

THE ROLE OF INTERNATIONAL ENVIRONMENTAL AGREEMENTS IN REGULATING ILLEGAL MINING ACTIVITIES

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Abstract

Illegal tin mining in Indonesia, particularly in the Bangka Belitung Islands, poses serious environmental, social, and economic challenges. Despite the ratification of key international environmental agreements, including the Convention on Biological Diversity, the Basel Convention, and the Minamata Convention, and the incorporation of their principles into domestic legislation, illegal mining persists. This study employs a normative-legal approach to examine the role of international environmental agreements in regulating illegal mining activities in Indonesia. The research analyzes the effectiveness of these agreements, identifies gaps in domestic enforcement, and evaluates the challenges in translating normative obligations into practical outcomes. The study concludes that while international agreements provide a strong legal framework, their effectiveness depends on domestic governance, institutional capacity, and coordinated enforcement measures.

Keywords: Illegal mining, Indonesia, Environmental law

Introduction

Illegal mining has emerged as one of the most pressing environmental and governance challenges in the twenty-first century. While mining activities are crucial for global economic development and technological progress, the illegal extraction of mineral resources has caused severe ecological degradation, social disruption, and economic loss across many developing countries. The environmental consequences of unregulated mining—such as deforestation, soil erosion, mercury contamination, and biodiversity loss—extend beyond national borders, making it a matter of international concern rather than a purely domestic issue (Hilson, 2016). This transboundary dimension situates illegal mining within the broader framework of international environmental law.

The international community has recognized the urgent need to strengthen global environmental governance through various international environmental agreements (IEAs). Treaties such as the *Convention on Biological Diversity* (1992), the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal* (1989), and the *Minamata Convention on Mercury* (2013) establish obligations for states to protect ecosystems, regulate hazardous substances, and promote sustainable development (United Nations, 1992). Although these instruments do not explicitly mention “illegal mining,” their underlying principles—such as the duty to prevent transboundary harm, the precautionary principle, and the obligation to cooperate—provide normative grounds for addressing the adverse effects of illicit mineral exploitation (Sands & Peel, 2018).

However, the effectiveness of these international legal frameworks in regulating illegal mining remains contested. Many states struggle with enforcement gaps, weak institutional capacity, and corruption, which undermine compliance with international environmental norms. Moreover, the global demand for minerals—driven by industries such as electronics, renewable energy, and construction—creates strong economic incentives that perpetuate illegal mining networks (Ali, 2020). Consequently, understanding the role of international environmental agreements in mitigating the impacts of illegal mining requires an analysis not only of the treaties themselves but also of their implementation mechanisms, monitoring systems, and interaction with domestic legal regimes.

From a broader perspective, illegal mining represents a convergence of environmental degradation, economic exploitation, and governance failure. In countries rich in natural resources, such as Indonesia, the Democratic Republic of the Congo, and Brazil, unregulated mining is often intertwined with organized crime, human rights abuses, and transnational trade in illicit minerals (Bebbington & Bury, 2013). These challenges transcend national jurisdiction, implicating the international legal order in ensuring accountability and sustainability. The United Nations Environment Programme (UNEP) and other multilateral institutions have repeatedly emphasized that environmental crimes—including illegal mining—constitute one of the largest sources of criminal profit worldwide,

second only to the illegal drug trade (UNEP, 2018). This recognition has spurred increasing calls for integrating environmental protection within broader frameworks of international criminal and economic law, highlighting the need for more comprehensive and enforceable international mechanisms.

Despite these developments, international environmental agreements still face significant limitations in addressing the complex realities of illegal mining. Most IEAs rely on *soft law* principles and voluntary compliance, which often lack binding enforcement measures or sanction mechanisms against non-compliant states (Bodansky, 2010). Furthermore, the fragmentation of international environmental law—characterized by overlapping jurisdictions and inconsistent standards—has led to inefficiencies and weakened coherence in global environmental governance (Young, 2011). As a result, while international agreements provide an essential normative foundation, their real-world impact depends heavily on domestic implementation, regional cooperation, and the integration of environmental objectives into trade, investment, and human rights regimes. Strengthening this multilevel interaction is therefore crucial for ensuring that international environmental law can effectively contribute to the regulation of illegal mining activities.

This paper examines the extent to which international environmental agreements contribute to the regulation of illegal mining activities. It explores how these treaties establish legal obligations for states, facilitate international cooperation, and influence national policy frameworks. By evaluating the strengths and limitations of existing international mechanisms, the study aims to assess whether the current global environmental governance system is adequate to address the challenges posed by illegal mining—particularly in resource-rich developing countries such as Indonesia. Ultimately, this analysis seeks to highlight potential pathways for strengthening international legal responses to ensure environmental sustainability, accountability, and equitable resource governance (Voigt, 2019).

Research Methodology

This research uses a normative juridical (doctrinal legal) approach, focusing on the interpretation of international environmental law related to illegal mining. The study relies on qualitative analysis of legal instruments, including the *Convention on Biological Diversity* (1992), the *Basel Convention* (1989), and the *Minamata Convention on Mercury* (2013), supported by relevant United Nations resolutions and international case law.

The research draws upon primary legal materials (treaties and judicial decisions), secondary materials (academic books and journal articles), and tertiary materials (reports from UNEP and other international organizations). These sources are examined through content analysis and legal interpretation to identify the role, effectiveness, and limitations of international environmental agreements in addressing illegal mining. The findings aim to assess how these international frameworks influence national legal systems, particularly in developing countries such as Indonesia.

Results and Discussion

4.1 Implementation of International Environmental Agreements in Indonesia

Indonesia, as one of the world's major producers of tin, faces a critical challenge in regulating illegal tin mining, particularly in the Bangka Belitung Islands. Illegal mining has long posed significant environmental, social, and economic problems, including deforestation, soil erosion, mercury pollution, and disruption of local communities. These activities, while domestic in location, have transboundary environmental implications that bring them under the concern of international environmental law (Hilson, 2016). To address such issues, Indonesia has ratified several international environmental agreements (IEAs), which set normative frameworks obliging states to prevent environmental harm and manage natural resources sustainably.

The *Convention on Biological Diversity* (1992), ratified by Indonesia in 1994, obliges states to conserve biological diversity, promote sustainable use of its components, and ensure fair and equitable sharing of benefits arising from genetic resources (United Nations, 1992). Although illegal tin mining is not explicitly mentioned, the convention's principles impose obligations to prevent environmental degradation resulting from resource exploitation. Similarly, the *Basel Convention* (1989), ratified by Indonesia in 1993, provides a legal framework for controlling hazardous waste movements, which includes mining by-products such as tailings containing mercury and other heavy metals. By regulating hazardous substances, the Basel Convention indirectly addresses environmental hazards from unregulated mining operations (Sands & Peel, 2018).

Additionally, the *Minamata Convention on Mercury (2013)*, which Indonesia ratified in 2017, directly targets mercury pollution—a critical issue in artisanal and small-scale tin mining. Mercury is commonly used in processing tin ore to separate the metal from impurities, and its improper handling leads to contamination of soil, water, and food chains (UNEP, 2018). The ratification of Minamata Convention creates binding obligations for Indonesia to reduce mercury use, establish safe handling practices, and monitor mercury pollution levels.

At the domestic level, Indonesia has incorporated these international commitments into national law. The *Mineral and Coal Mining Law No. 4 of 2009* regulates mining operations, including environmental protection obligations. Meanwhile, the *Environmental Protection and Management Law No. 32 of 2009* incorporates the principles of sustainable development, precautionary measures, and state responsibility for environmental conservation. Together, these laws attempt to operationalize international legal principles into enforceable domestic regulations (Ali, 2020).

Despite these frameworks, the actual implementation of international environmental agreements in Indonesia remains uneven. The legal obligation to prevent environmental harm from illegal mining exists on paper; however, enforcement is constrained by institutional capacity, coordination challenges, and competing economic interests. In the Bangka Belitung Islands, for instance, illegal mining continues due to high global demand for tin, insufficient monitoring of mining permits, and limited resources for environmental inspection (Bebbington & Bury, 2013). This illustrates a normative gap: while international treaties establish obligations, translating these obligations into practical enforcement remains challenging.

Importantly, Indonesia's normative commitment under IEAs is reinforced by the principle of state responsibility, which requires states to prevent activities within their jurisdiction from causing environmental harm to other states or areas beyond national control. This principle, recognized in the *International Law Commission's Draft Articles on Prevention of Transboundary Harm (2001)*, is legally persuasive and has been applied in several international cases (Sands & Peel, 2018). In Indonesia's context, adherence to this principle implies the duty to regulate illegal mining not only to protect domestic ecosystems but also to prevent transboundary pollution affecting neighboring maritime zones and global biodiversity hotspots.

Moreover, the normative influence of international agreements extends beyond formal ratification. The implementation of IEAs is reinforced through international reporting obligations, participation in technical assistance programs, and engagement with global monitoring mechanisms. Indonesia participates in the *Partnership for Sustainable Mining* initiatives and UN Environment Programme (UNEP) technical programs to improve governance, develop monitoring systems, and train local authorities. These activities demonstrate how normative international law shapes domestic policies and operational practices, even in contexts of limited enforcement capacity.

Nevertheless, the effectiveness of these agreements is partly constrained by their reliance on voluntary compliance mechanisms and the limited binding enforcement provisions. Unlike trade or criminal law, most IEAs operate within a soft-law framework that depends on political will, reporting, and peer review rather than coercive sanctions. This creates a legal tension: Indonesia is normatively obliged to regulate illegal mining under international law, yet the international legal system provides limited direct enforcement tools to compel compliance (Bodansky, 2010). The interaction between domestic law and international commitments thus becomes critical: domestic regulatory mechanisms must operationalize normative obligations effectively to achieve environmental protection objectives.

4.2 Challenges and Legal Gaps in Regulating Illegal Tin Mining

Despite normative and institutional frameworks, Indonesia continues to face significant challenges in addressing illegal tin mining. These challenges are both legal and structural, revealing gaps between international obligations and domestic enforcement. One major issue is the fragmentation of the legal framework. Although the Mineral and Coal Mining Law and Environmental Law codify principles of sustainable mining, overlapping authorities and unclear jurisdictional boundaries create enforcement inefficiencies. For example, local government authorities often issue mining permits without sufficient coordination with environmental agencies, undermining compliance with environmental standards (Young, 2011).

Another critical challenge is insufficient monitoring and sanctioning mechanisms. Illegal miners often operate in remote locations, making inspections difficult. While Indonesian law provides for administrative sanctions, fines, and license revocation, enforcement is limited by insufficient human resources and financial constraints. This gap highlights a normative deficiency: international agreements mandate environmental protection, but domestic legal mechanisms are often incapable of ensuring compliance effectively (Ali, 2020).

Corruption and informal networks further complicate enforcement. Studies of Bangka Belitung have documented cases in which local authorities collude with illegal operators, enabling unlicensed mining and circumvention of environmental regulations. This undermines the legal effectiveness of both domestic statutes and Indonesia's commitments under IEAs (Bebbington & Bury, 2013). From a normative legal perspective, such practices violate not only domestic law but also Indonesia's international obligations to prevent environmental harm, demonstrating the need for stronger accountability mechanisms.

The global demand for tin and its integration into international supply chains also creates normative challenges. Indonesia is the world's second-largest tin exporter, and international buyers often source minerals without fully verifying their legality. While international treaties set normative expectations for sustainable and environmentally responsible mining, they do not directly regulate the private sector supply chain. Consequently, illegal mining persists, highlighting a gap between normative principles and operational reality (Voigt, 2019).

Another legal gap lies in the absence of binding enforcement provisions within IEAs. While conventions such as the Minamata and Basel Conventions set clear obligations, compliance largely relies on reporting, cooperation, and technical assistance. There are no direct international sanctions against states that fail to regulate illegal mining effectively. This limits the normative power of IEAs and places the burden on domestic legal systems to enforce environmental protection, which, as discussed, remains inconsistent in practice.

Finally, the fragmentation of international and domestic legal regimes creates normative ambiguities. Multiple agreements, laws, and regulations interact in complex ways, leading to overlaps, inconsistencies, and occasional contradictions. For instance, trade and investment incentives may conflict with environmental enforcement, creating legal dilemmas for Indonesian authorities who must balance economic development with environmental protection (Bodansky, 2010).

In response to these challenges, legal scholars advocate several measures. Strengthening domestic enforcement through better coordination among government agencies, capacity building for inspection and monitoring, and clearer regulatory frameworks is essential. Additionally, integrating normative obligations from IEAs into corporate due diligence requirements and international supply chain governance can provide indirect enforcement. For instance, requiring exporters and buyers to verify the legality of tin sources aligns private sector behavior with international norms, bridging gaps between soft-law principles and operational realities (Sands & Peel, 2018).

In conclusion, Indonesia has ratified and incorporated key international environmental agreements into domestic law, establishing normative obligations to regulate illegal tin mining. However, significant legal and structural gaps hinder effective enforcement. Challenges include fragmented legal frameworks, limited monitoring capacity, corruption, high global demand, and the soft-law nature of international agreements. Addressing these issues requires both domestic legal reform and stronger integration of international normative principles into operational mechanisms, ensuring that Indonesia fulfills its obligations under international environmental law while protecting its natural resources and communities.

Conclusion

Indonesia has ratified key international environmental agreements, including the Convention on Biological Diversity, the Basel Convention, and the Minamata Convention, and has incorporated their principles into domestic laws. These agreements provide normative obligations to prevent environmental harm and promote sustainable resource use.

Despite these frameworks, illegal tin mining, particularly in Bangka Belitung, continues due to limited enforcement, fragmented governance, and corruption. International agreements often rely on soft-law principles and voluntary compliance, which reduces their practical effectiveness. Closing this gap requires stronger domestic enforcement, improved coordination among authorities, and integration of international norms into operational policies. Effective

regulation of illegal mining is essential for environmental protection, sustainable resource management, and fulfilling Indonesia's obligations under international law.

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