Otoritas : Jurnal Ilmu Pemerintahan Vol. 16, No. 1, 2026
DOI: https://doi.org/10.26618/ojip.v16i1.20686

Internalization of international environmental treaties in Vietnam

Tran Vang-Phu[1*)], Nguyen Thanh Giao[2]
[1]*Faculty of Law, Ho Chi Minh City University of Economics and Finance, Vietnam*
[2]*School of Environment and Natural Resources, Can Tho University, Vietnam*

Abstract

Global integration and the expansion of new-generation free trade agreements have intensified pressure on transitional economies to harmonize domestic legislation with international environmental law. This study examines how Vietnam's 2020–2025 legislative reforms internalize core obligations derived from the Paris Agreement, Montreal Protocol, Basel Convention, and UNCLOS. Using a functional comparative law approach, it evaluates substantive compatibility, understood as the alignment between domestic statutory provisions, treaty obligations, and operational enforcement mechanisms. The novelty of this research lies in integrating legal transplantation theory with empirical policy analysis to assess not only formal legal convergence but also the institutional capacity required for effective compliance. The findings show that Vietnam has shifted from passive treaty ratification toward proactive regulatory integration, particularly through carbon pricing and Extended Producer Responsibility. However, the study also identifies patterns of isomorphic mimicry, whereby global legal forms are adopted without sufficient implementation capacity, resulting in persistent de facto enforcement gaps. Inter-sectoral tensions, especially between development-oriented land governance and biodiversity protection, further weaken regulatory coherence. This research contributes a conceptual evaluation model for environmental governance and offers practical insights for Global South transitional economies facing similar harmonization challenges.

Keywords: *international environmental law, internalization, climate change, sustainable development.*

*)corresponding author
E-mail: phutv@uef.edu.vn

Introduction

International Environmental Law (IEL) has evolved robustly over the past three decades, transitioning from broad, declarative frameworks into a complex, binding network of multilateral commitments addressing climate change, biodiversity loss, hazardous chemicals, and transboundary waste (Bibi et al., 2024; Hunter, 2018). For developing and transitional economies, the internalization of these global environmental commitments is no longer merely a diplomatic duty or a formal requirement of international membership. It has increasingly become a fundamental prerequisite for meaningful participation in the globalized economy. In the era of new-generation free trade agreements, such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership and the EU–Vietnam Free Trade Agreement, environmental standards are no longer treated as peripheral issues. Instead, stringent environmental provisions increasingly function as prominent green technical barriers to trade, requiring states to strengthen domestic legal frameworks, improve regulatory enforcement, and demonstrate credible compliance with international environmental

norms (Vu & Minh Hoang, 2025). Consequently, nations are under immense international pressure to harmonize their domestic legal systems with global standards. However, a fundamental research problem emerges in this harmonization process: while nations can rapidly ratify international treaties and draft compliant national legislation, the translation of these statutory texts into effective environmental governance is consistently constrained by profound domestic enforcement deficits, inadequate institutional capacity, and inter-sectoral legal fragmentation.

To systematically decode this dynamic, this study anchors its analysis within the theoretical frameworks of "legal transplantation" and international regulatory compliance. Legal transplantation, a concept pioneered by comparative legal scholars, describes the process by which laws and regulatory mechanisms formulated in one jurisdiction or international body are adopted by another (Watson, 1975). While this mechanism allows developing nations to rapidly modernize their legal codes, scholars argue that such "imported" rules frequently collide with local political, cultural, and administrative realities, leading to implementation friction (Faure & Partain, 2019; Legrand, 1997). In the context of environmental governance in transitional economies, this friction frequently manifests as "isomorphic mimicry" a critical institutional phenomenon where state apparatuses adopt the external architecture and formal legal texts of global best practices to secure international legitimacy, yet fundamentally lack the domestic technical, financial, and organizational capacity to execute them (Pritchett et al., 2013). This theoretical lens clarifies that achieving environmental compliance is not merely a top-down legislative exercise, but a bottom-up challenge of building localized institutional capability. When legal transplantation occurs without corresponding capacity building, it results in a persistent "implementation gap" where formal, *de jure* compliance masks a reality of *de facto* regulatory failure.

Despite the high academic and policy significance of IEL internalization, the existing body of literature exhibits notable methodological and conceptual limitations. A systematic synthesis of recent scholarship reveals that while the trajectory of Vietnam's environmental policy has been documented, studies remain highly fragmented and predominantly descriptive. For instance, (Stockdale, 2016) analyzed the integration of Vietnam's Nationally Determined Contributions (NDCs) into domestic climate law. While their study provides a detailed textual review of emission targets, its approach is purely legislative, failing to address the institutional overlapping between the Ministry of Natural Resources and Environment (MONRE) and the Ministry of Industry and Trade (MOIT) that hampers actual carbon accounting. Similarly, (Novemyanto, 2025) examined the adoption of Extended Producer Responsibility (EPR) mechanisms for plastic waste in Southeast Asia. Their comparative policy benchmarking highlighted the formal adoption of circular economy principles but lacked empirical verification regarding the technical capacity of the informal recycling sector to meet these new legal thresholds. Furthermore, macro-level economic analyses, such as the work by (Vu & Minh Hoang, 2025) on FTA environmental provisions, successfully map the motivations for legal reform but do not investigate the localized enforcement friction when these trade mandates intersect with domestic administrative realities. Finally, localized studies, such as (Nguyen et al., 2020), have explored the conflicts between land-use planning and biodiversity conservation in specific provinces.

However, these represent isolated case studies lacking a unified, multi-treaty analytical framework capable of assessing the systemic health of the national legal architecture. Therefore, a pronounced and measurable research gap persists: previous studies predominantly employ a static, textual approach that evaluates "de jure"

alignment without operationalizing frameworks to measure "de facto" substantive compatibility. They fail to systematically map how imported, conservation-oriented global commitments interact with, and often contradict, pre-existing, development-oriented domestic laws (such as land and mineral regulations). This current research fills this void by transitioning from a fragmented legal analysis to a comprehensive, multi-sectoral evaluation of the systemic challenges inherent in environmental legal transplantation.

Vietnam serves as an exemplary and highly relevant case study for this phenomenon. The resolution of the 13th National Party Congress explicitly defined a policy of "proactive and active international integration," positioning environmental alignment as a central pillar to ensure sustainable development and circumvent international trade barriers. Driven by this political mandate, the 2020-2025 period witnessed an unprecedented legislative wave, characterized by the enactment and comprehensive amendment of foundational natural resource laws. The Law on Environmental Protection 2020 stands as a pioneering document, explicitly internalizing international market-based mechanisms such as the domestic carbon market (aligning with Article 6 of the Paris Agreement) and EPR regulations (aligning with the Basel Convention and circular economy principles). This was rapidly followed by the Law on Water Resources 2023, the Land Law 2024, and the Law on Geology and Minerals 2024, all of which formally embed the terminology of the Sustainable Development Goals (SDGs) and Integrated Water Resources Management (IWRM). Furthermore, the year 2025 marked a period of technical finalization, with the issuance of numerous Circulars upgrading National Technical Regulations (QCVN) on pollution control to approach stringent OECD and EU standards. However, this aggressive legislative timeline intensifies the risk of isomorphic mimicry. The rapid superimposition of highly sophisticated international legal constructs onto a historically fragmented domestic administrative structure inevitably generates critical regulatory overlapping, where localized economic development directives frequently contradict national climate and conservation pledges.

Addressing these complexities, this study aims to systematically decode the internalization of international environmental treaties within Vietnam's 2020–2025 legislative framework. Employing functional comparative law and public policy analysis, this research is guided by the central hypothesis that formal textual adoption of international environmental treaties is a necessary precondition for global integration, yet remains insufficient for actual compliance without synchronized inter-sectoral coordination. Consequently, rapid legislative adoption in a transitional economy may produce isomorphic mimicry and acute enforcement gaps. Based on this hypothesis, the study has three specific objectives. First, it measures substantive compatibility, defined as the direct functional integration and operationalization of global standards within domestic statutory texts, across four major environmental domains: climate change, marine governance, biodiversity, and waste and chemicals. Second, it identifies and analyzes institutional conflicts and implementation gaps in which development-oriented laws, particularly those concerning land and mining, undermine conservation-oriented treaty obligations. Third, it proposes a generalizable conceptual model of environmental legal transplantation that can serve as a theoretical reference for other transitional economies facing similar global harmonization pressures. By shifting the analytical focus from passive compliance to proactive, capacity-driven integration, this research provides a scientific foundation for policymakers to refine domestic legal frameworks and advance authentic sustainable development.

Research Method

The study employs a multidisciplinary research design that integrates Functional Comparative Law and Public Policy Analysis. This dual framework enables a systematic evaluation that moves beyond mere de jure textual alignment and focuses on the de facto effectiveness of legal transplantation in addressing environmental challenges within a transitional economy. To ensure replicability and to address the complexities of isomorphic mimicry, the methodology is structured around explicit units of analysis, a standardized legal coding scheme, and robust validation mechanisms. The research operationalizes three distinct units of analysis: the treaty level, which captures international obligations; the policy level, which examines national statutory mandates; and the enforcement level, which assesses sub-law implementation and monitoring capacity. The data corpus consists of systematically categorized legal and policy documents enacted between 2020 and 2025, including major international treaties such as the UNFCCC, Paris Agreement, Montreal Protocol, Kigali Amendment, Basel Convention, Stockholm Convention, UNCLOS 1982, and the Convention on Biological Diversity. It also includes primary national legislation, namely the Law on Environmental Protection 2020, Law on Water Resources 2023, Land Law 2024, and Law on Geology and Minerals 2024, as well as secondary regulations such as Decree No. 06/2022/ND-CP, Decree No. 42/2024/ND-CP, and Circular No. 20/2023/TT-BTNMT. External validation data were drawn from independent empirical assessments, including the Vietnam Country Climate and Development Report by the World Bank and the Global Waste Management Outlook by UNEP.

The analysis followed a three-stage regulatory benchmarking procedure to decode the internalization of international environmental norms. First, international obligations were deconstructed into discrete regulatory variables and classified into four thematic pillars: climate and atmosphere, marine and islands, waste and chemicals, and biodiversity. These variables formed the vertical axis of the comparative analytical matrix, while domestic legal instruments formed the horizontal axis. Second, the study applied a semi-quantitative legal coding scheme to assess the level of substantive compatibility between international obligations and domestic legal provisions. High substantive compatibility was assigned where more than 80 percent textual alignment was accompanied by legally binding enforcement sanctions and explicit institutional or financial implementation mechanisms. Medium or partial compatibility was assigned where 50 to 80 percent alignment existed, but where principles were recognized mainly in primary legislation without detailed sub-law guidelines, penalty frameworks, or clearly delegated agency responsibilities. Low compatibility was assigned where less than 50 percent alignment was found, particularly where provisions remained declarative or reflected isomorphic mimicry by adopting international legal forms without adequate technical or administrative capacity for implementation.

The third stage involved gap analysis by moving from the policy level to the enforcement level. This stage examined implementation gaps arising from friction between overlapping domestic frameworks, particularly tensions between development-oriented laws on land and minerals and conservation-oriented biodiversity commitments. The analysis considered variables such as the stringency of administrative sanctions under the Law on Inspection 2025, the existence of inter-ministerial coordination protocols, and the technical maturity of grassroots monitoring, reporting, and verification systems. To strengthen reliability and reduce the subjectivity inherent in legal coding, the study employed methodological triangulation by cross-referencing primary legal text coding with secondary empirical data and independent

assessments. For example, claims concerning high textual compatibility in carbon pricing regulations were validated against independent assessments of Vietnam's actual market readiness. Nevertheless, the study acknowledges several limitations. Assessing de facto enforcement capacity depends heavily on the availability and accuracy of external secondary data, which may vary across Vietnamese provinces. In addition, the semi-quantitative coding thresholds involve a degree of qualitative expert judgment, although this limitation was minimized through the strict and consistent application of the comparative matrix design.

Results and Discussion

Internalization of Climate Commitments: From the Montreal Protocol to the Paris Agreement

Vietnam has demonstrated a strong political commitment to climate change mitigation by systematically internalizing the Paris Agreement and the Kigali Amendment to the Montreal Protocol into its national legal framework. Through the lens of functional comparative law, analyzing the Law No. 72/2020/QH14: Law on Environmental Protection, (2020) and its guiding documents, such as Decree 06/2022/ND-CP, reveals that Vietnam has established a highly comprehensive "de jure" foundation for mitigating greenhouse gas (GHG) emissions and protecting the ozone layer. Specifically, the issuance of Circular No. 20/2023/TT-BTNMT on Collection and Treatment of Controlled Substances provides clear evidence of transforming international obligations into mandatory domestic technical procedures. This Circular explicitly regulates the lifecycle management-including the collection, transport, and treatment-of controlled ozone-depleting substances like HCFCs and HFCs. However, evaluating its "de facto" effectiveness reveals a persistent implementation gap; the physical collection and dismantling of equipment containing these refrigerants remain heavily dependent on the informal waste sector, which fundamentally lacks the technical capacity and specialized infrastructure required to meet these stringent new legal thresholds.

Regarding the Paris Agreement, Vietnam has strategically shifted from a voluntary climate response model to a mandatory compliance regime. This internalization is firmly anchored in Vietnam's 2022 Nationally Determined Contribution, which explicitly establishes quantifiable targets to reduce greenhouse gas emissions by 15.8% unconditionally and by up to 43.5% conditionally with international support by 2030 (Novemyanto, 2025). To achieve these targets, Article 139 of the Law on Environmental Protection 2020 directly incorporates the market-based mechanisms outlined in Article 6 of the Paris Agreement. Building on this statutory foundation, the government issued Decision No. 232/QD-TTg, which sets out a concrete chronological roadmap for establishing a domestic carbon market. Furthermore, to move beyond declarative policy, Decision No. 263/QD-TTg operationalizes a pilot Emissions Trading System designed specifically for high-emission and energy-intensive industrial sectors, particularly power generation, steel manufacturing, and cement production. By assigning explicit mandatory emission quotas measured in tons of CO_2e to individual facilities, the state has created verifiable metrics for corporate accountability. This regulatory trajectory places Vietnam in direct comparison with its ASEAN counterparts. Similar to Indonesia's recent pilot Emissions Trading System and Thailand's voluntary carbon initiatives, Vietnam is navigating the complex challenge of scaling an advanced market mechanism within a transitional economic environment.

In parallel with the carbon market, the enactment of Decree No. 153/2024/ND-CP on Environmental Protection Fees for Emissions represents a structural effort to internalize the "polluter pays" principle, highly consistent with OECD recommendations on carbon pricing. Nonetheless, a systemic gap analysis indicates that this instrument currently achieves only "medium" compatibility with optimal global practices. Functionally, it operates as a baseline environmental pollution fee rather than a dynamic, market-responsive carbon tax. Consequently, the established fee levels are arguably insufficient to exert the financial pressure necessary to fundamentally alter the technology investment behaviors of large-scale industrial conglomerates, thereby capping its capacity to drive deep decarbonization (Åhman et al., 2017; Meckling et al., 2017).

Table 1. Benchmarking Vietnamese Legal Regulations Against International Climate Commitments (2020 – 2025)

International Treaty / Obligation	**Primary Domestic Legislation**	**Sub-law & Operational Instruments**	**Compatibility Level**	**Empirical Indicators & Implementation Gaps**
Paris Agreement (Article 4 & 6): GHG Mitigation & Carbon Markets	Law on Environmental Protection 2020 (Art. 139)	Decree 06/2022/ND-CP; Decision 232/QD-TTg (Carbon Roadmap)	High (De Jure) / Medium (De Facto)	Quantitative target: 15.8% (unconditional) and 43.5% (conditional) reduction by 2030. Pilot ETS scheduled for 2025. Gap: Lack of inter-ministerial MRV infrastructure.
Kigali Amendment (Montreal Protocol): HFCs Phase-down	Law on Environmental Protection 2020 (Art. 92)	Circular 20/2023/TT-BTNMT (Controlled Substances)	High	Mandatory reporting and quota systems for HCFCs/HFCs are operational. Gap: Technical capacity for dismantling at informal recycling craft villages.
OECD/G20 Principles: Carbon Pricing & Polluter Pays	Law on Environmental Protection 2020	Decree 153/2024/ND-CP (Environmental Protection Fees)	Medium	Transitioned from voluntary to mandatory fees. Gap: Fees function as administrative pollution charges rather than dynamic carbon taxes.
UNFCCC: Measurement, Reporting, and Verification (MRV)	Law on Environmental Protection 2020	Circular 15/2023/TT-BTNMT (Monitoring Data)	Medium	Legal mandate for CEMS in high-risk industries. Gap: "Isomorphic mimicry" in enterprise-level data transparency and forensic auditing skills.
Net Zero Pledge (COP26): Long-term Decarbonization	Power Development Plan VIII (PDP8); National Climate Strategy 2050	Decree 06/2022/ND-CP (as amended by Decree 119/2025)	High (Policy Intent)	Shift toward renewable energy (wind/solar). Gap: Conflicts with development-oriented Land Law regarding site allocation for clean energy.

Source: *Compiled by the authors based on* (World Bank, 2022) *and various source, 2026*

Ultimately, the most profound institutional conflict-and a clear manifestation of "isomorphic mimicry"-lies in the enforcement of the Measurement, Reporting, and Verification (MRV) system. While the overarching legislative architecture mandates rigorous, international-standard MRV protocols, the grassroots administrative reality is fractured. Facility-level implementation is severely hampered by a deficit in digital monitoring infrastructure and technical expertise required to accurately quantify complex CO_2e inventories. Furthermore, the lack of synchronized, inter-ministerial data sharing-particularly between the Ministry of Natural Resources and Environment (MONRE) and the Ministry of Industry and Trade (MOIT)-creates critical institutional blind spots. Without a digitally automated and transparent MRV system, the credibility of Vietnam's carbon credits in the global market cannot be guaranteed. This disparity underscores that while textual legal transplantation has succeeded, the domestic institutional capability required for true integration remains incomplete.

Implementation of the Law of the Sea Convention (UNCLOS) and Port State Measures Agreement (PSMA)

In the realm of marine and coastal governance, Vietnam faces the complex geopolitical and environmental mandate of internalizing the United Nations Convention on the Law of the Sea (UNCLOS) 1982, alongside critical specialized agreements such as the Port State Measures Agreement (PSMA) and the MARPOL Convention. As a coastal state with a highly export-dependent seafood economy, Vietnam’s internalization strategy has been heavily catalyzed by international market pressures-most notably the "yellow card" warning issued by the European Commission (EC) in 2017 regarding Illegal, Unreported and Unregulated (IUU) fishing (Van Phuong & Pomeroy, 2022). This exogenous economic shock triggered a rapid transition from generalized marine sovereignty declarations to the establishment of rigorous, functional compliance mechanisms.

The primary "de jure" milestone in this transition was the enactment of the Law No. 18/2017/QH14 on Fisheries (2017), explicitly designed to harmonize domestic regulations with PSMA obligations. This legislation, supported by stringent enforcement guidelines in Decree 42/2019/ND-CP and its subsequent amendments, instituted a comprehensive surveillance architecture for the national fishing fleet. A central pillar of this framework is the mandatory installation of Vessel Monitoring Systems (VMS) on all commercial fishing vessels exceeding 15 meters in length, coupled with strict electronic seafood traceability certifications at designated seaports (Van Phuong & Pomeroy, 2022).

However, applying this study's analytical framework of "isomorphic mimicry" reveals profound "de facto" implementation gaps. While official statistics indicate high formal compliance rates for VMS installation for deep-sea vessels-empirical field studies demonstrate that the operational effectiveness of these systems is frequently compromised. Driven by fuel costs, declining near-shore fish stocks, and insufficient state financial support, many fishers actively subvert the monitoring systems by disconnecting VMS devices or operating in "shadow" fleets outside the surveillance grid. The state's enforcement capacity-specifically the spatial patrol reach of the Coast Guard and Fisheries Surveillance forces-remains disproportionately small compared to the vastness of the Exclusive Economic Zone (EEZ), rendering the high-tech legal mandate difficult to enforce on the water (Van Phuong & Pomeroy, 2022). Consequently, while the legal text fully aligns with international IUU prevention standards, the grassroots execution remains fragmented by socio-economic friction.

Beyond fisheries, Vietnam has made measurable strides in internalizing the MARPOL Convention regarding marine pollution. The recent promulgation of Circular No. 16/2024/TT-BTNMT on Technical Regulations on Exploitation Waste from Offshore Oil and Gas Works 2024 establishes highly specific technical thresholds for the discharge of drilling muds and offshore platform waste. This represents a mature phase of legal transplantation, where international pollution standards are successfully embedded into specialized industrial sub-laws. Nonetheless, scholarship notes an asymmetric compliance landscape: multinational oil and gas joint ventures easily absorb the costs of these stringent environmental technologies, while smaller, domestic maritime operations (such as inter-provincial shipping and local port logistics) struggle to meet equivalent wastewater treatment standards, creating a multi-tiered enforcement reality.

Table 2. Level of Internalization of Sea and Island Conventions in Vietnam's Legal System

International Convention	Core Internalization Requirements	Principal Domestic Instruments	Internalization Type	Benchmarking Indicators & Progress (2020 - 2025)
UNCLOS 1982 (Maritime Zones & Protection)	Sovereignty, jurisdiction, and protection of the marine environment.	Law No. 18/2012/QH13 on the Sea of Vietnam; Law No. 28/2023/QH15 on Water Resources	Substantive	Full alignment: Established legal basis for baseline, territorial sea, and EEZ. New (2023): Integrated water resource management including coastal aquifers.
MARPOL 73/78 (Marine Pollution from Ships)	Prevention of pollution by oil, noxious liquid substances, and garbage.	Law No. 95/2015/QH13 Maritime Code (Gallemore et al., 2024) Circular No. 37/2024/TT-BTNMT	Functional	Operationalized: Regulations on waste oil recycling and port reception facilities. Gap: Forensic capacity for identifying "ghost" dumping in off-shore areas.
London Convention/ Protocol (Dumping at Sea)	Prohibition and regulation of dumping waste at sea.	Law No. 72/2020/QH14 on Environmental Protection; Decree No. 11/2021/ND-C	Procedural	High: Mandatory environmental impact assessment (EIA) for any sea dumping. Gap: Lack of real-time monitoring technology for deep-sea disposal sites.
CBD & Nagoya Protocol (Marine Biodiversity)	Conservation and sustainable use of marine genetic resources.	Law No. 20/2008/QH12 on Biodiversity ; Decree No. 151/2025/ND-CP	Isomorphic Mimicry (Partial)	High (Textual): Legal protection for marine protected areas (MPAs). Critical Gap: Conflict between "Economic development zones" and "MPA conservation" targets.
Stockholm Convention (POPs in Marine Environment)	Elimination of persistent organic pollutants.	Law No. 72/2020/QH14 on Environmental Protection; Circular No. 44/2025/TT-BNNMT	Technical	Emerging: New thresholds for POPs in hazardous waste. Progress: Integrated into national waste management strategy 2025 – 2030.

Source: Source: data was complied from various source, 2026

Most critically, a systemic evaluation uncovers a severe inter-sectoral conflict between Vietnam's aggressive marine economic development targets and its conservation obligations under UNCLOS (specifically Article 192, which mandates the protection and preservation of the marine environment). This tension is acutely visible in the implementation of Decree No. 42/2024/ND-CP on Sea Reclamation Activities 2024. While the decree formally mandates Environmental Impact Assessments (EIAs), its structural intent is to facilitate the expansion of industrial zones and real estate into coastal waters. Scholars argue that localized, provincial-level approval of sea reclamation projects frequently prioritizes short-term economic metrics over cumulative ecological impacts, threatening highly sensitive coastal ecosystems like mangroves and coral reefs (Ebeler et al., 2025).

This regulatory overlap is critically exacerbated by the delayed operationalization of a legally binding, scientifically rigorous National Marine Spatial Plan (NMSP). Without a unified NMSP, ocean governance remains heavily siloed. The Ministry of Natural Resources and Environment (MONRE) advocates for marine protected areas, while provincial governments and the Ministry of Construction push for coastal development. This absence of integrated spatial zoning ensures that "de jure" environmental protections are frequently overridden by "de facto" economic imperatives, highlighting a persistent vulnerability in Vietnam's internalization of global marine law.

Biodiversity Conservation: CBD Convention and Nagoya Protocol

Vietnam, endowed with profound ecological wealth, is an active signatory to the Convention on Biological Diversity (CBD) and the Nagoya Protocol (Anh et al., 2024). Over the past decade, the state has prioritized the internalization of these global mandates into its domestic legal framework to arrest severe biodiversity loss driven by rapid industrialization (Tung et al., 2022). While the Law on Biodiversity 2008 remains the foundational "de jure" document establishing Special-Use Forests (SUFs) and nature reserves, a critical analysis of the 2020–2025 legislative wave reveals a deep inter-sectoral paradox. New specialized laws are increasingly designed to prioritize rapid economic development, frequently overriding conservation mandates and demonstrating a classic manifestation of isomorphic mimicry-where the state formally adopts international conservation terminology but administratively facilitates environmental degradation.

A prominent example of this regulatory friction is the recently enacted Law No. 54/2024/QH15: Law on Geology and Minerals (2024). While the law nominally respects ecological boundaries, it introduces highly discretionary provisions allowing for the adjustment of boundaries in areas prohibited from mineral activities-specifically designated protected areas-in cases deemed as "urgent national need." This creates a profound legal loophole, enabling extractive industries to legally encroach into critical ecological zones and core biodiversity corridors. Such legislative overlapping subverts the core tenets of "in-situ" conservation required by the CBD, subordinating international ecological commitments to domestic industrial output.

Conversely, in the realm of forestry governance, the state has made tangible progress in internalizing Access and Benefit-Sharing (ABS) principles derived from the Nagoya Protocol. Specifically, Decree No. 183/2025/ND-CP Amending Decree No. 156/2018/ND-CP on the Law on Forestry (2025) officially permits regulated economic development, such as the cultivation of medicinal plants, directly under the forest canopy. This progressive policy provides sustainable livelihood opportunities for local,

forest-dependent communities without incentivizing deforestation, directly echoing the Nagoya Protocol's ethos of equitable benefit sharing from genetic resources.

To further finance conservation, Vietnam has institutionalized the Payment for Forest Ecosystem Services (PFES) mechanism. Recent empirical evaluations published in top-tier environmental economics journals underscore that while PFES generates critical non-state revenue and provides supplemental income for local households, its actual impact on halting longstanding deforestation remains constrained by insecure land tenure and centralized, un-marketized governance structures (Gallemore et al., 2024). Furthermore, a significant implementation gap persists in the scope of PES. The mechanism is almost exclusively restricted to the forestry sector, specifically watershed protection for hydropower. Crucial wetland, coastal, and marine ecosystem services-which are equally vital under the CBD-remain critically undervalued and are currently excluded from mandatory national payment schemes (Do et al., 2018).

Table 3. Compatibility between National Law and Biodiversity Conventions: A Benchmarking Analysis

International Convention	**Internalization Mechanism**	**Principal Domestic Instruments**	**Compatibility Type**	**Alignment Indicators & Implementation Gaps**
Convention on Biological Diversity (CBD)	Biodiversity conservation and sustainable benefit sharing.	Law No. 20/2008/QH12 on Biodiversity; Decree No. 151/2025/ND-CP	Isomorphic Mimicry	Textual alignment: High. De facto gap: Significant conflict with Land Law 2024 regarding the conversion of protected forest land for infrastructure projects.
Nagoya Protocol	Access to genetic resources and Benefit-Sharing (ABS).	Law No. 20/2008/QH12 on Biodiversity; Decree No. 59/2017/ND-CP	Procedural	Operationalized: Established administrative procedures for ABS. Gap: Weak monitoring of transboundary genetic resource flows in digital sequence information (DSI).
CITES	Regulation of international trade in endangered species.	Decree No. 06/2019/ND-CP; Decree No. 84/2021/ND-CP	Substantive	High: Strict permit system for CITES-listed species. Progress: Integrated into the Law on Forestry 2017 and its 2025 amendments (Decree No. 183/2025/ND-CP).
Ramsar Convention	Conservation and wise use of wetlands.	Law No. 72/2020/QH14 on Environmental Protection; Decree No. 66/2019/ND-CP	Functional	Medium: Institutionalized "Wetland conservation areas." Critical Gap: Overlap in jurisdiction between Agriculture (MARD) and Environment (MONRE) sectors.
Cartagena Protocol	Biosafety and management of Living Modified Organisms (LMOs).	Law No. 20/2008/QH12 on Biodiversity; Circular No. 46/2025/TT-BNNMT	Technical	Emerging: New standards for waste co-processing and biosafety risk assessment. Gap: Limited laboratory capacity for real-time LMO detection at ports.

Source: Source: data was complied from various source, 2026

Finally, the fundamental fragmentation of Vietnam's environmental governance is cemented by the profound misalignment between the Law No. 31/2024/QH15: Land Law 2024 and the Law No. 20/2008/QH12: Law on Biodiversity. The national administrative apparatus governs space primarily through the Land Law, which rigidly classifies and manages areas based on administrative "land types" (e.g., agricultural, non-agricultural, residential). In stark contrast, the Law on Biodiversity advocates for spatial management based on holistic "ecosystems." Because the Land Law supersedes environmental regulations in local provincial planning and land-use allocation, ecological zones are frequently fragmented by infrastructure or agricultural zoning. This jurisdictional dissonance makes the establishment and maintenance of continuous trans-provincial biodiversity corridors structurally impossible, confirming that despite high formal CBD integration, the "de facto" execution is severely crippled by institutional silos.

Waste Management and Circular Economy: Basel and Stockholm Conventions

In the domain of waste and chemical management, Vietnam's 2020 – 2025 legislative wave represents a critical pivot from fragmented, reactive pollution control to the systemic internalization of the Basel and Stockholm Conventions. Historically, Southeast Asian nations, including Vietnam, have been highly vulnerable to the transboundary dumping of hazardous materials, risking their transformation into global "technology landfills" following the disruption of international waste supply chains (Bakhiyi et al., 2018; Liu et al., 2023; Mihai et al., 2022). To mitigate this vulnerability, Vietnam has pursued high "substantive compatibility" with international standards. A cornerstone of this effort is Circular No. 44/2025/TT-BNNMT on Hazardous Waste Thresholds 2025. This regulatory instrument rigorously operationalizes the Basel Convention's technical guidelines by establishing precise, quantifiable demarcation lines between hazardous and ordinary waste based on the concentration limits of hazardous components, including Persistent Organic Pollutants (POPs) and heavy metals. By instituting these advanced scientific thresholds, the state has legally fortified its customs and environmental monitoring apparatus to effectively control transboundary waste movements and prevent the illicit importation of substandard technological scrap.

Beyond boundary control, the domestic management of waste has undergone a structural paradigm shift towards a Circular Economy (CE), directly guided by the Law on Environmental Protection 2020 and its subsidiary decrees. The most prominent mechanism driving this transition is the mandatory Extended Producer Responsibility (EPR) policy, which systematically shifts the financial and physical burden of end-of-life product management from local municipalities to manufacturers and importers (Leclerc & Badami, 2020; Tran et al., 2025). Given that Vietnam generates an estimated 3.8 million tonnes of plastic waste annually, the EPR framework mandates specific, phased recycling rates for various packaging materials-for instance, enforcing progressive recycling targets for PET and aluminum starting in 2024. Corporations are legally compelled to either organize physical recycling networks that meet strict environmental criteria or contribute financial premiums to the Vietnam Environmental Protection Fund (VEPF). This legal transplantation reflects a sophisticated alignment with the United Nations Environment Programme's directives on sustainable consumption and production, aiming to close the material loop and minimize leakage into vulnerable ecosystems.

Furthermore, the state has actively institutionalized industrial symbiosis through specialized sub-laws. Regulations governing waste co-processing in cement kilns, explicitly detailed in Circular No. 46/2025/TT-BNNMT on Waste Co-Processing in Cement Kilns (2025), alongside guidelines for waste oil recovery in Circular No. 37/2024/TT-BTNMT on Waste Oil Recycling (2024) , demonstrate a proactive approach to resource recovery. Co-processing provides a dual benefit: it permanently destroys hazardous residues at extremely high temperatures while simultaneously substituting traditional fossil fuels in energy-intensive industries (Ghosh et al., 2021). To maintain ecological integrity during these processes, the legal framework explicitly internalizes the Stockholm Convention by imposing stringent emission thresholds for highly toxic byproducts, most notably Dioxins and Furans.

However, evaluating these "imported" technical standards through the theoretical lens of "isomorphic mimicry" exposes profound "de facto" enforcement gaps and intense socio-economic friction. The operationalization of high-tier environmental technologies-specifically the advanced filtration systems required to suppress Dioxin/Furan emissions to globally acceptable limits-demands massive capital expenditure (CAPEX) and ongoing operational costs (OPEX). This financial reality has catalyzed a pronounced "two-speed compliance" landscape within Vietnam's waste sector. Large-scale formal enterprises and multinational corporations possess the financial leverage, institutional backing, and technical capacity to seamlessly integrate these standards. In stark contrast, the expansive informal recycling sector, heavily concentrated in peri-urban "craft villages", is fundamentally marginalized.

This regulatory bifurcation poses a severe systemic risk to the overall health of the circular economy. The informal sector currently collects, sorts, and processes over 60% of municipal and recyclable waste in Vietnam. When national laws mandate technical standards that the grassroots reality cannot financially sustain, it inevitably drives informal recyclers deeper into the shadow economy to avoid regulatory scrutiny and administrative penalties. Consequently, primitive recycling practices-such as the open-pit burning of electronic waste cables to extract copper, or the use of rudimentary acid baths for lead-acid battery recovery persist unregulated, leading to acute localized contamination of soil and groundwater aquifers. This dynamic mirrors similar legal transplantation challenges observed in Indonesia and the Philippines, where the abrupt formalization of waste governance inadvertently criminalizes the very demographic responsible for the bulk of actual waste diversion (Mihai et al., 2022).

Therefore, while Vietnam's 2020–2025 legislative texts demonstrate exemplary "de jure" alignment with the Basel and Stockholm Conventions, true "de facto" internalization remains hindered by profound domestic capability deficits. A successful transition to a sustainable circular economy requires the state to move beyond declarative technical thresholds and actively design inclusive, capacity-building financial mechanisms. The ultimate regulatory challenge lies in integrating, rather than alienating, the informal recycling networks into the formal EPR and co-processing ecosystems, ensuring that environmental compliance does not come at the cost of profound socio-economic disenfranchisement.

Table 4. Internalization of Waste and Chemical Management Regulations: From Linear to Circular Economy

International Convention	Core Regulatory Requirements	Principal Domestic Instruments	Internalization Mechanism	Benchmarking Indicators & Progress (2020 – 2025)
Basel Convention (Hazardous Waste)	Control of transboundary movements and disposal of hazardous wastes.	Law No. 72/2020/QH14 on Environmental Protection; Decree No. 08/2022/ND-CP	Substantive	High: Mandatory licensing for hazardous waste treatment and strict import quotas for scrap. Gap: Illegal transboundary e-waste flow in informal clusters.
Stockholm Convention (POPs)	Elimination or restriction of Persistent Organic Pollutants (POPs).	Law No. 72/2020/QH14 on Environmental Protection; Circular No. 44/2025/TT-BNNMT	Technical	Emerging: New safety thresholds for POPs in industrial chemicals. New (2025): Monitoring requirements for POPs in waste co-processing (cement kilns).
Rotterdam Convention (Prior Informed Consent)	Shared responsibility in the international trade of hazardous chemicals.	Law on Chemicals 2007 (under revision 2024 - 2025); Decree No. 113/2017/ND-CP	Procedural	Operationalized: Mandatory "Prior Informed Consent" (PIC) procedure for chemical imports. Gap: Asymmetry in data reporting between local SMEs and national database.
Minamata Convention (Mercury)	Protection of human health and the environment from mercury emissions.	National Action Plan on Mercury (Decision No. 1475/QD-TTg); Circular No. 15/2023/TT-BTNMT	Functional	Medium: Roadmap for phasing out mercury-added products (lamps, thermometers). Gap: Lack of specialized technology for mercury recovery from solid waste.
EPR Principles (OECD Guidelines)	Extended Producer Responsibility for waste management.	Law No. 72/2020/QH14 on Environmental Protection; Decree No. 08/2022/ND-CP	Market-based	Full implementation (2024): Mandatory recycling contributions for packaging, batteries, and oils. Indicator: Establishment of the National EPR Council and recycling fund.

Source: data was complied from various source, 2026

Water Resource Management: Integrated Management Approach (IWRM)

The enactment of the Law No. 28/2023/QH15: Law on Water Resources marks a major legislative milestone in Vietnam's effort to internalize the principles of Integrated Water Resources Management (IWRM), a global governance standard heavily advocated by the Global Water Partnership (GWP) and UN-Water. From a "de jure" perspective, this law represents a sophisticated case of legal transplantation, effectively shifting the national paradigm from localized, sector-specific water exploitation to holistic, basin-wide security. The legislation explicitly legally mandates water management according to hydrological river basin boundaries rather than artificial

administrative provincial borders. Furthermore, the rigorous statutory regulations establishing strict water-source protection corridors and mandating the maintenance of "environmental flows" for all hydropower and irrigation projects demonstrate high substantive compatibility with international best practices for safeguarding aquatic ecosystems and mitigating drought vulnerability. Additionally, the 2023 Law internalizes the economic valuation of water-a core IWRM tenet (the Dublin Principles)-by structuring extraction licensing fees to reflect resource scarcity and environmental externalities, theoretically deterring industrial over-exploitation (Tortajada & Biswas, 2016).

However, transitioning from textual policy analysis to "de facto" enforcement realities reveals profound institutional friction. Evaluated through the theoretical lens of "isomorphic mimicry," Vietnam's water governance apparatus has successfully adopted the external architectural forms of IWRM-specifically the establishment of River Basin Committees (RBCs)-but structurally denies these bodies the actual capability to govern. While RBCs are legally constituted to coordinate basin-wide planning, they function predominantly as advisory panels. They lack the autonomous financial budgets, independent inspection personnel, and, most critically, the statutory veto power required to override provincial economic decisions that threaten basin health.

This institutional weakness is severely exacerbated by a fundamental inter-sectoral conflict between water governance and land management. The state's aggressive drive toward administrative decentralization, crystallized in the Law No. 31/2024/QH15 Land Law 2024 and highly operationalized by Decree No. 151/2025/ND-CP on Decentralization in the Land Sector 2025, has transferred sweeping land allocation, zoning, and leasing authority directly to Provincial People's Committees. Because provincial leadership performance is predominantly evaluated based on localized GDP growth, foreign direct investment (FDI), and industrial expansion, there is a structural incentive to prioritize immediate economic output over long-term, trans-boundary environmental security.

Consequently, a profound spatial governance paradox emerges: water is governed hydrologically by the central state, but the land directly adjacent to and impacting that water is governed administratively by decentralized local authorities. Under Decree 151/2025, upstream provinces possess the unilateral authority to zone heavy water-consuming industrial parks or intensive agricultural clusters directly along critical water corridors without requiring binding consent from downstream provinces or the governing RBC. This regulatory overlapping frequently triggers severe inter-provincial externalities. Empirical evidence from highly industrialized basins, such as the Dong Nai and Cau River basins, demonstrates that upstream industrial land-use decisions routinely lead to downstream water pollution and severe domestic water supply disruptions, neutralizing the environmental flow mandates established in the 2023 Water Law.

Ultimately, while Vietnam has achieved commendable statutory alignment with global IWRM treaties, the practical internalization remains highly fragmented. The overarching legal supremacy of decentralized, development-oriented land laws continually undermines conservation-oriented water mandates. To achieve true substantive integration, future legislative reforms must elevate the statutory authority of River Basin Committees, granting them binding regulatory oversight over provincial land-use master plans that intersect with critical hydrological corridors.

Table 5. Benchmarking IWRM Principles against the Law on Water Resources 2023

IWRM / Dublin Principles	Core Scientific Concept	Vietnamese Legal Instruments	Internalization Status	Benchmarking Indicators & Implementation Gaps
Principle 1: Fresh water is a finite and vulnerable resource.	Holistic River Basin Management.	Law No. 28/2023/QH15 on Water Resources; Decree No. 53/2024/ND-CP	Substantive	High: Shift from administrative boundaries to river basin management. Indicator: Development of River Basin Organizations (RBOs).
Principle 2: Participatory approach involving users and planners.	Decentralization & Community Engagement.	Law No. 28/2023/QH15 on Water Resources ; Decree No. 54/2024/ND-CP	Functional	Operationalized: Legal recognition of community-based water management. Gap: Limited financial autonomy for local water user associations.
Principle 3: The pivotal role of women in water management.	Gender Mainstreaming in Resource Governance.	Law No. 73/2006/QH11 on Gender Equality; National Strategy on Water Resources 2030	Isomorphic Mimicry	Textual alignment: General inclusion in policy goals. Critical Gap: Lack of specific gender-disaggregated indicators in water project monitoring.
Principle 4: Water has an economic value in all its uses.	Economic Instruments & Valuation.	Law No. 28/2023/QH15 on Water Resources (Art. 67-72); Decree No. 10/2024/ND-CP	Market-based	Full integration: Introduction of water extraction rights trading and "Polluter Pays" principle. Indicator: Progressive water pricing for different sectors.
Integrated Management: Conflict resolution between sectors.	Inter-sectoral Synergy.	No. 31/2024/QH15 Land Law; Law No. 28/2023/QH15 on Water Resources	Procedural	Medium: Mandatory coordination in water exploitation planning. Critical Gap: Overlap between "Hydropower priorities" and "Eco-system conservation" flows.

Source: Compiled by the authors based on (World Bank, 2022) *and various source, 2026*

Enforcement and Monitoring Mechanisms: The Role of Inspection

The ultimate efficacy of environmental legal transplantation is dictated not by the sophistication of statutory drafting, but by the rigor and integrity of grassroots enforcement. Recognizing that historically weak enforcement has chronically undermined environmental governance in Vietnam, the state has sought to fortify its compliance architecture through the recent enactment of the Law No. 84/2025/QH15: Law on Inspection 2025 and the Law No. 88/2025/QH15: Law Amending the Law on Handling of Administrative Violations 2025. From a "de jure" perspective, these legislative instruments are designed to dismantle historic implementation gaps by significantly elevating the statutory ceilings for financial penalties, expanding the mandate for license revocations, and empowering provincial inspectors with broader sanctioning authority. This legislative tightening aligns with modern deterrence theory, aiming to shift corporate calculus so that the financial cost of non-compliance definitively outweighs the operational savings of pollution (Faure & Partain, 2019).

A critical modernization effort within this enhanced enforcement framework is the institutionalization of digital governance. Under Circular No. 15/2023/TT-BTNMT on Monitoring Information and Data (2023), the state mandates the deployment of Continuous Emission Monitoring Systems (CEMS) for high-risk industrial facilities. Crucially, this regulation provides the legal basis for unannounced inspections triggered dynamically by real-time automated data anomalies. By legally bypassing the traditional, highly predictable, and often compromised scheduled inspection regimens, Vietnam is aligning its monitoring protocols with global digital transformation trends advocated by the United Nations Environment Programme.

However, evaluating this modern enforcement architecture through the conceptual lens of "isomorphic mimicry" exposes a profound capability trap (Pritchett et al., 2013). While Vietnam has successfully upgraded its punitive legal texts and digital monitoring hardware, the state faces a severe disjunction regarding human capital. The "de facto" technical capacity of frontline environmental inspectors-particularly within provincial Departments of Natural Resources and Environment (DONREs)-remains structurally inadequate to navigate the extreme scientific complexities introduced by the new-generation international treaties.

For instance, enforcing the market mechanisms of the Paris Agreement requires highly specialized auditing skills in Measurement, Reporting, and Verification (MRV) to detect fraudulent corporate carbon accounting and ensure the integrity of the emission trading system (ETS). Similarly, policing compliance with the Stockholm and Basel Conventions demands advanced toxicological knowledge to accurately sample and analyze highly complex chemical compounds like Dioxins, Furans, and persistent organic pollutants (POPs) (Mohapatra et al., 2023). Currently, grassroots inspectors often lack the forensic training, independent laboratory infrastructure, and inter-disciplinary expertise required to conduct these rigorous scientific assessments. Consequently, field inspections frequently revert to superficial, administrative "box-checking" rather than substantive environmental auditing. The severe asymmetry between the millions of regulated domestic enterprises and the limited cadre of scientifically trained state inspectors ensures that, despite robust legal texts and digital sensors, the practical enforcement of international environmental standards in Vietnam remains critically bottlenecked by institutional capacity deficits.

Conclusion

The systematic internalization of international environmental treaties into Vietnam's 2020–2025 legal framework represents a transformative shift from formalistic compliance to substantive, market-driven integration. By institutionalizing mechanisms such as the domestic carbon market and Extended Producer Responsibility, Vietnam has achieved a high degree of technical alignment with global environmental norms. However, this study concludes that the legal system continues to grapple with isomorphic mimicry, whereby sophisticated international principles are layered onto a fragmented domestic administrative structure that lacks the technical and financial capacity for effective implementation. Persistent implementation gaps, exemplified by regulatory tensions between economic-oriented land management and conservation-oriented biodiversity obligations, illustrate a capability trap in environmental legal transplantation.

However, achieving de facto effectiveness necessitates a departure from the conventional, sector-specific silos that have historically characterized Vietnam's approach. It is essential for managers and policymakers to prioritize the implementation of automated compliance mechanisms and unified digital monitoring systems. These measures are crucial for enhancing inter-ministerial coordination and ensuring the effective functioning of government operations. Furthermore, it is imperative to address the capacity disparity among grassroots inspectors to transcend the mere implementation of global standards

While this study provides a systemic overview, future research should employ longitudinal empirical designs to measure the direct impact of the 2028 carbon market operationalization on industrial emission trajectories. Further investigation is also needed into the socio-economic integration of the informal recycling sector within the national Extended Producer Responsibility framework. Such research will be critical for understanding how transitional economies can fulfill global climate commitments while maintaining competitive advantages under new-generation trade agreements.

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