



Received: 12 September 2026 | Revised: 28 September 2026 | Accepted: 07 Oktober 2026

Reconstruction of an Ecosystem-Based Law Enforcement Model: Transformation of the Principle of Utility for the Restoration of Protected Forests

Harum Hardinda¹, Rahadi Wasi Bintoro², Sri Wahyu Handayani³

¹Jenderal Soedirman University, Central Java, Indonesia, harum.hardinda@mhs.unsoed.ac.id

²Jenderal Soedirman University, Central Java, Indonesia

³Jenderal Soedirman University, Central Java, Indonesia

Corresponding Author: harum.hardinda@mhs.unsoed.ac.id¹

Abstract: Indonesia, as a megabiodiverse country, faces serious challenges from the degradation of protected forests caused by land conversion into illegal agricultural areas. This study aims to analyze current law enforcement efforts against forest land conversion and formulate an environmental restoration-based law enforcement model grounded in the principle of legal utility. This study employs a qualitative method with a descriptive-analytical approach through a juridical-sociological study, comparing *das sollen* (legal norms) with *das sein* (practices in the field). The findings indicate that conventional criminal law enforcement, as reflected in the Bukit Daun Protected Forest encroachment case, remains predominantly punitive and formalistic, relying on imprisonment and fines with limited impact on ecosystem restoration. The proposed reconstruction emphasizes restorative sanctions through the *Polluter Pays Principle*, requiring offenders to restore environmental damage through the removal of illegal crops, replanting of indigenous species, and sustainable protection of hydrological functions. From the perspective of legal philosophy, the principle of utility requires law to provide tangible benefits for society. Therefore, law enforcement should shift from punishment alone toward comprehensive environmental restoration. Its effectiveness should ultimately be measured by the extent to which law restores protected forests as life-support systems and ensures ecological justice for present and future generations.

Keywords: Law Enforcement, Protected Forests, Environmental Restoration, Principle of Utility, Legal Reconstruction

INTRODUCTION

Indonesia is recognized as a megabiodiverse country with abundant natural resources. One of the principal components of this wealth is forest resources, which constitute an ecosystem consisting of an expanse of land containing biological resources dominated by trees within their natural environmental associations. Forests do not merely function as the lungs of the world, but also serve as pillars supporting life by providing various ecological, social, and

economic benefits. The utilization of forests in Indonesia has a strong legal foundation, as provided under Article 33 of the 1945 Constitution of the Republic of Indonesia. This provision states that the earth, water, and natural resources contained therein are controlled by the State and utilized for the greatest prosperity of the people.

Based on this constitutional mandate, the government designates certain areas as forest areas whose existence must be maintained. State control does not mean the granting of absolute authority to exploit forests; rather, it entails an obligation to regulate, administer, and manage forests sustainably for the welfare of both present and future generations.

Indonesia's forest resources have considerable potential to be developed as a source of funding for national development. This significant potential is associated with Indonesia's tropical forests, which contain diverse ecosystems as well as various species of animals and plants. Indonesian forests range from lowland and highland tropical forests to peat swamp forests, freshwater swamp forests, and mangrove forests (Jige et al., 2022).

Forest utilization is one of the determinants of successful sustainable forest management. Improper forest utilization can have significant impacts on forests and their surrounding areas. Forest management aims to obtain optimal benefits for the welfare of the entire community on a sustainable basis while maintaining forest conservation. It also seeks to obtain optimal, equitable, and sustainable forest products and services for society. Forest utilization includes the utilization of forest areas, environmental services, timber and non-timber forest products, as well as the collection of timber and non-timber forest products (Rodriguez-Perez et al., 2023).

Although forests are managed for the prosperity of the people, their utilization cannot be conducted arbitrarily. Conditions in the field demonstrate that forest utilization that does not comply with forestry procedures frequently causes permanent damage. An imbalance between economic interests and ecological conservation, particularly in sensitive areas such as protected forests, can trigger environmental degradation that harms the wider community. Therefore, management oriented toward sustainability is essential. Ensuring that every forest utilization activity is conducted within an appropriate legal framework is the principal means of ensuring that these natural resources remain an asset for national development rather than becoming merely a memory for future generations.

Field conditions demonstrate that forest degradation is accompanied by habitat fragmentation, excessive utilization, hunting, and illegal wildlife trade. The loss and destruction of wildlife habitats are caused by various human activities, including the conversion of natural forests into plantations and industrial crops, illegal logging, and forest fires. Illegal hunting and wildlife trade also continue to occur in response to market demand, including for pets, consumption, and traditional medicine.

Communities are often blamed for forest degradation even though some communities have historically inhabited forest areas for generations. A similar situation occurred in Tanjung Heran Village, Taba Penanjung District, Central Bengkulu Regency. On Saturday, May 3, 2025, at approximately 11:00 a.m. Western Indonesian Time, the defendant, Surliana alias Sur, was apprehended by personnel of the Specialized Criminal Investigation Unit of the Central Bengkulu Police while conducting plantation activities within the Bukit Daun Protected Forest Register 5. The defendant intentionally and without permission from the authorized official had, since July 2024, conducted plantation activities by clearing shrubs and the remains of felled trees within the forest area and planting coffee plants. The coffee seedlings had been purchased by the defendant from an agricultural store in Kepahiang Regency. The defendant had opened and occupied approximately three hectares of land, of which approximately one-half hectare had been planted with coffee (Argamakmur District Court Decision No. 159/Pid.Sus-LH/2025/PN Agm).

Land conversion, commonly referred to as land-use conversion, constitutes a change in the function of part or all of a land area from its originally planned function into another function that may have either negative or positive impacts on the environmental potential of the land itself (Alinda et al., 2021). When such changes are not controlled, they can cause significant losses in both physical and socioeconomic terms. One mechanism for controlling land conversion and activities involving forest areas is licensing. In general, licensing functions as an instrument for controlling community activities as well as an instrument of development engineering (Hamdani et al., 2023).

Environmental offenses in protected forest areas do not merely cause ecological losses but also have serious social and economic consequences for surrounding communities and affect the integrity of the State in implementing the principle of environmental justice. Although legal instruments governing environmental protection, such as Law No. 32 of 2009 on Environmental Protection and Management and Law No. 41 of 1999 on Forestry, have been enacted and strengthened by various implementing regulations, their implementation in the field has often been ineffective. Various violations in protected forest areas continue to occur and tend to recur without producing a sufficient deterrent effect on offenders (Ulfa et al., 2025).

From a juridical perspective, the effectiveness of law enforcement is influenced by the clarity of legal norms, consistency in enforcement, and the capacity of law enforcement institutions to perform their duties. In many cases, overlapping regulations, weak inter-institutional coordination, and limited human and financial resources for monitoring and enforcement have been identified (Elvany, 2024). In addition, slow legal processes and legal uncertainty constitute significant obstacles to achieving certainty and justice in environmental protection. Law enforcement officials may also face political or economic pressures from certain parties that obstruct fair and transparent enforcement.

From a sociological perspective, law enforcement cannot be separated from the sociocultural context of communities surrounding protected forest areas. Community relationships with forests, levels of legal awareness, and economic dependence on forest resources play important roles in determining the effectiveness of legal implementation. Considering these two perspectives, this study aims to analyze the effectiveness of law enforcement against environmental offenses in protected forest areas holistically through juridical and sociological approaches (Wibisono et al., 2026). The juridical approach is used to examine legislation, government policies, and legal practices implemented by law enforcement institutions. Meanwhile, the sociological approach is directed toward understanding social dynamics within communities, perceptions of law, and non-legal factors affecting compliance with environmental regulations (Annisa et al., 2024; Riza & Upara, 2025). Through these approaches, the study seeks to identify structural obstacles within the legal system as well as examine the roots of the problems from the perspective of communities as both subjects and objects of environmental policy.

Law enforcement and justice must employ an appropriate reasoning process, while law must be strengthened by evidence or material evidence to realize legal justice. The substance of law is determined by the conviction necessary to establish whether justice has been achieved in a particular case. Legal issues become concrete when law enforcement officials are capable of properly implementing and complying with legal rules.

Issues of justice and certainty as primary objectives pursued by human beings through the implementation of law have become increasingly complex. Such issues cannot easily be separated from circumstances in which competition has become increasingly intense, resulting in a growing demand for individuals to be treated fairly. The perception of justice among individuals is relative because justice cannot be separated from the involvement of human beings as legal subjects. At the same time, individuals position themselves within a framework

of values, whether values acquired from birth or developed through learning processes (Maria Andrea, 2025).

Courts have an important role in implementing law, while judges, as legal philosophers, must be guided by legislation through *rechtsvorming* (legal formation) and *rechtsvinding* (legal discovery) to fill existing legal gaps. In cases submitted to the court, judges as implementers of legislation may not refuse to adjudicate a case merely because there is no specific regulation governing it. In such circumstances, judges may engage in legal formation and legal discovery. In enforcing law, judges must also consider three important elements: legal certainty, legal justice, and legal utility.

Therefore, this study is expected to provide theoretical and practical contributions to strengthening Indonesia's environmental law enforcement system. Theoretically, the study broadens the perspective of legal analysis by incorporating a sociological dimension that is often neglected in conventional legal studies. Practically, the findings may provide input for policymakers, law enforcement officials, and civil society organizations in formulating more effective, responsive, and sustainable law enforcement strategies. The study also emphasizes the need for an interdisciplinary approach to environmental issues, given their complexity and their simultaneous involvement of legal, social, economic, and cultural dimensions. Based on the foregoing discussion, the research problems examined in this study are:

1. Law enforcement efforts against the conversion of protected forest areas into agricultural land.
2. Reconstruction of environmental-restoration-based law enforcement in protected forests on the basis of the principle of utility.

METHODS

This study employed a qualitative approach with a descriptive-analytical method to gain an in-depth understanding of the effectiveness of law enforcement in addressing environmental crimes in protected forest areas. The qualitative approach was selected because it is appropriate for examining complex social and legal realities, as well as exploring the perspectives, experiences, and strategies of actors involved in environmental law enforcement. The descriptive-analytical method was used to describe and analyze the implementation of environmental law enforcement, including the challenges encountered and the factors influencing its effectiveness.

RESULTS AND DISCUSSION

Law Enforcement against the Conversion of Protected Forests into Agricultural Land

Criminal law enforcement constitutes an effort to translate and realize the objectives of criminal law in practice. According to Van Hammel, criminal law consists of the principles and rules adopted by the State in fulfilling its obligation to enforce the law, namely by prohibiting conduct contrary to law (*onrecht*) and imposing suffering or sanctions on those who violate such prohibitions (Suriadi et al., 2024). Law enforcement constitutes part of the realization of legal certainty in Indonesia in accordance with the regulations established by the authorities.

Legal certainty is essential because, without certainty, it is impossible to formulate the legal rules required for effective law enforcement. The function of law is to guarantee order and regularity, and because of its importance, society often equates this function with the objective of law. The objective of law is to maintain and guarantee regularity, certainty, and order. Human life cannot function properly in the absence of regularity and order (Nurgozhina et al., 2025). For example, individuals cannot develop their business activities without certainty and order. People would not leave their homes to work or conduct business activities if they

lacked certainty that their homes and property would remain secure. Therefore, the view that the objective of law is to guarantee regularity, certainty, and order is not entirely misplaced.

Legal protection of forests in Indonesia is based on the principle of legal certainty and is regulated through various laws and regulations. Law No. 41 of 1999 on Forestry provides that state forests are forests located on land without land rights. Government Regulation No. 45 of 2004 on Forest Protection defines forest protection as efforts to prevent and limit damage to forests, forest areas, and forest products caused by various disruptive factors. Various laws and regulations governing forest management, utilization, and conservation constitute the legal framework for forest protection in Indonesia (Irfan, 2025; Rendah et al., 2024). Understanding the definition of forests, forestry law, and legal protection is essential for maintaining forest sustainability and the environment as a whole.

Consistent with Article 33 of the 1945 Constitution as the constitutional foundation requiring the earth, water, and natural resources contained therein to be controlled by the State and utilized for the greatest prosperity of the people, forestry administration must embody the principles of community welfare, justice, and sustainability. Forestry administration must therefore be conducted according to the principles of benefit and sustainability, community participation, justice, togetherness, transparency, and integration, while being based on accountability and ethical conduct.

The government plays an important role in formulating forest management strategies because all forests within the territory of the Republic of Indonesia are controlled by the State. State control over forests does not constitute ownership. Rather, the State authorizes the government to regulate and administer matters relating to forests, forest areas, and forest products; designate forest areas and change their status; regulate and establish legal relationships between individuals and forests or forest areas and forest products; and regulate legal acts relating to forestry (Fortuna et al., 2024).

The government also has the authority to grant permits and rights to other parties to conduct activities in the forestry sector. However, with regard to certain matters that are particularly important, large-scale, broadly impactful, and strategically significant, the government must consider public aspirations through the approval of the House of Representatives.

The findings indicate that environmental offenses in protected forest areas remain widespread, including illegal logging, unauthorized land clearing, forest encroachment, and illegal forest fires. In several study areas, these violations occur in an organized manner and involve various actors, ranging from local individuals to large-scale business operators (Abubakar & Handayani, 2023). Although forestry agencies and law enforcement officials have undertaken patrols and monitoring, the intensity of violations has not shown a significant decline. This indicates systemic weaknesses in the supervision and legal protection of protected forest areas.

Law enforcement conducted by authorities in North Bengkulu concerning forest clearing followed by conversion into agricultural land demonstrates that Surliana alias Sur binti Samsir (deceased) was legally and convincingly proven guilty of the offense of “working on, using, and/or occupying a forest area unlawfully,” as regulated under Article 78(2) in conjunction with Article 50(3)(a) of Law No. 41 of 1999 on Forestry, as amended by Law No. 6 of 2023 on the Enactment of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation into Law, as charged in the second alternative indictment of the Public Prosecutor.

The court imposed imprisonment on Surliana alias Sur binti Samsir (deceased) for three months, reduced by the period already spent in detention, and ordered that the defendant remain in detention. The court also imposed a fine of IDR 2,000,000 (two million rupiah), with a provision that if the fine was not paid, it would be replaced by one month of imprisonment.

The criminal sanctions were imposed on the basis that the defendant had been proven to have encroached upon the protected forest. The evidence included one machete and its sheath measuring approximately 50 centimeters in length, one sickle measuring approximately 40 centimeters, two planted coffee plants measuring approximately 30 centimeters, one planted coffee plant measuring approximately 60 centimeters, and one planted coffee plant measuring approximately 90 centimeters. The Argamakmur District Court subsequently adjudicated the defendant and ordered as follows:

1. Declaring that Surliana alias Sur binti Samsir (deceased) was legally and convincingly proven guilty of the offense of “working on a forest area unlawfully,” as charged in the second alternative indictment of the Public Prosecutor.
2. Sentencing the defendant to imprisonment for two months and seven days and imposing a fine of IDR 1,000,000 (one million rupiah), with a provision that if the fine was not paid, it would be replaced by one month of imprisonment.

The defendant's conduct was regulated and subject to criminal sanctions under Article 92(1)(a) in conjunction with Article 17(2)(b) of Law No. 18 of 2013 on the Prevention and Eradication of Forest Destruction.

Limitations of Punitive-Oriented Law Enforcement in Restoring Protected Forest Ecosystems

Punitive law enforcement remains necessary to establish accountability for violations in protected forests, yet its effectiveness becomes limited when punishment is treated as the endpoint of enforcement. Imprisonment and fines may establish legal certainty and sanction offenders, but they do not automatically restore the ecological functions that have been damaged. The central problem, therefore, is not simply whether the sanction is sufficiently severe, but whether the enforcement process produces an outcome corresponding to the object of protection: the recovery of the protected forest ecosystem.

The Bukit Daun case illustrates this gap. Surliana was convicted for clearing and cultivating approximately three hectares of protected forest, with coffee planted on part of the occupied area. The court imposed imprisonment and a fine, thereby providing a formal response to the violation. From the perspective of criminal law, the case demonstrates the operation of legal certainty and individual accountability (Chakraborty & Debnath, 2026). From an ecological perspective, however, the judgment leaves a fundamental question: what legal mechanism ensures that the cleared area is returned to its ecological function? This distinction reveals the difference between punitive effectiveness and ecological effectiveness. Acheampong et al., (2022) similarly find that environmental criminal sanctions in Indonesia have not fully achieved their restoration objectives, particularly because mechanisms for measuring and ensuring ecological recovery remain unclear.

The limitation becomes more evident when the temporal character of ecological recovery is considered. A criminal sentence operates within a predetermined period, whereas forest recovery requires a substantially longer process involving removal of illegal cultivation, soil rehabilitation, hydrological recovery, vegetation regeneration, and sustained monitoring (Muoki, 2025). Consequently, the completion of imprisonment or payment of a fine may terminate the offender's formal criminal liability without terminating the ecological consequences of the offense. Environmental restoration must therefore be understood not as an additional consequence of punishment, but as part of the fulfillment of legal responsibility itself (Munishi & Ngondya, 2022).

Fines also present a conceptual limitation when they are disconnected from the actual cost of ecological recovery. A monetary penalty imposed as retribution does not necessarily finance or compel restoration of the damaged ecosystem. This creates a gap between the Polluter Pays Principle as a normative principle and its practical implementation, which

remains weak in Indonesian environmental enforcement (Broquet, 2026). The relevant measure of legal utility consequently cannot be limited to the amount of punishment imposed; it must include whether the environmental harm has been effectively corrected.

Punitive enforcement also tends to position the offender as the principal object of the proceedings, while the ecosystem becomes predominantly the object of evidence. Such an approach is problematic in environmental cases because the protected forest continues to experience ecological consequences after the criminal proceedings have ended. Recent Indonesian environmental-law scholarship therefore emphasizes a shift toward restorative justice in which restoration and recovery become integral to enforcement rather than merely supplementary measures (Wu, 2024).

The limitation of the punitive paradigm consequently lies in its orientation toward the offender, sanction, and completed violation, whereas environmental protection requires orientation toward the ecosystem, consequences, and recovery. This does not mean abandoning criminal punishment. Punishment remains important for deterrence and accountability, but its legal utility is incomplete when it fails to contribute to the restoration of the protected forest. The fundamental challenge is therefore to transform enforcement from a model that merely ends with punishment into one that connects accountability with measurable ecological recovery.

Reconstruction of Environmental-Restoration-Based Law Enforcement in Protected Forests on the Basis of the Principle of Utility

The reconstruction of law enforcement against the conversion of protected forests requires a shift in the conception of what constitutes a legally successful sanction. The existing framework provides a strong normative basis for protecting forests through the Forestry Law, environmental legislation, and regulations governing forest protection and rehabilitation. However, the existence of prohibitions and criminal sanctions does not by itself guarantee the recovery of ecological functions once forest degradation has occurred. The central issue is therefore not the absence of legal norms, but the extent to which those norms are translated into an enforcement mechanism capable of producing ecological recovery. This distinction is essential because the legal protection of protected forests ultimately concerns the preservation of their function as life-support systems rather than merely the punishment of individuals who violate forest regulations (Rahmawati A. Damiti et al., 2025). The Forestry Law defines protected forests according to their primary function of protecting life-support systems through water regulation, flood prevention, erosion control, prevention of seawater intrusion, and maintenance of soil fertility.

From this perspective, the principle of legal utility must be reconstructed from a sanction-oriented conception toward an outcome-oriented conception. Legal utility should not be measured solely by whether an offender has been convicted, imprisoned, or fined, but by whether the enforcement process produces a tangible public benefit through the restoration of the ecological functions that the law is designed to protect (Mulawarman et al., 2026). This proposition is consistent with the broader principles of forestry administration, which require the management of forests to be based not only on benefit and sustainability but also on justice, participation, integration, and accountability (Kharisma, 2026). The meaning of utility therefore becomes substantive: a sanction is legally useful when it reduces the recurrence of environmental harm while simultaneously restoring the ecological asset that has been damaged.

The distinction becomes particularly important in the context of protected-forest conversion. When forest is cleared and converted into agricultural land, the legal injury cannot be reduced to the unlawful occupation of state-controlled land (Nefi et al., 2022). The conduct may alter soil structure, disrupt hydrological processes, reduce vegetation cover, fragment

habitat, and diminish the capacity of the forest to perform its life-supporting functions. The legal object of protection is consequently broader than the individual parcel of land or the state's administrative authority. It encompasses an ecological system whose benefits extend to communities and future generations (Bera & Nag, 2025). This ecological dimension requires law enforcement to respond to the consequences of the violation rather than stopping at the attribution of individual criminal responsibility.

The existing punitive model is insufficient precisely because it tends to terminate legal responsibility at the point of conviction. The Bukit Daun case demonstrates this tension. The defendant was convicted for unlawfully working on and occupying a protected forest area and received imprisonment and a fine. The judgment establishes accountability for the prohibited conduct, but the sanction itself does not necessarily establish a legally enforceable pathway through which the damaged forest must return to its ecological function. The problem is therefore not that imprisonment or fines have no legal value, but that their utility remains incomplete when the ecological consequence of the offense survives the completion of the sentence.

The reconstruction proposed in this study places restoration at the center of legal responsibility. This orientation is reinforced by Article 54 of Law No. 32 of 2009, which expressly requires every person causing environmental pollution or damage to undertake restoration of environmental functions. The provision identifies restoration through the cessation of the source of damage, remediation, rehabilitation, restoration, and other scientifically appropriate measures. Restoration is therefore not merely a policy preference or an ethical expectation; it constitutes an established legal logic within Indonesian environmental law. The reconstruction proposed here extends this logic into the enforcement of protected-forest conversion by connecting criminal accountability with a concrete and measurable restoration obligation.

The Polluter Pays Principle provides the economic and corrective rationale for this reconstruction. Its function should not be reduced to the imposition of monetary penalties. The principle requires the party responsible for environmental damage to internalize the costs generated by the damage, including the costs necessary to restore affected environmental functions. In the context of protected forests, this means that the consequences borne by offenders should correspond to the actual ecological burden produced by their conduct. A fine that is paid to satisfy a criminal judgment but does not contribute to ecological recovery may satisfy a punitive function while failing to satisfy the corrective dimension of environmental law. The relevant question is consequently whether the enforcement mechanism transfers restoration responsibility back to the party responsible for the damage.

This reconstruction requires an integrated enforcement architecture rather than a simple addition of restoration to criminal punishment. Administrative, civil, and criminal instruments should operate as complementary components of a single ecological enforcement strategy. Administrative enforcement should immediately terminate or prevent continuing damage and secure the affected area (Nefi et al., 2022). Civil enforcement should address environmental losses that extend beyond direct restoration costs, including losses associated with ecosystem services. Criminal enforcement should establish individual or corporate accountability while incorporating legally enforceable corrective obligations where appropriate. The multidoor approach is therefore not merely the simultaneous use of several sanctions; it represents a functional division of legal instruments according to the different dimensions of environmental harm (Kelang et al., 2025).

The reconstructed model also requires restoration to be formulated as a measurable legal obligation. Restoration cannot be equated with ceremonial tree planting or the superficial greening of degraded land. It should begin with the removal or cessation of illegal agricultural activities that prevent ecological recovery, followed by the rehabilitation of degraded soil and

hydrological functions, the re-establishment of native vegetation, and long-term ecological monitoring. The objective is not simply to increase vegetation cover but to recover the ecological processes that enable the protected forest to function as a self-sustaining life-support system. This orientation is consistent with the rehabilitation framework, which conceptualizes forest rehabilitation and reclamation as measures intended to restore, maintain, and improve forest and land functions so that their carrying capacity and role in supporting life remain sustainable.

The decisive innovation of the reconstruction therefore lies in changing the indicator of enforcement success. Under a conventional punitive paradigm, success is predominantly demonstrated through arrest, prosecution, conviction, imprisonment, or payment of fines. Under the reconstructed ecosystem-based model, these indicators remain relevant but are no longer sufficient. Enforcement effectiveness must additionally be evaluated through ecological outcomes: whether illegal land use has ceased, whether degraded soil and hydrological functions have been rehabilitated, whether native vegetation has been successfully re-established, whether ecological degradation has been prevented from recurring, and whether the protected forest has regained its capacity to perform its designated life-support functions. The object of evaluation thus shifts from the completion of a criminal process to the recovery of the protected ecosystem.

This reconstruction also changes the position of the judge within environmental adjudication. The judicial task should not be confined to determining whether the elements of a criminal offense have been satisfied. Within the framework of legal certainty, justice, and utility, judicial reasoning should consider the nature, scale, duration, and ecological consequences of the damage when determining an appropriate legal response. The principle of utility consequently becomes an interpretive bridge between legal accountability and ecological recovery: the most useful sanction is not necessarily the most severe sanction, but the sanction capable of producing the greatest legitimate recovery of the legal interests harmed by the offense. This proposition is consistent with the study's finding that judges must reconcile legal certainty, justice, and utility in the application of environmental law.

The reconstructed model can therefore be understood as a transformation from punitive enforcement to ecosystem-based enforcement. Its normative foundation remains criminal accountability, but its ultimate orientation is ecological restoration. Its operational structure integrates administrative prevention, civil compensation, criminal accountability, and restoration obligations; its substantive principle is Polluter Pays; and its measure of legal utility is the extent to which protected-forest functions are actually recovered. Such a model does not eliminate punishment but repositions punishment within a broader framework of ecological responsibility. The ultimate endpoint of law enforcement is consequently not the completion of the offender's sentence, but the restoration and long-term protection of the ecological system that the law exists to safeguard.

In this formulation, environmental restoration becomes the bridge between legal certainty, justice, and utility. Legal certainty establishes that conversion of protected forests is unlawful; justice requires that responsibility be imposed upon those responsible for the harm; and utility requires that the enforcement process generate a concrete and enduring benefit for society through ecological recovery. The reconstruction thus transforms the meaning of law enforcement from "punishing the violation" into "restoring the legal interest damaged by the violation." For protected forests, this transformation provides the foundation for an ecosystem-based enforcement model capable of linking criminal accountability with measurable ecological restoration and intergenerational environmental protection.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Criminal law enforcement in the forestry sector in Indonesia constitutes a manifestation of the mandate of Article 33 of the 1945 Constitution, under which the state holds full authority to regulate, manage, and protect forests for the prosperity of the people. Based on Van Hammel's theory, law enforcement is not merely a matter of norms on paper, but a concrete effort to impose sanctions on those who violate legal prohibitions in order to maintain ecosystem balance.

However, environmental crimes in protected forest areas, such as illegal logging and illegal land conversion, remain widespread. The forest encroachment case in North Bengkulu involving Surliana, who converted forest land into a coffee plantation, provides concrete evidence of systemic weaknesses in supervision. Although imprisonment and fines have been imposed under the Forestry Law and the Law on the Prevention and Eradication of Forest Destruction, the effectiveness of such penalties in curbing widespread and organized violations remains questionable.

The paradigm of forestry law enforcement has increasingly shifted toward a restorative approach and the *Polluter Pays Principle*. The primary focus of law enforcement is no longer limited to imposing punishment, but also encompasses the restoration of lost ecological functions. Through a multidoor approach, administrative, civil, and criminal sanctions are integrated to ensure that offenders bear full responsibility.

Ecosystem restoration involves complex technical processes, ranging from the removal of illegal commodities (*land clearing reversal*), restoration of soil hydrological structures, to the replanting of indigenous species. In conclusion, the success of forest protection in Indonesia depends heavily on strict supervision and a sustained commitment to maintaining restoration areas until they become self-sustaining. Law enforcement must ensure that forests continue to function as stable life-support systems for future generations, rather than merely serving as short-term economic commodities.

Limitations

This study is limited to the analysis of law enforcement against land conversion in protected forests and the reconstruction of an ecosystem-based law enforcement model based on the principle of utility. The analysis primarily relies on relevant legal provisions, literature, and selected case studies, so the findings are interpreted within the scope and context of the study. Further research may complement these findings through broader empirical data and field observations.

Recommendations

A fundamental transformation is needed in the law enforcement system for criminal offenses committed in protected forest areas. Law enforcement should no longer be solely oriented toward a punitive approach through imprisonment and fines, but should instead adopt a restorative approach that emphasizes the recovery of the ecological functions of forests. In this regard, the application of the *Polluter Pays Principle* is highly relevant, whereby offenders are not only subject to punishment but are also required to restore the environmental damage they have caused in a tangible and sustainable manner. Therefore, law enforcement needs to integrate administrative, civil, and criminal sanctions through a *multidoor enforcement* approach to create a deterrent effect while ensuring full responsibility for ecosystem restoration.

On the other hand, weaknesses in coordination among law enforcement agencies and overlapping regulations are factors that hinder the effectiveness of law enforcement. Accordingly, institutional capacity needs to be strengthened by enhancing synergy among law

enforcement authorities, forestry agencies, and other relevant institutions within an integrated system. In addition, improving human resource capacity and utilizing monitoring technologies, such as Geographic Information Systems (GIS), drones, and satellite-based monitoring, are strategic measures for preventing and detecting violations in protected forest areas at an early stage. Such preventive supervision is expected to reduce the incidence of violations that have tended to recur and occur in an organized manner.

Furthermore, a sociological approach should also constitute an integral part of environmental law enforcement. Communities living around protected forest areas should not be positioned solely as perpetrators of violations, but should instead be involved as partners in forest protection and management efforts. Through community empowerment programs, such as social forestry initiatives and legal education, it is expected that legal awareness can be enhanced while providing legal and sustainable alternative livelihoods. Thus, the economic factors that have contributed significantly to forest encroachment can be minimized.

Author Contributions

The author was solely responsible for all aspects of this study, including research conceptualization, development of the theoretical framework, literature and legal material collection, data analysis, interpretation of findings, preparation and revision of the manuscript, and final approval of the article for publication.

REFERENCES

- Abubakar, L., & Handayani, T. (2023). The Environmental Fund Management Model in Indonesia: Some Lessons in Legal Regulation and Practice. *Environmental Policy and Law*, 53(2–3), 205–217. <https://doi.org/10.3233/EPL-230013>
- Adu-Acheampong, S., Kyei-Mensah, C., & Kyerematen, R. (2022). Climate Change Adaptation: An Ecosystem-Based Approach For Livelihood Improvement Of Fringe Communities Around Worobong South Forest Reserve In Ghana. *International Journal Of Forestry Research*, 2022. <https://doi.org/10.1155/2022/2435419>
- Annisa, A. N., Riza, M., Yunus, A., Anas, A. M., Idris, I., & Fatimah Hidayat, I. (2024). Kebijakan Komplain Hijau: Strategi Pemulihan Lingkungan Berbasis Citizen Lawsuit. *Paulus Law Journal*, 125. <https://www.kompas.id/baca/opini/2021/11/16/Mewujudkan-Pembangunan->
- Bera, M., & Nag, P. K. (2025). Integrated Natural Resource Management And Sustainable Livelihoods: A Review Of Ecosystem-Based Approaches For Sustainability And Community Resilience. In *Agricultural And Rural Studies* (Vol. 3, Number 3). Scs Press. <https://doi.org/10.59978/Ar03030017>
- Broquet, M. (2026). *Information Management Enhancing Ecosystem-Based Disaster Risk Reduction Through Geoinformatics: Integrating Ecological Factors Into Assessment Practices Doctoral Programme*.
- Chakraborty, Dr. R., & Debnath, R. (2026). Climate Change Litigation And Forest Protection In India: Emerging Jurisprudence. *International Journal Of Creative And Open Research In Engineering And Management*, 02(05), 1–9. <https://doi.org/10.55041/Ijcope.V2i5.417>
- Elvany, A. I. (2024). Kebijakan Formulatif Tindak Pidana Di Bidang Perlindungan Mangrove Berbasis Konservasi Ekosistem Pesisir. *Veritas Et Justitia*, 10(2), 250–271. <https://doi.org/10.25123/Vej.V10i2.8493>
- Fortuna, C. M., Fortibuoni, T., Bueno-Pardo, J., Coll, M., Franco, A., Giménez, J., Stranga, Y., Peck, M. A., Claver, C., Basseur, S., Fernández-Corredor, E., Frascchetti, S., Garcia-Garin, O., Van Leeuwen, A., Louzao, M., Pedrajas, A., Raicevich, S., Ramírez, F., Ransijn, J., ... Katsanevakis, S. (2024). Top Predator Status And Trends: Ecological

- Implications, Monitoring And Mitigation Strategies To Promote Ecosystem-Based Management. In *Frontiers In Marine Science* (Vol. 11). Frontiers Media Sa. <https://doi.org/10.3389/fmars.2024.1282091>
- Irfan, N. P. I. U. (2025). *Green Investment Berbasis Blue Carbon: Potensi Perdagangan Karbon Dan Kebijakan Hukum Di Kawasan Pesisir. Volume: 12, Nomor: 2.*
- Jige, S., Mabhuye, E. B., Rogers, P. M., & Box, P. O. (2022). *Climate Change Impacts On Coastal Livelihoods And Ecosystem-Based Adaptation In Pangani District, Tanzania.* <https://ssrn.com/abstract=6960787>
- Kelang, N. D., Mina, R., Labatjo, R., Marzuki, A. U., & Riancana, R. (2025). *Perlindungan Hukum Ekosistem Mangrove Di Indonesia: Analisis Kerangka Hukum Dan Penindakan Terhadap Perusakan Di Kawasan Pesisir.*
- Kharisma, D. (2026). Dilema Izin Perkebunan Di Koridor Gajah Sumatra: Tinjauan Yuridis Penegakan Hukum Ekosistem Terfragmentasi Di Lansekap Bukit Tigapuluh, Jambi. *Jurnal Ilmiah Nusantara* (Jinu). <https://doi.org/10.61722/jinu.V3i3.9961>
- Maria Andrea. (2025). *Ecosystem Principles For British Columbia Protected Areas: Strategic Planning And Decision-Making In Wells Gray.*
- Mulawarman, M., Aisyah, N. R., Zahra, A. N., Amalia, D. R., & Sholeha, N. (2026). Perambahan Hutan Tesso Nilo: Tantangan Penegakan Hukum Dan Strategi Rehabilitasi Ekosistem Berkelanjutan. *Jurnal Abdimas Indonesia, Vol. 6, No. 3,(3).* <https://dmi-journals.org/jai/>
- Munishi, L. K., & Ngondya, I. B. (2022). Realizing Un Decade On Ecosystem Restoration Through A Nature-Based Approach: A Case Review Of Management Of Biological Invasions In Protected Areas. In *Plos Sustainability And Transformation* (Vol. 1, Number 8). Public Library Of Science. <https://doi.org/10.1371/journal.pstr.0000027>
- Muoki, K. (2025). *Global Perspectives On Natural Resource Management: Lessons And Best Practices For Africa.*
- Nefi, A., Fonger, S., & Akbar, A. (2022). Kepastian Hukum Terhadap Investor Hutan Tanaman Industri Pasca Terbitnya Peraturan Pemerintah Nomor 57 Tahun 2016 Tentang Perubahan Atas Peraturan Pemerintah Nomor 71 Tahun 2014 Tentang Perlindungan Dan Pengelolaan Ekosistem Gambut. *Jurnal Hukum & Pembangunan, 1(2).* <https://doi.org/10.21143/telj.Vol1.No2.1010>
- Nurgozhina, A. E., Menéndez Pidal, I., Dronin, N. M., Zhaparova, S., Kurmanbayeva, A., Idrisheva, Z., & Bukunova, A. (2025). Scenario-Based Evaluation Of Greenhouse Gas Emissions And Ecosystem-Based Mitigation Strategies In Kazakhstan. *Sustainability (Switzerland), 17(18).* <https://doi.org/10.3390/su17188362>
- Rahmawati A. Damiti, Parid Pakaya, Mawardi Heru Prasetyo, Dewi Wahyuni K. Baderan, & Ramli Utina. (2025). Stabilitas Ekosistem Hutan Indonesia Dalam Menghadapi Deforestasi Dan Kerusakan Lingkungan: Tinjauan Literatur. *Botani : Publikasi Ilmu Tanaman Dan Agribisnis, 2(2), 176–188.* <https://doi.org/10.62951/Botani.V2i2.343>
- Rendah, P., Yang Berkelanjutan, K., Irwan, M., Brigjen, J., Hasan Basri, J., Utara, K. B., Banjarmasin, K., & Selatan, K. (2024). *Prosiding Seminar Nasional Lingkungan Lahan Basah* (Vol. 9).
- Riza Kusuma, M., & Rahman Upara, A. (2025). Efektivitas Penegakan Hukum Lingkungan: Studi Kasus Wilayah Konservasi Hutan Mangrove Teluk Youtefa Effectiveness Of Environmental Law Enforcement: A Case Study Of The Youtefa Bay Mangrove Forest Conservation Area. In *Sigaruda Journal | Volume* (Vol. 1, Number 1). <https://ejournal.sociovisionary.com/index.php/garudajournal>
- Rodriguez-Perez, A., Tsikliras, A. C., Gal, G., Steenbeek, J., Falk-Andersson, J., & Heymans, J. J. (2023). Using ecosystem models to inform ecosystem-based fisheries management

- in Europe: a review of the policy landscape and related stakeholder needs. In *Frontiers in Marine Science* (Vol. 10). Frontiers Media SA. <https://doi.org/10.3389/fmars.2023.1196329>
- Suriadi, L. M., Denya, N. P., Shabrina, Q. A., Yuliana, R., Agustina, G., Kuspraningrum, E., & Asufie, K. N. (2024). Perlindungan Sumber Daya Genetik Ekosistem Mangrove Untuk Konservasi Lingkungan dan Keseimbangan Ekosistem. *Jurnal Analisis Hukum*, 7(2), 234–253. <https://doi.org/10.38043/jah.v7i2.5206>
- Ulfa, M., Fazriyas, F., Nurmansyah, R., Ahyauddin, A., & Maelan, B. (2025). Analisis Pendapatan dan Motivasi Masyarakat Dalam Kegiatan Restorasi Ekosistem Pola Agroforestry di Hutan Lindung Gambut Bram Hitam Provinsi Jambi. *Jurnal MeA (Media Agribisnis)*, 10(2), 145. <https://doi.org/10.33087/mea.v10i2.304>
- Wibisono, H., Hizbaron, D. R., Anantasari, E., Suarna, U., Retnowati, A., Bestari, A. H., Setiacahyandari, H. K., Rachmadan, F. A., Irbah, A., & Maharani, R. S. (2026). Contesting priorities and policy translation to implement ecosystem approach in Indonesia's FOLU net sink policy. *Discover Sustainability*. <https://doi.org/10.1007/s43621-026-03415-2>
- Wu, W. (2024). The Legal System of Natural Ecological Protection and Restoration in Newly Built Areas Based on the Multi-Dimensional Character-Istics of the Ecosystem. *Journal of Combinatorial Mathematics and Combinatorial Computing*, 122, 287–299. <https://doi.org/10.61091/jcmcc122-24>