of traditional ceremonies (Boonchaliew & Sangsod, 2022). However, the legal implications of these rules were not the primary focus of the research, leading the authors to describe them as manifestations of local wisdom rather than as formal customary law.

Similarly, research conducted in Vietnam by Ngo Van Hong and colleagues on the Nung ethnic community identified several customary environmental regulations, including bans on exploiting sacred forests, cutting or collecting trees near forest temples and inter-family disputes over forest resources.

Table 2. Types of sanctions.

Types of sanction	Customary community	Examples
Fines	Datok Rangkayo Mulyo (Jambi) Haruku (Maluku) Tengganan Pagringsingan (Bali) Panglima Laot (Aceh)	• Sheep, chickens, pigs, cloth, *boreh* (goods or valuable documents provided as collateral for a debt), and a piece of iron. • Money. • Money. • Money.
Public shaming	Haruku (Maluku)	• Light and moderate offences result in the offender being paraded around the village as an example.
Ostracism/banishment	Kasepuhan Pancer Pangawinan (Banten Kidul) Baduy	• Ostracized to the forest for a set period of time. • Banished from the traditional village.
Confiscation	Panglima Laot (Aceh)	• Seizure of boats and fishing equipment used in violations.
Activity restrictions	Panglima Laot (Aceh)	• Prohibited from fishing for a specific period of time.
Revocation of rights	Tengganan Pagringsingan (Bali)	• Denied access to water for a specified duration.
Curses	All studied customary communities in Indonesia	• Affliction with misfortune and disasters.
Performance of customary rituals	All studied customary communities in Indonesia	• Purification ceremonies • Exorcism rituals • Ceremonies for giving offerings.

Sources: Result of Researcher's Analysis, 2024. From Kusnadi (2003); Umiyati (2023); Nurjaya (1985); Imamulhadi (2015); Decision of Panglima Laot Customary Consultation (2000); Camang (2002).

The community is obliged to safeguard sacred forests, and breaches of these norms may result in social sanctions such as expulsion or ostracism, with expulsion representing the most severe consequence (Hong et al., 2018). As with the Thai case, the Vietnamese researchers did not frame these findings within a legal context, instead focusing on their cultural and social significance.

Gender roles in compliance (enforcement)

The enforcement of customary environmental law primarily relies on compliance mechanisms. In certain ethnic groups, mothers play a crucial role in ensuring adherence through their teachings. The role of mothers is highly strategic in ensuring that the community understands and abides by the law. In these communities, a mother's words must be followed, and disobeying them is deemed disgraceful (Imamulhadi, 2011). Mothers instill knowledge of customary environmental laws in children from an early age, imparting rules, such as prohibitions against polluting rivers, damaging trees, disturbing springs or entering sacred forests (Imamulhadi, 2011). This method of legal awareness, where mothers serve as educators and role models, aligns with Ritzer's perspective, which states that a mother influences a child's personality through a continuous and personal relationship (Ritzer & Goodman, 2013).

Positioning mothers as legal awareness agents is a remarkably astute concept, as they play a fundamental role in instilling moral values (Berger & Berger, 1984). Mothers are effective in shaping children's characters to become more responsible and virtuous. The period during which parents nurture their children is critically important (Mc Clleland, 1984; 1990). In many traditional communities, women play a key role in the management of natural resources and agriculture (Dennis & Bell, 2020). Moreover, female participation and leadership in customary justice systems are essential (International Development Law Organization [IDLO], 2023). Women's involvement in customary justice systems is crucial in fostering positive change (Ryan, 2022).

In the context of compliance, role modelling is significant. Positive attitudes toward law and its implementation are influenced by the behavior of parents and law enforcers as role models (Fine et al., 2020). Any inconsistency between words and actions negatively affects compliance. Therefore, the conduct of parents and law enforcers must be consistent with the principles they advocate. Exemplary conduct is important because humans have a natural tendency to imitate, making it an integral part of the learning process (Shaw & Costanzao, 2006).

In the Sundanese traditional community, for customary rules to be observed, parents must practice the expression '*kolot mah kudu melak lampah*,' which means setting a good example (Ria Andayani, 2003). Among the Ammatoa ethnic group, law enforcers must uphold '*kala'birang*' or honor, and maintain moral integrity, as their failure to do so leads to the misbehavior of future generations and suffering within the community (Purba, 2003). The Ammatoa people believe that misfortunes and disasters are caused by the deviant actions of their leaders. Supervision in compliance is crucial and can be adapted from ethnic

communities. In these societies, supervision is not solely the responsibility of law enforcers; instead, the entire community plays a role in monitoring one another. However, law enforcement actions remain the prerogative of customary leaders and designated functionaries, rather than being carried out indiscriminately.

The supervision model practiced by ethnic communities operates on the principle of 'from the people, by the people, and for the people.' This model is significantly different from the supervision systems adopted in modern societies. Modern societal supervision is rigid, as it must meet formal qualifications, such as authority, rank and position, along with certification as a supervisor. Individuals without such certification are not permitted to carry out supervisory duties. Meanwhile, obtaining a certificate requires meeting specific rank and position criteria.

The transformation of the supervision model practiced by traditional communities requires that provisions on oversight in legislation be based on the principle of 'from the people, by the people, and for the people.' Legislation must provide opportunities and authority for all members of society to participate in supervision. Officials must not monopolize the oversight function in the utilization and preservation of the environment. To implement the principle of 'from the people, by the people, and for the people,' all levels of society should be granted the right to monitor environmental management practices carried out by the state and corporations. If any violations are discovered, the public should have the right and responsibility to report them to investigators.

Dispute resolution

The concept of an environmental guardian is implied in the resolution of ethnic community disputes. In dispute resolution, the ethnic leaders, in deliberations or customary court sessions, position themselves not only as the leader of the community but also as a representative of environmental interests. The ethnic leader always consults nature, both before the dispute resolution process and when delivering a decision. The leader is aware that they are part of nature, live alongside nature and depend on nature. This awareness fosters a deep sense of empathy toward nature, and they feel personally harmed when it is subjected to unjust treatment.

This concept of an environmental guardian differs from Christopher Stone's theory of guardianship. Stone's environmental guardianship theory emerged from the search for a theoretical basis for environmental organizations to have legal standing, enabling them to bring cases to court and file lawsuits on behalf of environmental interests (Takacs, 2022). His theory is based on environmental moral philosophy, which recognizes nature as a legal subject (Santosa, 1997). Meanwhile, the concept discussed here is based on the awareness and conviction that the ethnic leader, as an adjudicator, is inherently part of nature, lives with it, and depends on it. They adjudicate polluters and perpetrators of environmental harm by positioning themselves as part of the environment. In this way, the judicial process conducted is akin to presenting the perpetrator before nature itself.

The concept of an environmental guardian offers inspiration for reforming environmental dispute resolution in the judicial system. The transformation of this concept requires that judges (in the Civil Law System) and juries (in the Common Law System) be appointed and selected from individuals who recognize themselves as part of nature, live within it, depend on it and possess deep empathy toward it. Therefore, judges and juries should be chosen from among environmental activists and conservationists who actively advocate for environmental preservation. A deep commitment to and sensitivity toward environmental issues should be additional criteria in the selection of judges and jurors (Khasanah & Lumbanraja, 2022). Members of the judiciary and juries should be required to obtain environmental certification. Environmental policy in the United States is heavily influenced by civil litigation which is used by government, environmental groups and industry to shape environmental protections (Rea et al., 2024).

Transformation model

The authors do not propose the application of customary environmental law in modern states. Instead, the fundamental principles of customary environmental law are relevant as a source of inspiration to complement modern environmental law. The principle of ecological balance aligns closely with ecosophy.

In essence, modern environmental law seeks a balanced relationship among ecological elements based on their functions and roles within the ecosystem. The principle of ecological balance, as practiced by ethnic communities, can be transformed into a principle of balance relationships among environmental components within an ecosystem.

In the modern context, the principle of public safety, as practiced by Indonesian traditional communities, can serve as an inspiration to redefine the meaning of public interest in environmental management. Public interest should be based on the aspect of human safety rather than being determined by a majority vote. The majority vote often prioritizes material gain while neglecting public safety. The principles of customary environmental law uphold the universal right to equality for all ecological entities. This principle of equality aligns with the ecocentric paradigm, which emphasizes interspecies justice and equity (Levesque, 2016). In modern contexts, this principle is suitable for transformation into the principle of equality among environmental components. Recognizing the environment as a legal subject inherently acknowledges a legal relationship of equality between humans, as one of the components of the environment, and other elements, such as space, objects, energy, conditions and non-human living beings.

Customary environmental law places greater emphasis on interspecies justice. In modern states, the law must prioritize utility alongside certainty and justice, as stated by Gustav Radbruch in his triad theory (Leawoods, 2000). Radbruch considers utility the primary objective of law, as it influences the implementation of legal certainty and justice. However, if utility is prioritized excessively, justice may be compromised and legal violations may occur (Ward, 1992). In the context of environmental law, long-term benefits are crucial (Barkley et al., 2023). The cost of environmental restoration due to violations, such as the damage of 3000 hectares of forest land, exceeds one trillion rupiahs, far surpassing the short-term benefits derived from policies that relax restrictions on burning according to South Jakarta District Court Decision Number: 591/Pdt.G-LH/2015/PN.JKT.Sel. Therefore, the law must prioritize interspecies justice as a central legal objective.

Failures in environmental law enforcement often result from laws not being implemented strictly and consistently. To address this weakness, the principle of strict and consistent law enforcement, as practiced by Indonesian ethnic communities, must be adopted after it is transformed into an absolute principle of environmental law. Enacted legal regulations must remain inviolable unless they are revised or replaced. Until revision or replacement occurs, no exceptions or discretionary policies can be applied to these regulations.

To prevent environmental law from appearing rigid and to enhance public acceptance, it needs to be transformed into proverbial expressions. Such expressions tend to be more memorable due to their poetic and profound nature. The majority of the public, especially the lower socio-economic classes, often show little interest in reading legislation. Whereas, laws formulated as proverbs are more effective in conveying commands and prohibitions. Therefore, environmental laws should not always be framed in normative language consisting solely of directives and prohibitions. It should be considered that the legislation is written in the form of proverbial expressions rather than structured articles. Commands to conserve forests within environmental law can be formulated through proverbs, such as 'nature is honoured, forests are sanctified; protect the forests to ensure their sustainability.' Prohibitions against environmental destruction can be expressed in sayings like 'when nature is harmed, life falls into ruin; the body is broken, and misery follows in prison.' Such prohibitions may also be formulated in the form of taboos, such as 'it is taboo to cut down trees in the forest,' 'it is taboo to burn land' and 'it is taboo to litter.' For this purpose, the drafting of environmental legislation should involve literary and cultural figures. Their task is to transform normative legal language into expressions, proverbs, parental advice and taboos that are easier for the public to understand and remember. The legal meanings, consequences, types of sanctions and duration of penalties associated with these expressions and taboos can be further explained in the explanatory sections of legislative articles.

Sanctions in the form of public shaming are compelling, as they effectively strip violators of their dignity. These sanctions can be more severe than imprisonment or fines. In modern societies, public shaming can be transformed into publishing the identities of environmental polluters in the media. Such forms of environmental offender exposure, as practiced in China and Indonesia, remain highly relevant. Social punishment, combined with ostracization, is expected to be a powerful deterrent for offenders. This approach is particularly applicable to those convicted of environmental destruction, as these crimes have systemic impacts (Earnhart & Friesen, 2023). Pollution and deforestation caused by plantation expansion activities transcend regional boundaries and disrupt the economic foundations of the state.

Customary sanctions of ostracization include prohibiting the violator from attending community events, receiving visits when ill, having their funeral attended, or engaging socially. In modern contexts, ostracization could transform into bans or blacklisting. This might involve prohibiting individuals from forming business relationships, working with them, attending their events, marketing their products or granting operational permits to companies responsible for environmental destruction. Blacklisting is more effective than incarceration, as it does not burden the state and has far-reaching consequences.

The role of gender in raising awareness of customary environmental law is significant, with mothers acting as strategic agents of consciousness. The ecofeminist perspective suggests that women, due to their maternal roles. Stoddart and Tindall (2011) have a closer connection to the environment and uphold stronger environmental values. Mothers serve as effective role models for their children, and the empowerment of women represents a crucial initial step (Cousins, 2021). *The Convention on Biological Diversity* 1992 Paragraph 15 acknowledges the vital role of women in conservation and emphasizes the need for their full participation in policy-making and implementation related to biodiversity conservation.

Gender roles in Indonesia receive special attention, and women's contributions to environmental protection and management are not disputed but instead recognized. Nurhayati, Executive Director of WALHI from 2016 to 2021, has been acknowledged as a national environmental hero. She advocated for the right to a clean and healthy environment while fighting against environmental injustice. Petronela Merauje, another female environmental hero, received the Kalpataru Award from the Indonesian Minister of Environment and Forestry in 2023 as an Environmental Guardian for her success in preserving and protecting forests in Papua.

Given their strategic role, environmental legislation dissemination and implementation must prioritize the role of women. Women should be key targets of environmental law dissemination and should be given broader opportunities to become environmental managers, both in formal positions and in their domestic roles. It is also important to provide more space for women to serve as environmental judges in courts. Women must be further empowered in environmental protection and management, especially in informal environmental education for children. Women should be actively involved in the dissemination of environmental legislation, both as participants and as resource persons. They should be granted the rights and responsibilities to educate their children on environmental law.

Traditional communities believe that all forms of violation disrupt the natural balance. To restore this equilibrium, in addition to imposing physical sanctions, immaterial sanctions must also be applied in the form of conducting traditional ceremonies. These rituals not only aim to restore the disrupted balance but also serve as a means of repentance. During such ceremonies, the violator pledges a commitment to refrain from repeating their offence. In the modern context, environmental restoration must be the primary focus of all sanctions, ensuring that every punishment includes an obligation to restore the environmental balance. When a judge imposes imprisonment and/or fines, the sanction of environmental restoration must be prioritized. Such restorative sanctions must accompany all other penalties. Beyond legal penalties, repentance is paramount. Judges must ensure that the defendant truly repents and will not repeat their actions. To reinforce this commitment, the judge's ruling should require the convicted individual to make a public declaration of repentance before the court and jury. The ruling should also stipulate that if the convicted individual violates this pledge in the future, their rights to manage and utilize the environment will be automatically revoked.

The legislation in the field of environmental protection that applies in Indonesia is heavily influenced by international conventions and treaties related to the environment**.** The nature and character of modern environmental law differ from customary environmental law, as illustrated in Tables 1 and 2. The differences primarily lie in the philosophical foundations, paradigms, principles, forms of norms, sanctions, compliance systems, enforcement and dispute resolution models. These differences can be seen in Table 3 as a result of analysis from various sources.

Conclusion

This study reveals that customary environmental law in Indonesia, grounded in local values, norms and cultural practices, offers a vital framework for enhancing national environmental legislation. By integrating principles, such as ecological balance, communal responsibility and interspecies justice and utilizing culturally

Table 3. Comparison.

Indicator	Customary environmental law	Modern environmental law
Philosophy	Participeren Cosmic	Ecosophy
Paradigm	Humans Adapt to Nature	Ecocentric
Principles	Balance of Nature; Restoration; Communalism; Equality; Interspecies Justice; Consistency	State Responsibility; Precautionary Principle; Early Prevention; Sustainability; Shared Responsibility; Eco Justice; etc.
Norms	Commands and Prohibitions in the Form of: Proverbs; Taboos; Parental Advice	Commands and Prohibitions in the Form of Legislation; Jurisprudence
Sanctions	**RELIGIOUS:** Performance of Customary Rituals; Receiving a Curse.	**CIVIL:** Compensation, Performing Certain Actions.
	MATERIAL: Fines; Public Shaming; Ostracism; Banishment; Confiscation; Prohibition of Performing Certain Actions; Revocation of Rights.	**CRIMINAL:** Imprisonment, Fines. **ADMINISTRATIVE:** Warnings; Government Coercion; Suspension of Activities; Revocation of Licences.
Compliance	Role of Family, Especially Mothers (Gender); Exemplary Conduct; Group Supervision.	Formal Procedural Supervision; Economic Instruments; Political Instruments; Technological Instruments.
Enforcement	Based on the Principles of: Balance of Nature; Restoration; Communalism; Equality; Interspecies Justice; Consistency.	Certainty; Utility; Justice.
Dispute Resolution	Deliberation; Customary Court Proceedings Based on the Concept of Environmental Guardianship.	Litigation, Negotiation, Mediation, Conciliation, Arbitration.

Sources: Result of Researcher's Analysis, 2024. From: 1972 Stockholm Declaration, 1992 Rio Declaration, 1992 UNFCCC, 2002 Johannesburg Declaration; Law of Republic Indonesia Number 23 concerning Environmental Protection And Management; Nurjaya (1985); Imamulhadi (2011, 2015).

resonant tools like proverbs, taboos and community sanctions, the law can become more effective and contextually relevant. The research highlights the important role of women, especially mothers, in promoting legal compliance and environmental stewardship and advocates for incorporating the concept of environmental guardianship within judicial processes, with judges drawn from certified environmental advocates. Incorporating these indigenous legal elements into formal environmental law promises a more inclusive, culturally aligned and effective approach to environmental protection and dispute resolution in Indonesia.

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Data availability statement

The data used to support the result of this study are available from the corresponding author. Access to the data may be granted upon reasonable request and with permission from the corresponding author, subject to institutional and ethical guidelines.

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