

Legal Review of Biodiversity Protection and Conservation of Biological Natural Resources in Indonesia

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Abstract

This study examines the legal aspects of biodiversity (BD) protection and the conservation of biological natural resources in Indonesia. Using a normative–empirical legal research method, the study identifies substantial gaps between Law No. 5/1990 on Conservation of Biological Natural Resources and Their Ecosystems (KSDAHE) and the demands of contemporary conservation governance. Normatively, domestic regulations fail to adequately regulate Access and Benefit Sharing (ABS) and the protection of Traditional Knowledge (TK) of local communities, thereby creating vulnerabilities to biopiracy and distributive injustice. Empirically, criminal law enforcement against Illegal Wildlife Trade (IWT) remains ineffective due to lenient sentencing and difficulties in prosecuting organized crime networks, compounded by the limited use of preventive administrative instruments. The findings highlight the need for comprehensive legal reform focusing on integrating ABS and TK, strengthening criminal sanctions for biodiversity crimes, and



harmonizing overlapping sectoral regulations. The overarching goal is to transform conservation law into an adaptive, equitable, and sustainability-oriented regulatory regime.

Keywords: Biodiversity, conservation law, access and benefit sharing (ABS), law enforcement, regulatory reform.

INTRODUCTION

Indonesia is widely recognized as one of the world's megadiverse countries, hosting extraordinary levels of biological diversity and serving as a major pillar of global ecological stability (Kusumadewi, 2020). The archipelago contains approximately 10% of the world's flowering plant species, 12% of mammals, and 17% of birds (Setiawan, 2021). Biodiversity (BD) holds not only ecological value but also significant economic, social, and cultural importance, particularly for local communities that have long relied on sustainable use of biological resources. Consequently, the juridical obligation to conserve biodiversity is constitutionally mandated and reinforced by Indonesia's international commitments through various environmental treaties (Morgera, 2015).

Despite its richness, Indonesia's biodiversity faces increasingly complex threats. High rates of deforestation driven by plantation expansion and mining, rampant land conversion, and habitat degradation are the primary causes of biodiversity loss (Siregar, 2022). Moreover, transnational environmental crimes—especially Illegal Wildlife Trade (IWT)—have evolved into sophisticated, organized criminal activities with substantial ecological and economic impacts (Hasibuan, 2020). These challenges demand legal instruments that are not only reactive but also preventive and adaptive.

Indonesia's primary legal response is Law No. 5/1990 (KSDAHE). Although this law provides the foundational framework for species protection and conservation areas, critics argue that it is outdated and incapable of addressing modern conservation issues (Purwaka, 2019). The law remains largely preservation-oriented, lacking provisions that reflect modern biodiversity governance. Substantively, the law exhibits several critical gaps:

1. **Absence of ABS Regulation:** KSDAHE does not address Access and Benefit Sharing (ABS) mechanisms, a central issue under the Nagoya Protocol. This regulatory vacuum exposes Indonesia to biopiracy and undermines fair distribution of benefits (Sukmana, 2023).
2. **Weak Protection of Traditional Knowledge (TK):** Existing laws provide no comprehensive recognition of TK associated with biodiversity, despite its vital role in conservation.



3. **Regulatory Overlaps:** Conflicts between KSDAHE and sectoral regulations—especially forestry and environmental management—create legal uncertainty and weaken conservation area protection (Siregar, 2022).

Empirical evidence further indicates weak criminal enforcement. Penalties for IWT remain disproportionately low relative to ecological damage, and law enforcers struggle to prosecute organized networks. Limited training, evidentiary challenges, and on-the-ground corruption exacerbate the issue (Setiawan, 2021).

Previous studies have focused mainly on normative critiques of KSDAHE or case studies of wildlife crime. However, significant research gaps remain:

1. A lack of focus on preventive legal instruments such as ABS and TK-based rights.
2. Limited integrative analysis combining regulatory substance, legal harmonization, and enforcement challenges.

This study fills these gaps by offering a comprehensive examination of biodiversity protection law in Indonesia, emphasizing preventive and restorative legal instruments within a sustainable governance framework.

METHODS

This study adopts a normative—empirical legal research design. The normative component analyzes legal principles, statutory provisions, and doctrinal perspectives related to biodiversity protection. The empirical component examines the effectiveness of law implementation and identifies gaps between *das sollen* (what the law aspires to be) and *das sein* (what happens in practice), particularly in the enforcement of preventive legal mechanisms.

Primary empirical data were collected through in-depth interviews with law enforcement officials (PPNS of the Ministry of Environment and Forestry, police investigators, prosecutors), environmental law scholars, conservation practitioners, and representatives of Indigenous/local communities possessing traditional ecological knowledge.

Normative data include statutes—particularly Law No. 5/1990, Law No. 32/2009, implementing regulations, court decisions—and relevant academic literature. Data were analyzed qualitatively through legal interpretation and empirical data reduction, followed by thematic analysis to formulate *lex ferenda* (future legal policy) recommendations.



RESULTS AND DISCUSSION

Towards Adaptive and Equitable Conservation Governance: Dissecting Legal and Implementation Challenges for Indonesian Biodiversity

An in-depth analysis of Indonesia's legal framework and enforcement practices regarding biodiversity conservation reveals a significant disparity between the ambition of ecological protection and the reality of regulation and implementation. The presented normative and empirical reviews sharply identify fundamental weaknesses in the Conservation of Biological Natural Resources and Their Ecosystems Law (KSDAHE) as the main framework, alongside persistent challenges in its practical execution. This situation demands urgent reform to transform conservation law from a reactive instrument into an adaptive, integrated, and equitable governance mechanism.

The review of the regulatory framework points to the fragmentation of biodiversity regulation across multiple laws, with the KSDAHE serving as the primary foundation. However, despite its foundational role, the law exhibits three major substantive weaknesses that impede effective and equitable conservation efforts.

Lack of Legal Framework for Bioprospecting and Access and Benefit Sharing (ABS)

The most critical weakness of the KSDAHE is its failure to regulate Access and Benefit Sharing (ABS). This gap creates a significant divide between Indonesia's international obligations under the Nagoya Protocol and its domestic law. The Nagoya Protocol mandates clear mechanisms for regulating access to genetic resources and ensuring the fair and equitable sharing of benefits arising from their utilization (Purwaka, 2019). Without explicit ABS regulation, Indonesia is vulnerable to biopiracy the illegal theft and exploitation of genetic resources and related knowledge without proper authorization or compensation. This legal vacuum not only harms the state economically but also ethically, as it prevents the equitable distribution of benefits to the communities who have stewarded these resources for generations. The absence of this framework directly hinders the effort to integrate the economic potential of biodiversity with the principles of environmental justice and conservation.



Insufficient Protection of Traditional Knowledge (TK)

Current laws do not adequately recognize or safeguard Traditional Knowledge (TK) related to biodiversity, especially that held by Indigenous and local communities. This knowledge is often key to sustainable and locally-wise conservation practices.

The absence of explicit and robust legal protection undermines the role of TK in conservation and reduces incentives for community participation (Sukmana, 2023). This failure diminishes the communities' rights over their cultural and intellectual heritage, potentially paving the way for exploitation without Free, Prior, and Informed Consent (FPIC) and fair compensation. The recognition and protection of TK are prerequisites for restorative justice and for ensuring that conservation is inclusive and community-based.

Regulatory Overlaps and Institutional Fragmentation

The Indonesian conservation legal framework is characterized by regulatory overlaps and institutional fragmentation. Conflicting mandates among the KSDAHE, the Forestry Law, and the Environmental Management Law generate legal uncertainty (Siregar, 2022).

These inconsistencies often lead to land-use conflicts and conflicts over resource utilization, particularly in determining the boundaries and status of conservation areas. The side effect is the weakening of the conservation area status and difficulties in effective law enforcement, as enforcement agencies often have conflicting interpretations or compete for jurisdiction. This condition systematically undermines the ecological integrity and effectiveness of conservation management.

Implementation and Enforcement Challenges

This study find that these substantive legal challenges are compounded by persistent implementation and enforcement difficulties on the ground.

1. Ineffective Criminal Law Enforcement on Illegal Wildlife Trade (IWT). Consistent with previous studies (Hasibuan, 2020; Setiawan, 2021), empirical data indicate that criminal law enforcement against the Illegal Wildlife Trade (IWT) remains ineffective. The main challenges include:



- Lenient Judicial Decisions: Court decisions often hand down penalties far below the ecological damage value caused by IWT crimes. Such light sentences fail to provide adequate deterrence.
 - Difficulties in Proving Organized Crime: Law enforcers struggle to prove the elements of organized crime, resulting in the targeting of low-level perpetrators (couriers, hunters) while the masterminds of transnational IWT networks remain untouched.
 - Weak Inter-Agency Coordination: Despite the transnational and cross-border nature of IWT, coordination and information exchange between domestic and international law enforcement agencies remain weak, hindering comprehensive action.
2. Underutilized Preventive Instruments. In addition to criminal enforcement issues, there is a tendency to underutilize preventive instruments and administrative sanctions. Administrative sanctions—such as license suspension or revocation—are rarely employed, even though they offer a faster and more effective route to compel compliance, especially for corporate actors. Over-reliance on criminal sanctions makes enforcement costly, slow, and inefficient in the context of preventing continuous environmental damage.

Legal Implications and Reform Recommendations

These normative and empirical findings raise three key legal implications that must serve as the foundation for Indonesia's conservation policy reform.

1. Shift from Reactive Criminal Law to Preventive Administrative Law. The first implication is the need for a paradigm shift from excessive reliance on reactive criminal sanctions toward strengthening preventive administrative enforcement. Administrative sanctions have greater leverage to ensure quicker compliance, especially from corporate actors whose operations depend on environmental and natural resource permits. Activating and tightening the use of administrative sanctions (e.g., coercive fines, revocation of business licenses) would position conservation law as an effective supervision and compliance tool, rather than merely a punitive measure after the damage has occurred.



2. Integration of ABS and TK as Foundations of Environmental Justice. The second implication stresses that ABS and TK protection are essential foundations for ensuring environmental justice and empowering local communities. The explicit integration of ABS frameworks and TK protection into conservation law not only fulfills international obligations but also guarantees equitable benefit-sharing and upholds distributive and ecological justice. Legal recognition of TK as a collective intellectual asset of Indigenous communities would grant them control over genetic resources, transforming their role from objects of conservation to key partners in biodiversity management.
3. Urgent Reform of KSDAHE Toward Adaptive Conservation Law. The final implication is the need for urgent reform of the KSDAHE to make it a modern and adaptive conservation law. This reform must encompass three key elements:
 - Incorporation of Transnational Crime Elements: Integrating transnational crime elements, such as money laundering provisions, into wildlife crime statutes. This would allow law enforcement to track and freeze financial assets linked to IWT, instead of solely focusing on on-the-ground arrests.
 - Harmonization of Regulations: Conducting a total harmonization of conservation, forestry, and spatial planning laws to eliminate overlapping authorities and resolve land-use conflicts. This harmonization is crucial for creating legal certainty and strengthening the protected status of conservation areas.
 - Adoption of Restorative Principles: Adopting restorative legal principles that mandate concrete ecological restoration (environmental recovery), not merely monetary compensation. This principle will ensure that environmental damage is repaired, in line with the concept of absolute liability.

Collectively, these reforms would transform conservation law from a mechanism dominated by a punitive approach into an instrument of sustainable governance, capable of responding to the complexity of global environmental crime while simultaneously ensuring justice for local communities and ecological integrity.



CONCLUSION

This study concludes that Indonesia's current legal framework for biodiversity protection is no longer adequate to address contemporary ecological challenges.

Law No. 5/1990 suffers from three core weaknesses: the absence of ABS regulation, weak TK protection, and persistent regulatory overlaps. Empirical findings further highlight ineffective law enforcement and the underuse of preventive legal instruments.

Comprehensive legal reform is urgently needed. Future legislation must integrate ABS and TK-based rights, strengthen penalties for organized wildlife crime, and harmonize sectoral laws. Without such reforms, biodiversity loss in Indonesia will continue to escalate, carrying global ecological and economic consequences.

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