

Criminal Liability for Damage to Indonesian Mangrove Governance and Ecosystem

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ABSTRACT

The mangrove ecosystem has a strategic role in maintaining the balance of the coastal environment, preventing abrasion, and being a habitat for biodiversity. However, mangrove damage continues to occur due to land conversion, illegal logging and unsustainable development. This article aims to analyze how environmental criminal law in Indonesia provides protection for mangrove ecosystems, particularly through governance and conservation arrangements. The research method used is normative juridical with a statutory and conceptual approach. The results of the study show that the criminal provisions in Law Number 32 of 2009 concerning Environmental Protection and Management, as well as its derivative regulations, do not yet explicitly regulate sanctions for mangrove destruction. However, the application of criminal law still faces challenges in the aspects of law enforcement, proving elements of environmental crime, and weak coordination between institutions. Legal reform and strengthening law enforcement capacity are needed to ensure effective legal protection for mangrove areas.

KEYWORDS: environmental criminal law; mangrove; conservation; criminal Acts; governance

INTRODUCTION

The massive damage to mangrove ecosystems in various coastal areas in Indonesia is not only an ecological problem, but has also developed into a legal issue. Mangroves, as one of the most productive coastal ecosystems, have a strategic role in mitigating climate change, protecting beaches and economic sustainability of local communities. However, the existence of mangroves is increasingly threatened due to human activities, such as clearing ponds without permits, reclamation of coastal areas, illegal logging, and the conversion of protected forest areas into commercial land. These actions not only violate administrative norms and environmental ethics, but in many cases have fulfilled the elements of a criminal offense that can be prosecuted through environmental criminal law. The legal basis governing environmental protection, including mangrove ecosystems, is expressly stated in Law Number 32 of 2009 concerning Environmental Protection and Management (UU PPLH). This law emphasizes that every citizen and business entity has a responsibility to preserve the environment, and gives the state the authority to take firm action against perpetrators of environmental damage, including with criminal sanctions (Ridlo & Arsali, 2024). In the criminal provisions section, the PPLH Law contains repressive articles as a form of ultimum remedium, namely the last legal tool when administrative or preventive measures are no longer effective (Irfan et al., 2024).

One of the key articles in enforcing environmental criminal law is Article 98 paragraph (1) of the PPLH Law, which regulates sanctions for anyone who intentionally commits an act that causes environmental quality standards to be exceeded. The phrase "exceeding quality standards" indicates that enforcement of this article requires the existence of scientific indicators that prove that environmental conditions have experienced pollution or damage that exceeds the threshold specified in statutory regulations (Erwin, 2021). In the context of the mangrove ecosystem, this can be

demonstrated through evidence of habitat damage, decreased populations of aquatic biota, increased sedimentation, and changes in the chemical composition of soil and water which have an impact on the ecological function of the area. Damage arising from massive mangrove felling or reclamation without permission clearly fulfills the elements of a criminal act if it is proven that it was done intentionally (*dolus*), namely that the perpetrator knew and intended the consequences of his actions, including a decline in environmental quality. It is important to note that the provisions in Article 98 do not stand alone, but are closely related to the obligation of activity organizers to have environmental documents such as AMDAL or UKL-UPL, which are regulated in administrative provisions. When the perpetrator violates this document or does not have it at all and continues to carry out activities that have a destructive impact, then his actions can be considered to have exceeded environmental quality standards as intended in this article. This becomes the basis for law enforcement officials to carry out investigations and prosecutions based on environmental criminal law, as well as making it the final instrument of protection that is firm and has a deterrent effect (Mile et al., 2025)

Furthermore, Article 99 paragraph (1) of the PPLH Law also plays an important role because it expands the scope of criminal liability for acts committed negligently (*culpa*). In many cases in the field, damage to mangrove ecosystems is not always done with direct malicious intent, but can arise due to carelessness by business actors or local governments in approving permits for development projects that are not based on accurate environmental risk assessments (Rendra P.A & Juniarto, 2024). This kind of negligence still has a serious impact on the sustainability of the mangrove ecosystem, and therefore deserves to be subject to criminal sanctions in accordance with the provisions of Article 99. In this case, the strict liability approach or responsibility without fault can also be applied to business actors, especially corporations, whose activities are proven to damage the environment even though there is no element of intent. Both Article 98 and Article 99 show that the Indonesian environmental criminal law system has provided comprehensive legal instruments to prosecute perpetrators of mangrove destruction, whether done intentionally or through negligence. Its implementation requires cross-sector collaboration between environmental investigators (PPNS), police, prosecutors, environmental experts and judges who have a special understanding of the technical and scientific aspects of ecosystem damage. Thus, criminal sanctions are not only symbolic, but are actually carried out to maintain the ecological balance and sustainability of coastal areas which are very dependent on the presence of mangroves.

Apart from that, Article 100 and Article 101 of the PPLH Law also provide criminal sanctions against perpetrators who do not have environmental permits and continue to carry out activities that have the potential to pollute or damage the environment. This provision is very appropriate to crack down on the practice of converting mangrove land into ponds or residential areas without permits or valid AMDAL documents. Thus, legal protection for mangroves does not only lie in the conservation aspect, but also in taking firm action through criminal means against legal violations that have a real impact on the ecosystem. However, even though normatively criminal law instruments are available in a complete and adequate manner, their effectiveness is highly dependent on the ability of law enforcement, especially in the process of proving specific elements of environmental crimes. This includes proving the causal link between the perpetrator's actions and mangrove damage, measuring environmental quality standards, as well as expert testimony. Therefore, the implementation of Article 98 and other articles requires synergy between environmental investigators, prosecutors, judges, as well as technological support and scientific data to ensure that perpetrators of mangrove destruction do not escape legal accountability.

METHODOLOGY

This research uses normative legal research methods, with an approach that focuses on the study of legal norms written in statutory regulations and doctrine. This method was chosen because the main focus of the research lies in analyzing the provisions of environmental criminal law which regulate the protection and enforcement of the law against damage to the mangrove ecosystem, especially as regulated in Law Number 32 of 2009 concerning Environmental Protection and Management, as well as its derivative regulations (Hidayah et al., 2023). The approach used is a statutory approach and a

conceptual approach. A statutory approach is used to analyze environmental criminal norms, while a conceptual approach is used to explore criminal and environmental law theories that underlie the protection of mangrove areas.

The data used is secondary data consisting of primary legal materials, namely related laws and regulations, such as the PPLH Law, Forestry Law, and Criminal Code (KUHP), as well as secondary legal materials such as books, scientific journals, legal articles, and relevant previous research results. Apart from that, this research also uses tertiary legal materials, such as legal dictionaries and encyclopedias, to strengthen understanding of concepts. Data collection techniques were carried out through library research, while data analysis was carried out qualitatively, by describing, interpreting and concluding the legal data that had been collected to answer the problem formulation systematically. Through this method, it is hoped that a clear picture can be obtained regarding criminal law enforcement in protecting and managing mangrove ecosystems in Indonesia.

RESULTS AND DISCUSSION

Forms of Criminal Liability for Damage to the Governance and Ecosystem of Indonesian Mangroves

The mangrove ecosystem is an integral part of the sustainability of the coastal environment which has various irreplaceable ecological, economic and social functions. Ecologically, mangroves act as a natural fortification against coastal erosion and sea water intrusion, maintaining the stability of the coastline, as well as being a spawning, rearing and shelter for various types of marine biota such as fish, shrimp and crabs. In addition, mangroves have a significant ability to absorb carbon emissions, even up to five times greater than ordinary tropical forests, making them one of the key ecosystems in mitigating global climate change (Umukoro, 2022). From an economic and social perspective, mangroves also support the lives of coastal communities, especially traditional fishermen, as well as supporting sustainable fisheries and ecotourism sectors.

However, this vital ecosystem is experiencing very worrying degradation due to human activities. Various exploitative activities such as the conversion of mangrove forests into shrimp ponds or plantation land, reclamation of beaches for residential or tourism areas, development of coastal industries, and systematic illegal logging have caused the destruction of thousands of hectares of mangrove forests in Indonesia. This damage not only has an ecological impact, but also causes long-term economic and social losses, such as loss of livelihoods for local communities, decreased fish catches, and increased risk of natural disasters in coastal areas (Moses-Oke & Erhun, 2022). This condition should be an alarm for the government and society to strengthen legal protection for the mangrove ecosystem (Rizqulloh & Widowaty, 2023). In the context of national law, protection of the environment, including mangroves, has received a constitutional basis as stated in Article 28H paragraph (1) and Article 33 paragraph (4) of the 1945 Constitution. Furthermore, it is specifically regulated in Law Number 32 of 2009 concerning Environmental Protection and Management (UU PPLH), which prioritizes the principle of sustainable development, the precautionary principle, as well as the responsibility of the state and the responsibility of every person in preserving the environment (Eryarifa, 2022).

Environmental criminal law as an *ultimum remedium* instrument functions not only to punish perpetrators, but also provides a deterrent effect and prevents wider damage. In this case, Article 98 paragraph (1) of the PPLH Law is a key provision that provides a strong legal basis for enforcing criminal law against perpetrators of mangrove destruction. The article states that "any person who intentionally commits an act that results in exceeding environmental quality standards will be punished with imprisonment for a minimum of 3 (three) years and a maximum of 10 (ten) years as well as a fine of at least IDR 3,000,000,000.00 (three billion rupiah) and a maximum of IDR 10,000,000,000.00 (ten billion rupiah)." This provision becomes very relevant in cases of mangrove destruction if it can be scientifically proven that the activities carried out have caused a decline in the quality of the environment. Apart from Article 98, the PPLH Law also provides room for additional criminal sanctions as regulated in Article 119 and Article 120, including criminal penalties against

corporations responsible for destructive activities. This is in line with the development of the concept of corporate criminal liability in modern environmental law(Hidup, 2024).

Therefore, law enforcement officials such as environmental investigators, prosecutors and environmental judges must have the capacity and courage to take firm action against perpetrators, both individuals and business entities, who are proven to be destroying mangroves. In the future, strengthening the protection of mangrove ecosystems requires synergy between law enforcement, community empowerment, increased technology-based monitoring (such as satellite imagery and drones), as well as the preparation of coastal zoning policies that support environmental sustainability. Strict and consistent enforcement of criminal law will be a strong signal that the state is here to protect the critical ecosystem that supports the lives of current and future generations.

Criminal responsibility in cases of mangrove damage cannot only be imposed on individual perpetrators, but also includes criminal responsibility of corporations and government officials(Rachmat, 2022). In practice, many companies open ponds or carry out reclamation without paying attention to environmental impact analysis (AMDAL) or even without environmental permits at all. Companies that obtain economic benefits from illegal activities can be held criminally liable based on the provisions of Article 116 of the PPLH Law which confirms that corporations can be held criminally liable if the criminal act is committed in the name of the corporation and provides benefits to the corporation(Susila, 2024). Apart from that, if government officials intentionally or negligently allow environmental damage to occur through deviant policies, then they can also be punished based on the principle of command responsibility or superior accountability(Elvany et al., 2024). Even though legal provisions are available, law enforcement in cases of mangrove destruction is often faced with various structural and cultural obstacles(Wattimena et al., 2021).

One of the main obstacles is the difficulty of proof, especially to prove a causal relationship between the perpetrator's actions and the ecological impacts that occur. This is exacerbated by the low capacity of environmental investigators and prosecutors in understanding the technical and scientific aspects of ecosystem damage. In addition, intervention from interested parties, such as large businessmen or regional officials, makes the law enforcement process less independent. Another factor that weakens the effectiveness of environmental criminal law is the lack of community participation in monitoring and reporting mangrove destruction, especially in remote areas(Erdianto, 2021). To answer these challenges, strengthening the substance, structure and legal culture aspects is needed. The substance of environmental criminal law needs to be developed with greater emphasis on strict liability or absolute responsibility, so that it is not too burdensome to prove elements of error(Dalam & Pidana, 2024).

On the structural side, it is necessary to increase institutional capacity, both in the form of training for law enforcement officers and the formation of a special unit for handling environmental crimes. Meanwhile, from the aspect of legal culture, it is necessary to build community legal awareness through environmental education and empowering coastal communities so that they become active partners in protecting the mangrove ecosystem. The application of additional penalties such as environmental restoration obligations, revocation of business permits, and compensation to the state can also be an important instrument in providing a deterrent effect and ensuring ecological justice.

From an environmental criminal law perspective, mangrove ecosystems must be placed as a subject of legal protection on a par with other environmental elements such as tropical rainforests and water resources. The existence of mangroves is not only important for local communities, but also has a national and global impact because of its ability to absorb carbon emissions and withstand the impact of natural disasters. Therefore, destruction of mangrove forests should be considered a serious environmental crime that involves the broad public interest. Unfortunately, legal awareness of the strategic position of mangroves has not been fully reflected in policy or in the implementation of criminal law.

Criminal Sanctions for Damage to Indonesian Mangrove Governance and Ecosystem

One of the fundamental weaknesses in enforcing environmental criminal law in Indonesia is that there is no specific classification of damage to the mangrove ecosystem as a separate offense in the statutory regulatory system. Law Number 32 of 2009 concerning Environmental Protection and Management (UU PPLH) and the new Criminal Code (KUHP) have indeed provided the basis for enforcing environmental criminal law with a more progressive approach. However, existing norms are still general in nature and do not explicitly regulate mangrove destruction as a specific form of environmental crime. This lack of specificity creates difficulties in proving the elements of the offense, especially when law enforcement officials have to link acts of mangrove destruction with phrases such as "exceeding environmental quality standards," which in practice requires scientific proof through complex and expensive laboratory test instruments, and involves environmental expert witnesses who are not necessarily available in every region (Sianura & Tamudin, 2023).

On the other hand, the characteristics of mangrove ecosystem damage which is rapid and difficult to restore requires the existence of legal instruments that are simultaneously preventive and repressive. Delays in the legal process can actually eliminate opportunities to save the ecosystem, so that the objectives of criminal law as a means of prevention and deterrence are not achieved. In this context, weaknesses in legal substance are exacerbated by weak aspects of enforcement, especially regarding corporate criminal liability. Even though Article 116 and Article 118 of the PPLH Law explicitly recognize corporate criminal responsibility for environmental crimes, its implementation in cases of mangrove destruction is still very minimal.

Facts on the ground show that many large and small companies systematically convert mangrove areas into ponds, industrial areas or luxury housing without going through the correct environmental permit mechanism. In fact, there is a practice of falsifying AMDAL (Environmental Impact Analysis) documents and data engineering to cheat the licensing process. However, legal action taken by law enforcement officials tends to be limited to administrative sanctions or fines which are light in nature and do not have a deterrent effect. Directors and company administrators, who in many cases are the intellectual actors behind strategic decision making, often escape criminal charges. This shows that the application of the principle of piercing the corporate veil is not yet optimal, namely piercing the veil of legal entities to hold individuals behind corporate entities who commit criminal acts accountable.

Therefore, legal reform is needed that explicitly includes mangrove destruction as an environmental crime with the character of a special material offense. In addition, increasing the capacity of law enforcement officers, the availability of environmental experts, and the courage to apply corporate criminal principles as a whole are the keys to ensuring the protection of mangrove ecosystems which have very high ecological and strategic value. It is also necessary to consider establishing a cross-sectoral environmental law enforcement unit that specifically handles damage to critical areas such as mangroves, with the support of monitoring technology and data-based rapid action mechanisms.

Not only the direct perpetrators, local government officials who give permits illegally or are negligent in monitoring mangrove destruction activities can also be held criminally liable. In this context, the doctrine of abuse of power and omission of liability becomes very relevant. When public officials fail to carry out their supervisory duties and instead become facilitators of environmental destruction through policy or omission, there is a legal loophole that allows the imposition of criminal sanctions on the basis of negligence or abuse of authority. This approach is in line with Article 111 of the PPLH Law which allows for criminalization of officials who deliberately fail to monitor or reject reports of environmental pollution. Furthermore, it needs to be emphasized that criminal law enforcement in mangrove protection cannot stand alone. Environmental criminal law must be placed in a complete legal system, which includes structuring regulations, permits, incentives, public education, as well as civil and administrative law enforcement. For example, apart from punishment, perpetrators of mangrove destruction must also be subject to environmental restoration obligations as regulated in Article 119 of the PPLH Law.

In international practice, this approach is known as the polluter pays principle, namely that parties who pollute or damage the environment are obliged to finance its restoration. In line with this, strengthening institutional capacity and synergy between institutions is a crucial foundation in building an environmental law enforcement system that is responsive and adaptive to the dynamics of damage to the mangrove ecosystem. Law enforcement officers such as the police, prosecutors, judges, and environmental civil servant investigators (PPNS) need to be provided with ongoing training that not only covers normative aspects of environmental law, but also scientific evidence methodology, an understanding of ecotoxicology, and ethical principles in handling environmental cases which often involve large economic and political interests.

This training must be cross-sectoral, involving academics, environmental NGOs and legal practitioners who have competence in the environmental field, in order to create high and consistent professional standards in all Indonesian jurisdictions. Furthermore, strengthening the role of indigenous peoples and local communities as the main actors in protecting mangrove ecosystems must be the main strategy in a participatory approach based on local wisdom. For centuries, coastal communities have developed traditional knowledge systems to maintain the balance of the mangrove ecosystem, such as prohibitions on cutting down certain trees, fishing area zoning systems, or community-based reforestation traditions. The government should adopt a restorative approach by involving local communities in policy formulation, monitoring and environmental restoration. In addition, protection of environmental defenders must be legally confirmed through instruments that guarantee security, freedom of expression and adequate legal protection. The phenomenon of criminalization of environmental activists who report mangrove destruction shows the existence of an asymmetry of power that must be remedied through legal alignment with the values of ecological justice.

However, it is important to realize that criminal law enforcement should not be the only instrument in environmental conservation strategies. The principle of *ultimum remedium* in criminal law requires that punishment be carried out as a last resort, when administrative instruments, environmental mediation, or educational approaches are no longer able to overcome the level of damage that has occurred. In this context, when mangrove damage has exceeded the ecological threshold which is marked by the loss of ecosystem functions such as coastal protection, fish spawning grounds, or carbon absorption, punishment becomes a necessary step to uphold ecological justice and provide a deterrent effect. Punishment of perpetrators, both individuals and corporations, must be seen not simply as a form of retaliation, but as an instrument of ecological restoration and social recovery. Within a restorative justice framework, punishment can be designed not only in the form of prison or fines, but also in the form of environmental social work such as replanting mangroves (reforestation), financing ecosystem restoration, and public apologies to affected communities. This approach not only fulfills the elements of legal responsibility, but also instills moral and social awareness in the perpetrators.

Thus, the environmental criminal law system in Indonesia needs to be reformed comprehensively so that it can accommodate the complexity of mangrove conservation issues, starting from substantive, procedural and implementation aspects. Political courage is needed from policy makers to place the issue of mangrove protection on the national strategic agenda, which is integrated into sustainable development policies, controlling climate change and disaster resilience. In addition, the active participation of civil society, media, academics and the private sector is very important to create a vibrant legal ecosystem that supports sustainability. Without concrete steps and firm implementation, Indonesia risks losing one of the most vital ecological assets for the nation's future whose existence is crucial for national food security, global climate stability, and the survival of millions of coastal communities who depend on the sustainability of mangroves for their livelihoods.

CONCLUSION

Mangrove ecosystem damage in Indonesia is a serious and complex environmental problem, which not only impacts the ecological aspect, but also the social and economic sustainability of coastal

communities. Environmental criminal law, especially as regulated in Law Number 32 of 2009 concerning Environmental Protection and Management, has provided a legal instrument to ensnare perpetrators of mangrove destruction whether carried out by individuals, corporations, or government officials. The application of criminal articles such as Articles 98, 99, and 116 of the PPLH Law provides a strong foundation for upholding ecological justice. However, in practice, the enforcement of criminal responsibility against perpetrators of mangrove damage still faces many obstacles, such as weak scientific evidence, low capacity of law enforcement officers, suboptimal implementation of corporate criminal responsibility, and the intervention of economic-political interests. In addition, the absence of specific regulations related to the protection of mangrove ecosystems means that the legal approach taken is still general and ineffective. For this reason, criminal law enforcement against mangrove damage must be carried out in an integrative manner by strengthening the legal structure, regulatory substance, and legal culture of the community. Criminal law must be implemented not only as a repressive tool, but also as a preventive and educational mechanism in maintaining environmental sustainability. Strengthening institutional capacity, community participation, and restorative justice-based approaches and environmental restoration are key to realizing fair, sustainable, and responsible mangrove ecosystem governance. And there is a need for special regulation and protection against damage to the governance and ecosystem of Indonesia's mangroves.

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