

EFFECTIVENESS OF ENVIRONMENTAL LAW ENFORCEMENT AGAINST ILLEGAL LOGGING IN ROKAN HULU REGENCY

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Abstract. Illegal logging remains one of the major environmental challenges threatening forest sustainability in Indonesia, particularly in Rokan Hulu Regency, Riau Province. This study aims to examine the effectiveness of environmental law enforcement against illegal logging and to analyze whether its implementation is consistent with the principles of environmental legal protection, including the doctrine of *ultimum remedium*. This research employs a normative legal research approach using a statutory, conceptual, and doctrinal approach. The legal materials analyzed consist of primary legal materials, including Law No. 18 of 2013 concerning the Prevention and Eradication of Forest Destruction and Law No. 32 of 2009 concerning Environmental Protection and Management, supported by secondary legal materials comprising legal literature, scholarly journals, and official government documents. The collected legal materials were analyzed qualitatively through legal interpretation and descriptive-analytical methods. The findings indicate that environmental law enforcement against illegal logging in Rokan Hulu Regency is partially effective when assessed based on regulatory compliance, implementation of legal sanctions, and the achievement of environmental protection objectives. Although Indonesia has established a comprehensive legal framework for combating illegal logging, its implementation remains constrained by institutional capacity, inter-agency coordination, supporting facilities, and the continuing occurrence of environmental degradation. The study also concludes that the implementation of environmental law enforcement is generally consistent with the principles of environmental legal protection, including the doctrine of *ultimum remedium*. However, the application of *ultimum remedium* should be determined according to the statutory provisions governing each type of offence and should not be interpreted as requiring administrative sanctions before criminal prosecution in every illegal logging case.

Keywords: Environmental Law; Environmental Legal Protection; Illegal Logging; Law Enforcement.

I. INTRODUCTION

Forest resources constitute one of Indonesia's most strategic natural assets because they support ecological sustainability, economic development, and social welfare. Besides functioning as a source of timber and non-timber forest products, forests regulate hydrological systems, conserve biodiversity, mitigate climate change, and reduce the risks of floods, landslides, and droughts. Owing to these multiple functions, forest management has become an important component of sustainable development and environmental governance in Indonesia. Consequently, protecting forests from illegal exploitation is not only an environmental concern but also a legal obligation to ensure the sustainable utilization of natural resources for present and future generations [1], [2].

Despite the existence of comprehensive forestry and environmental legislation, illegal logging remains one of the most persistent environmental crimes in Indonesia. Previous studies have generally examined illegal logging from the perspectives of forestry crime prevention, criminal sanctions, environmental conservation, or institutional coordination. However, relatively few studies have specifically evaluated the effectiveness of environmental law enforcement by integrating

environmental legal protection principles with the practical implementation of administrative, civil, and criminal enforcement mechanisms at the regional level. This gap is particularly evident in Rokan Hulu Regency, Riau Province, where illegal logging continues to occur despite the availability of legal instruments intended to prevent forest destruction [3]–[7].

Rokan Hulu Regency represents one of the areas in Riau Province facing considerable challenges in combating illegal logging because of its extensive production forests, protected forests, and conservation areas. Illegal logging activities in this region are driven by high timber demand, economic pressures, weak supervision, limited law enforcement capacity, and complex land tenure disputes. These activities have resulted in forest degradation, biodiversity loss, ecological imbalance, declining environmental quality, and social conflicts involving local communities, concession holders, and government authorities. Such conditions raise important questions regarding whether existing environmental law enforcement mechanisms have effectively fulfilled their function of protecting forest ecosystems [8], [9].

According to official reports issued by the Production Forest Management Agency (Balai Pengelolaan Hutan Produksi/BPHP) Region XIX Riau and annual law enforcement records of the Rokan Hulu Resort Police, approximately 120 illegal logging cases were processed between 2022 and 2025, with thousands of cubic metres of illegally harvested timber confiscated during enforcement operations. Although these figures demonstrate that enforcement activities have been undertaken, the persistence of illegal logging indicates that the existence of legal sanctions alone may not necessarily produce an adequate deterrent effect. Therefore, evaluating law enforcement effectiveness requires examining not only the number of enforcement actions but also the implementation of legal procedures, institutional coordination, and the achievement of environmental protection objectives [8], [10].

The legal challenges in Rokan Hulu Regency involve several interrelated issues, including inconsistent implementation of administrative and criminal sanctions, difficulties in proving the involvement of organized perpetrators, overlapping land claims between local communities and concession holders, and limited coordination among forestry agencies, environmental authorities, police investigators, and public prosecutors. These problems may create legal uncertainty and reduce the capacity of environmental law to prevent forest destruction effectively. Law enforcement against illegal logging is principally governed by Law No. 18 of 2013 concerning the Prevention and Eradication of Forest Destruction and Law No. 32 of 2009 concerning Environmental Protection and Management, together with their implementing regulations. Nevertheless, the practical application of these legal instruments requires further evaluation to determine whether they adequately support environmental legal protection in the context of illegal logging [10]–[12].

Based on these issues, this study addresses two research questions: (1) how effective is environmental law enforcement against illegal logging in Rokan Hulu Regency from the perspective of environmental legal protection; and (2) what legal and institutional factors influence the effectiveness of such enforcement? Unlike previous studies that primarily focus on legal provisions or law enforcement institutions separately, this research contributes by systematically evaluating environmental law enforcement through the perspective of environmental legal protection while examining the interaction between legal substance, institutional implementation, and enforcement practices within a specific regional context. This approach is expected to provide a more comprehensive understanding of the strengths and limitations of existing environmental law enforcement.

Accordingly, the objective of this research is to evaluate the effectiveness of environmental law enforcement against illegal logging in Rokan Hulu Regency based on the principles of environmental legal protection. The findings are expected to contribute theoretically to the development of environmental law scholarship concerning the effectiveness of legal enforcement, while practically providing recommendations for strengthening institutional coordination, improving enforcement strategies, enhancing legal certainty, and supporting sustainable forest governance in Indonesia.

II. RESEARCH METHODS

This study employed normative legal research to examine the effectiveness of environmental law enforcement against illegal logging in Rokan Hulu Regency. The research used statutory, conceptual, and case approaches. The statutory approach examined the provisions of Law No. 18 of 2013 concerning the Prevention and Eradication of Forest Destruction, Law No. 32 of 2009 concerning Environmental Protection and Management, and other relevant regulations. The conceptual approach analyzed the theories of legal effectiveness, environmental legal protection, and the doctrine of *ultimum remedium*. Meanwhile, the case approach was used to examine the implementation of law enforcement against illegal logging in Rokan Hulu Regency between 2022 and 2025.

The legal materials consisted of primary, secondary, and tertiary legal materials. Primary legal materials included legislation, official government reports, law-enforcement records, and relevant legal documents. Secondary legal materials comprised scholarly journal articles, books, research reports, and other academic publications concerning illegal logging, environmental law, and forest protection. Tertiary legal materials, including legal dictionaries and encyclopedias, were used to clarify relevant legal concepts. The materials were collected through document and literature studies by identifying, classifying, and systematically reviewing sources related to the research questions.

The collected legal materials were analyzed qualitatively using descriptive-analytical and legal interpretation methods. The analysis evaluated law-enforcement effectiveness through three indicators: regulatory compliance, the implementation of proportionate legal sanctions, and the achievement of environmental protection objectives. The findings were subsequently interpreted by examining the relationship between legal substance, institutional performance, supporting facilities, community participation, and legal culture. This analytical process was also used to determine whether the application of administrative and criminal sanctions was consistent with environmental legal-protection principles and the doctrine of *ultimum remedium*.

III. RESULT AND DISCUSSION

A. Effectiveness of the Implementation of Legislation related to Illegal Logging in Protecting the Environment in Rokan Hulu Regency

Illegal logging remains one of the most significant environmental crimes threatening forest sustainability in Indonesia, particularly in Rokan Hulu Regency, Riau Province. Besides causing ecological degradation through deforestation, habitat destruction, and biodiversity loss, illegal logging also results in substantial economic losses and weakens the implementation of sustainable forest governance. Therefore, the effectiveness of environmental law enforcement should not merely be assessed based on the existence of legal regulations but also on the extent to which those regulations are implemented consistently to achieve environmental protection

objectives as mandated by Law No. 18 of 2013 concerning the Prevention and Eradication of Forest Destruction and Law No. 32 of 2009 concerning Environmental Protection and Management.

Accordingly, this discussion addresses the first research question by evaluating the effectiveness of environmental law enforcement against illegal logging in Rokan Hulu Regency from the perspective of environmental legal protection. The legal framework governing illegal logging in Indonesia provides a comprehensive basis for environmental protection. Law No. 18 of 2013 criminalizes illegal logging and regulates preventive measures, law enforcement, institutional coordination, and sanctions against perpetrators of forest destruction. Complementarily, Law No. 32 of 2009 establishes environmental protection principles, including the precautionary principle, sustainability, accountability, and environmental restoration. At the regional level, forestry administration and supervision are further supported by provincial and district regulations concerning forest utilization permits and monitoring mechanisms. From a normative perspective, these legal instruments demonstrate that Indonesia possesses an adequate legal substance for combating illegal logging. However, the effectiveness of environmental law cannot be determined solely by normative completeness but must also be evaluated based on its practical implementation.

Consistent with the theory of legal effectiveness proposed by Soerjono Soekanto, the effectiveness of law enforcement depends upon five interrelated factors, namely legal substance, law enforcement officers, supporting facilities, society, and legal culture. Similarly, Lawrence M. Friedman argues that a legal system operates effectively only when legal substance, legal structure, and legal culture function harmoniously. Furthermore, Hans Kelsen emphasizes that legal norms are considered effective when they are not only legally valid but are also actually obeyed and implemented in practice. These theoretical perspectives provide an appropriate analytical framework for assessing whether environmental law enforcement in Rokan Hulu Regency has effectively protected forest resources rather than merely complying with statutory provisions [13].

Based on these theoretical frameworks, this study evaluates legal effectiveness using three operational indicators that are consistent with environmental law enforcement objectives: (1) compliance with environmental and forestry regulations; (2) implementation of proportionate and effective legal sanctions; and (3) achievement of environmental protection and ecosystem recovery. These indicators are adopted because they reflect both procedural compliance and substantive environmental outcomes, thereby addressing the criticism that legal effectiveness should not be measured merely by the existence of regulations or the number of enforcement actions.

The first indicator concerns compliance with forestry and environmental regulations. Normatively, Indonesian forestry legislation requires every utilization of forest resources to comply with licensing requirements and sustainable forest management principles. Nevertheless, official reports from the relevant forestry authorities and institutional records cited in this study indicate that illegal logging continues to occur within protected forests, limited production forests, and other forest

areas in Rokan Hulu Regency. The persistence of these violations demonstrates that regulatory compliance remains limited despite the availability of legal provisions. Consequently, the continuing occurrence of illegal logging reflects a gap between legal norms (*das sollen*) and legal reality (*das sein*), indicating that legal compliance has not yet reached the level expected by environmental legislation [8], [9].

The second indicator relates to the implementation of sanctions against offenders. Indonesian environmental and forestry legislation provides administrative, civil, and criminal sanctions that may be imposed depending on the characteristics and seriousness of the violation. In principle, these sanctions are intended to provide legal certainty, prevent repeated violations, and deter potential offenders. However, documentary evidence discussed in this study shows that the implementation of sanctions remains constrained by limited investigative capacity, difficulties in collecting evidence, inadequate coordination among enforcement institutions, and limited human resources responsible for forest protection [3], [10], [14].

The third indicator concerns the achievement of environmental protection objectives through ecosystem preservation and restoration, which represents the ultimate purpose of environmental law enforcement under Law No. 32 of 2009. Environmental law enforcement cannot be regarded as effective merely because legal procedures have been formally implemented; rather, it must produce measurable environmental outcomes, including reduced forest degradation, improved ecosystem sustainability, and the restoration of damaged forest areas. Based on the documentary materials analyzed in this study, illegal logging continues to contribute to land degradation, biodiversity loss, and increased vulnerability to floods and landslides in several forest areas of Rokan Hulu Regency, indicating that environmental recovery objectives have not yet been fully achieved. This situation reflects not only the gap between legal norms and their practical implementation, as explained by Hans Kelsen's concept of legal effectiveness, but also weaknesses in the legal structure and supporting facilities identified by Lawrence M. Friedman and Soerjono Soekanto. Institutional coordination among the Forestry Service, Environmental Agency, Police, Public Prosecutor's Office, and local government authorities remains fragmented, resulting in delays in investigations, weak evidence collection, and ineffective integrated supervision of forest areas. Furthermore, limited personnel, geographical constraints, and inadequate technological support continue to hamper monitoring activities, although the application of geospatial information systems (GIS), satellite imagery, and remote sensing technologies offers significant potential to strengthen preventive law enforcement when integrated into institutional decision-making processes. Environmental legal protection also requires meaningful community participation, as recognized by Law No. 32 of 2009, because reports from local communities and environmental organizations can facilitate early detection of illegal logging; however, such participation remains constrained by inadequate legal protection for informants, limited transparency in reporting mechanisms, and insufficient public trust in law enforcement institutions [1], [2], [15], [16].

B. Law enforcement against illegal logging perpetrators in Rokan Hulu Regency is in line with the principles of environmental legal protection, including the principle of ultimum remedium.

The second research question examines whether law enforcement against illegal logging perpetrators in Rokan Hulu Regency has been implemented in accordance with the principles of environmental legal protection, including the doctrine of *ultimum remedium*. This issue cannot be analyzed solely from the perspective of statutory provisions but must also consider the operation of the legal system as a whole. Lawrence M. Friedman explains that legal effectiveness depends on the interaction between legal substance, legal structure, and legal culture, while Hans Kelsen emphasizes that legal norms become effective only when they are actually implemented and obeyed in practice. Likewise, Soerjono Soekanto argues that the effectiveness of law enforcement is determined by legal norms, law enforcement institutions, supporting facilities, community participation, and legal culture. Therefore, evaluating environmental law enforcement against illegal logging requires an integrated assessment of these interrelated elements rather than merely examining the existence of criminal provisions in forestry legislation [13], [17]

Normatively, the legal basis for combating illegal logging is primarily regulated by Law No. 18 of 2013 concerning the Prevention and Eradication of Forest Destruction, complemented by Law No. 32 of 2009 concerning Environmental Protection and Management. Article 3 of Law No. 18 of 2013 establishes four principal objectives of law enforcement: ensuring legal certainty and deterrence against forest destruction, maintaining sustainable forest ecosystems, optimizing the sustainable utilization of forest resources, and strengthening institutional coordination among law enforcement authorities. These objectives demonstrate that environmental law enforcement is intended not merely to punish offenders but also to preserve ecological sustainability and ensure responsible forest governance. Consequently, the effectiveness of environmental law should be assessed according to the extent to which these statutory objectives are achieved rather than solely by the number of criminal cases processed.

Consistent with the analytical framework adopted in this study, the implementation of environmental law enforcement is evaluated through three measurable indicators: regulatory compliance, implementation of proportionate legal sanctions, and achievement of environmental protection objectives. These indicators correspond to Soekanto's theory that legal effectiveness depends not only on legal substance but also on institutional performance and societal compliance. Similarly, Kelsen's theory distinguishes between the validity of legal norms and their actual effectiveness in practice. Accordingly, the existence of comprehensive forestry legislation alone cannot justify the conclusion that environmental law enforcement is effective. Instead, the implementation of legal procedures, the proportional application of sanctions, and the protection of forest ecosystems must all be evaluated simultaneously to determine whether environmental legal protection has been achieved

Within this legal framework, the doctrine of *ultimum remedium* requires particular attention. The principle should not be interpreted as requiring every illegal logging offence to receive administrative sanctions before criminal prosecution may commence. Under Indonesian environmental law, *ultimum remedium* primarily applies to specific environmental administrative violations where administrative enforcement remains capable of restoring legal compliance. Conversely, serious forestry crimes involving intentional forest destruction, organized illegal logging, the use of falsified permits, or significant environmental damage may justify immediate criminal prosecution under Law No. 18 of 2013 without the prior exhaustion of administrative measures. Therefore, a clear distinction must be drawn between administrative environmental violations and criminal forestry offences, since the legal consequences and enforcement mechanisms differ substantially. From the perspective of environmental legal protection, the application of *ultimum remedium* in Rokan Hulu Regency should therefore be understood as part of a proportional enforcement strategy rather than as an absolute procedural sequence. Preventive measures, administrative sanctions, licensing supervision, and environmental restoration constitute important instruments for addressing relatively minor violations. However, criminal sanctions remain appropriate where statutory requirements are fulfilled, particularly when illegal logging causes substantial environmental damage or demonstrates intentional and repeated criminal conduct. Consequently, the implementation of *ultimum remedium* must always be interpreted according to the relevant statutory provisions and the seriousness of each individual offence rather than applied uniformly to all illegal logging cases.

The implementation of environmental legal protection also depends upon the performance of law enforcement institutions. According to Friedman, legal structure represents one of the essential determinants of legal effectiveness because statutory provisions cannot operate effectively without competent institutions responsible for investigation, prosecution, adjudication, and supervision. In the context of illegal logging, cooperation among the Forestry Service, Forest Rangers (*Polisi Kehutanan*), the Police, the Public Prosecutor's Office, and local government authorities is essential to ensure consistent enforcement procedures. Forest Rangers play a strategic role in preventive supervision and early detection of forestry crimes, while criminal law enforcement authorities are responsible for prosecuting serious offences under applicable forestry legislation. Therefore, strengthening institutional coordination remains necessary to ensure that environmental protection objectives are consistently achieved [4], [10]–[12].

Supporting facilities, technological innovation, and community participation also contribute significantly to environmental law enforcement. Soekanto identifies adequate facilities as one of the determining factors of legal effectiveness, while Law No. 32 of 2009 recognizes public participation as an integral component of environmental governance. The utilization of Geographic Information Systems (GIS), satellite imagery, and precision patrol systems may improve the early detection of illegal logging activities, particularly in extensive forest areas where conventional

supervision is limited. Likewise, reports submitted by local communities and environmental organizations strengthen preventive law enforcement, provided that transparent reporting mechanisms and adequate legal protection for informants are available. These supporting factors reinforce environmental legal protection by increasing the capacity of law enforcement institutions to identify violations before extensive environmental damage occurs [18].

Based on the normative analysis conducted in this study, law enforcement against illegal logging perpetrators in Rokan Hulu Regency can be considered partially consistent with the principles of environmental legal protection and the doctrine of *ultimum remedium*. Indonesia already possesses a comprehensive legal framework that integrates preventive, administrative, civil, and criminal enforcement mechanisms for forest protection. Nevertheless, the practical implementation of these mechanisms remains constrained by institutional capacity, inter-agency coordination, supporting facilities, and community legal awareness. Consequently, the application of *ultimum remedium* should be understood as a proportional legal doctrine that operates according to statutory requirements and the seriousness of the offence rather than as a mandatory sequence applicable to every illegal logging case. This conclusion is consistent with the findings of the previous subsection, which classify environmental law enforcement in Rokan Hulu Regency as partially effective, while emphasizing that strengthening institutional coordination, legal certainty, and environmental restoration remains necessary to achieve the objectives of sustainable environmental protection.

IV. CONCLUSIONS

This study concludes that the implementation of environmental law enforcement against illegal logging in Rokan Hulu Regency is partially effective when assessed using three indicators: regulatory compliance, the implementation of legal sanctions, and the achievement of environmental protection objectives. Although Indonesia has established a comprehensive legal framework through Law No. 18 of 2013 concerning the Prevention and Eradication of Forest Destruction and Law No. 32 of 2009 concerning Environmental Protection and Management, the achievement of effective environmental legal protection remains constrained by institutional limitations, inconsistent inter-agency coordination, limited supporting facilities, and the continuing occurrence of environmental degradation. Therefore, the existence of legal regulations alone has not been sufficient to ensure the full realization of environmental law enforcement objectives. This study further concludes that the implementation of law enforcement against illegal logging perpetrators in Rokan Hulu Regency is generally consistent with the principles of environmental legal protection, including the doctrine of *ultimum remedium*. However, the application of *ultimum remedium* should not be interpreted as requiring administrative sanctions in every illegal logging case before criminal prosecution may be initiated. Instead, its application must be determined according to the statutory provisions governing each type of violation, the nature and seriousness of the offence, and the extent of environmental damage caused. Consequently, criminal sanctions remain legally justified for

serious forestry crimes, while preventive and administrative measures are appropriate for violations that can still be effectively resolved through administrative enforcement. These findings demonstrate that environmental legal protection requires not only adequate legal substance but also effective institutional implementation to achieve sustainable forest governance. Based on the findings of this study, several measures may strengthen the effectiveness of environmental law enforcement against illegal logging in Rokan Hulu Regency. First, institutional coordination among the Forestry Service, Environmental Agency, Police, Public Prosecutor's Office, and other relevant authorities should be enhanced to improve the consistency and efficiency of law enforcement. Second, the capacity of law enforcement institutions should be strengthened through increased personnel, technical training, and the wider utilization of monitoring technologies, including Geographic Information Systems (GIS), remote sensing, and satellite imagery. Third, greater community participation should be encouraged by establishing transparent reporting mechanisms and providing adequate legal protection for informants and witnesses. Finally, environmental restoration should be integrated into law enforcement policies to ensure that enforcement not only deters illegal logging but also contributes to the long-term sustainability of forest ecosystems.

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