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Vietnam's Air Pollution And Policy Gap

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***Abstract**:* Vietnam's rapid economic development since the 1986 *Doi Moi* reforms has been shadowed by a persistent and severe air pollution crisis. This review systematically analyzes the nexus between the evolution of Vietnam's environmental legal framework and corresponding air quality trends over three decades. Despite the progressive development of a comprehensive legislative architecture, culminating in the Law on Environmental Protection 2020, this study reveals a profound disconnect between policy ambition and environmental outcomes. Ambient concentrations of key pollutants, particularly fine particulate matter ($PM_{2.5}$), remain dangerously high, consistently exceeding both national standards and World Health Organization guidelines by a significant margin, thereby imposing substantial public health and economic burdens. The temporary air quality improvements during COVID-19 lockdowns starkly demonstrated that pollution levels are dictated more by the intensity of economic activity than by the efficacy of existing regulations. This review argues that the central problem is a critical implementation gap, originating not from inadequate laws but from deep-seated, systemic challenges. These include fragmented institutional governance, a de facto prioritization of economic growth over environmental protection, chronically weak enforcement mechanisms, and a constrained space for civil society to ensure accountability. The pattern of repeatedly revising legislation without addressing these foundational issues has created a "legislative treadmill," giving an illusion of progress while failing to achieve tangible improvements. The analysis concludes that a fundamental paradigm shift--from policy formulation to a resolute focus on robust enforcement, institutional reform, and data transparency--is imperative for Vietnam to mitigate this environmental crisis and realize its sustainable development goals.

Keywords: Vietnam, Air Pollution, Environmental Law, Implementation Gap, Environmental Governance
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I. Introduction

Vietnam's remarkable economic trajectory following the 1986 *Doi Moi* reforms, which has lifted millions out of poverty, has concurrently incurred high environmental costs, most visibly manifested in severe air pollution. This challenge is characteristic of the development path in Southeast Asia, where rapid industrialization and urbanization have consistently outpaced the capacity for effective environmental governance. The result in Vietnam is a public health crisis, with metropolitan centers like Hanoi and Ho Chi Minh City (HCMC)[1] frequently ranking among the world's most polluted cities (Thang and Thi, 2023, pp. 1-5).

The primary pollutant of concern, fine particulate matter ($PM_{2.5}$), consistently reaches annual mean concentrations that significantly exceed both Vietnam's national technical regulations (QCVN) and, by a much larger margin, the stringent guidelines of the World Health Organization (WHO) and UNDP[2] (Nhung et al., 2022, pp. 1-5; Linh-Thy et al., 2024, pp. 120-122). This is not an abstract indicator but a pervasive threat with a staggering toll: estimates attribute 60,000 to 70,000 premature deaths in Vietnam annually to air pollution, with associated economic losses exceeding US$13 billion per year, or approximately 5% of the national GDP [3] (Thang and Thi, 2023, pp. 1).

In direct parallel with this escalating environmental crisis, Vietnam has developed a progressively sophisticated legal framework for environmental protection. This legislative journey began with the foundational Law on Environmental Protection (LEP) in 1993 and was subsequently revised and ostensibly strengthened in 2005, 2014, and most recently in 2020[4] (Thang and Thi, 2023, pp. 5-7). Each legislative update integrated advanced governance mechanisms, ranging from comprehensive environmental standards to domestic carbon market frameworks, solidifying the government's formal political commitment.

However, the central thesis of this review is that despite this comprehensive legal architecture, a persistent and widening implementation gap has largely nullified its intended effects. This critical disconnect between policy intent and real-world outcomes has prevented meaningful, sustained improvements in air quality, thereby undermining the nation's long-term development aspirations. This review synthesizes over three decades of legal evolution and air quality data to provide a critical analysis of Vietnam's policy effectiveness in combating air pollution. The analysis first traces the development of the air quality management framework chronologically, then presents a data-driven portrait of the country's contemporary pollution status. Subsequently, the review critically examines the incongruent relationship between these two timelines and deconstructs the systemic causes of the identified implementation gap, before offering conclusions and strategic directions necessary to bridge this critical gap.

II. Methodology

This study was designed as a systematic review to provide a comprehensive, transparent, and reproducible synthesis of evidence on the relationship between Vietnam's environmental legislation and its air quality outcomes. The review was conducted in the first half of 2025 and covers the period from January 1993, when the first Law on Environmental

[1] Breathesafeair (2024). Air Pollution in Vietnam. 13 January 2024. Available at: Https://Breathesafeair.Com/Air-Pollution-in-Vietnam/ [Accessed 25.o4.2026].
[2] United Nations Development Programme - UNDP (2024). Viet Nam's Heavy Air Pollution Needs Stronger Action. Available at: Https://Www.Undp.Org/Vietnam/Blog/Viet-Nams-Heavy-Air-Pollution-Needs-Stronger-Action [Accessed 25.04.2026].
[3] World Health Organization – WHO (2026). National Scientific Conference on Combating Air Pollution and Improving Air Quality in Viet Nam. Available at: Https://Www.Who.Int/Vietnam/News/Detail/25-04-2025-National-Scientific-Conference-on-Combating-Air-Pollution-and-Improving-Air-Quality-in-Viet-Nam [Accessed 25.04.2026].
[4] Socialist Republic of Vietnam. Law on Environmental Protection (versions 1993, 2005, 2014 and 2020).

Protection was enacted, to the present. To ensure a rigorous and unbiased analysis, the methodology adheres to established principles for conducting scientific reviews. A multi-faceted search strategy was employed to identify all relevant sources. This involved a systematic search of academic databases, including Scopus, Web of Science, and Google Scholar, using keyword combinations such as: ("Vietnam" OR "Ha Noi") AND ("air pollution" OR "air quality" OR "$PM_{2.5}$") AND ("policy" OR "law" OR "regulation" OR "governance").

The academic search was supplemented by a thorough review of primary legal and policy documents sourced from official government portals. These included the cornerstone *Law on Environmental Protection* from 1993, 2005, 2014, and 2020, along with their key implementing Decrees and Circulars. Additionally, grey literature, including technical reports and datasets from reputable organizations such as the World Health Organization (WHO), the United Nations Development Programme (UNDP), the World Bank, and Vietnam's Ministry of Natural Resources and Environment (MONRE), was systematically collected to provide essential data and context. The selection of materials for in-depth analysis was guided by specific inclusion criteria, prioritizing peer-reviewed articles, official government reports, and legal documents that presented empirical air quality data, analyzed Vietnamese environmental policy, or discussed governance challenges. News articles without primary data and studies not directly focused on Vietnam were excluded from the primary synthesis.

The analytical approach employed in this review is a narrative synthesis structured by a chronological framework. This method involved two sequential steps. First, a detailed timeline of major legislative and policy interventions related to air quality management in Vietnam from 1993 to 2025 was systematically mapped. Second, this legislative timeline was juxtaposed with time-series data and trend analyses of key air pollutants (primarily $PM_{2.5}$, but also NO_x and SO_2) derived from the peer-reviewed literature and official monitoring sources. This comparative approach allows for a critical evaluation of policy effectiveness by identifying correlations—or the conspicuous lack thereof—between policy enactment and subsequent changes in air quality. This analysis forms the basis for identifying the "implementation gap," which is then further deconstructed through a qualitative synthesis of literature focusing on systemic barriers related to governance, economic priorities, and enforcement capacity.

III. Results and Discussion

III.1 The Legislative Trajectory for Air Quality Management

Vietnam's legislative response to environmental degradation has evolved significantly over the past three decades, creating an increasingly comprehensive and complex legal framework for air quality management. This evolution can be understood as a series of reactive steps, with each new law attempting to address the shortcomings of its predecessor amid worsening pollution. This progression is detailed in Table 1. The journey began with the Law on Environmental Protection (LEP) 1993, a landmark piece of legislation enacted in the early years of the *Doi Moi* economic reforms. As the country's first comprehensive environmental law, it established foundational principles and the State's responsibility for environmental management. However, its provisions were largely general and lacked the specific mechanisms required for effective air pollution control. It introduced the concept of Environmental Impact Assessment (EIA), but in a rudimentary form that had limited practical effect on project approval and implementation.[5]

Recognizing these limitations, the LEP 2005 represented a substantial advancement. It introduced a more specific regulatory regime, most notably by establishing the system of National Technical Regulations (QCVN) as enforceable environmental standards. This law

[5] Netherlands-Commission-for-Environmental-Assessment, (2022). Vietnam Legislation at the Project Level. Available at: Https://Www.Eia.Nl/En/Countries/Vietnam/Legislation-at-Project-Level/ [Accessed 25.04.2026].

contained explicit articles requiring the control of dust, emissions, and noise from transportation and industrial activities, and mandated that vehicles meet emission standards. This marked a shift towards a more structured, standards-based approach to air quality management.[6]

The LEP 2014 continued this modernization trend, aiming to align Vietnam's framework more closely with international practices. It refined the EIA process, introduced the concept of strategic environmental protection planning, and, significantly, added a dedicated chapter on responding to climate change, formally linking it to air quality through the management of greenhouse gases (GHGs) and the promotion of clean energy. This law was buttressed by crucial implementing policies, chief among them the National Action Plan on Air Quality Management to 2020 (Decision No. 985a/QD-TTg), which set specific targets and assigned tasks to various ministries to control emission sources and expand monitoring networks.[7]

The current and most ambitious legislation is the LEP 2020 that took effect in 2022. This law represents a paradigm shift on paper, seeking to streamline and strengthen environmental governance through several key innovations. It integrates multiple permits into a single Environmental License, classifies projects based on their level of environmental risk rather than just their scale, and formally recognizes "residential communities" as key stakeholders with a role in monitoring. Critically, it lays the legal foundation for a domestic carbon market by mandating GHG emission quotas and trading systems. For the first time, it also requires all provinces to develop and implement their own air quality management plans, decentralizing planning while centralizing certain standards. This law is operationalized by the National Strategy for Environmental Protection to 2030, with a vision to 2050 (Decision No. 450/QD-TTg), which champions the development of a circular economy, the expansion of renewable energy, and stricter controls on waste and industrial pollution.

This nearly 30-year legislative history reveals a clear pattern. Each revision of the LEP was prompted by the acknowledged "deficiencies and shortcomings" of its predecessor and the mounting public and political pressure from ongoing environmental degradation. However, as the subsequent analysis will show, air quality failed to improve meaningfully after each revision. This suggests that the problem may not lie in the laws themselves but in persistent systemic barriers to their implementation. The cycle of reacting to policy failures by drafting new, more complex laws, without fixing the underlying enforcement machinery, has left Vietnam in a state of constant legal motion with little significant forward progress in environmental outcomes.

Table 1. Chronology of major Vietnamese environmental laws and air quality policies (1993–2025)

Year	Law/Policy Title	Air Quality-Related Provisions
1993	Law on Environmental Protection (LEP 1993)	Established first general principles of environmental protection; Introduced rudimentary Environmental Impact Assessment (EIA).
2005	Law on Environmental Protection (LEP 2005)	Introduced National Technical Regulations (QCVN) as enforceable standards; Mandated control of industrial and transport emissions and noise.

[6] Socialist Republic of Vietnam. Law on Environmental Protection (version 2005).
[7] Socialist Republic of Vietnam. Law on Environmental Protection (version 1993, 2005, 2014 and 2020).

2014	Law on Environmental Protection (LEP 2014)	Refined EIA process; Introduced environmental protection planning; Added chapter on climate change response and GHG management.
2016	Decision No. 985a/QD-TTg	Approved the National Action Plan on Air Quality Management to 2020, setting specific targets for emission reduction and monitoring expansion.
2020	Law on Environmental Protection (LEP 2020)	Integrated permits into a single Environmental License; Classified projects by environmental risk; Mandated a domestic carbon market; Required provincial air quality management plans.
2021	COP26 Commitment	Prime Minister pledged to achieve net-zero emissions by 2050 and phase out unabated coal power.[8]
2022	Decision No. 450/QD-TTg	Approved the National Strategy for Environmental Protection to 2030, vision to 2050, emphasizing a circular economy, renewable energy, and stricter waste management.

III.2 Contemporary Air Pollution: Trends, Sources, and Hotspots

Despite the extensive legislative efforts, Vietnam's air quality remains a severe public health threat, particularly in its rapidly expanding urban and industrial regions. The data from the last decade paint a stark picture of a nation struggling with hazardous levels of pollution, with fine particulate matter ($PM_{2.5}$) emerging as the most prominent and dangerous pollutant (Linh-Thy et al., 2024, pp. 120-123). Annual mean PM2.5 concentrations in the industrial heartlands of the Red River Delta (such as Bac Ninh and Hung Yen provinces) and major cities like Hanoi frequently exceed Vietnam's national standard of 25 µg/m³ (QCVN 05:2013/BTNMT). For instance, 2019 data showed that Hanoi's annual average reached 40.8 µg/m³, whereas Ho Chi Minh City recorded a lower average of 20.9 µg/m³ (Nhung et al., 2022, pp.1-5). More recently, in 2023, average nationwide $PM_{2.5}$ levels were reported to be nearly six times the WHO-recommended level, underscoring the persistence of the problem.[9] As illustrated in Table 2, the gap between reality and internationally recognized safe levels is vast. While other criteria pollutants, such as sulfur dioxide (SO_2) and nitrogen oxides (NOx), are also significant concerns, $PM_{2.5}$ remains the primary driver of the air pollution-related disease burden (Linh-Thy et al., 2024, pp. 120-121; Phung et al., 2016, pp. 9-16). Total national SOx emissions were estimated at 750,000 tons in 2018, with over 91% originating from thermal power plants and industrial activities, underscoring the significant impact of the energy and manufacturing sectors (Linh-Thy et al., 2024, pp. 121).

Source apportionment studies consistently identify a multi-faceted and deeply embedded set of emission sources. Transportation is a dominant contributor in urban areas, driven by a massive and growing fleet of over 58 million motorbikes and millions of cars, many of which utilize outdated engine technology with poor emission controls (Thang and Thi, 2023,

[8] Climate Action Tracker, (2025). Viet Nam. 28 October 2025. Available at: https://climateactiontracker.org/countries/vietnam/ [Accessed 25.40.2026].

[9] United Nations Development Programme – UNDP, (2024). Viet Nam's Heavy Air Pollution Needs Stronger Action. Available at: Https://Www.Undp.Org/Vietnam/Blog/Viet-Nams-Heavy-Air-Pollution-Needs-Stronger-Action [Accessed 25.04.2026].

pp. 1; Bui et al., 2022, pp. 1-2; Vo et al., 2022, pp. 6-9). Industrial activities, including emissions from a growing number of coal-fired power plants, cement factories, steel production, and general manufacturing, are major sources of both $PM_{2.5}$ and its precursors, such as SOx and NOx (Thang and Thi, 2023, pp. 1-5; Roy et al., 2022, pp. 1-2). Many of these facilities employ outdated, polluting technologies and lack adequate flue-gas treatment systems. Agriculture contributes significantly, especially seasonally, through the widespread practice of open burning of crop residues. This practice, particularly the burning of rice straw in the Red River Delta, can account for up to 40% of total $PM_{2.5}$ emissions during peak burning periods (Linh-Thy et al., 2024, pp. 120). Finally, dust from countless construction sites and the open burning of municipal and industrial waste further degrade air quality in and around population centers (Thang and Thi, 2023, p. 15-20).

This pollution exhibits clear temporal and spatial patterns. A distinct "pollution season" occurs from October to April, when meteorological conditions, such as temperature inversions and low wind speeds associated with the northeast monsoon, trap pollutants close to the ground, leading to prolonged episodes of hazardous air quality (Bui et al., 2022, pp. 5-11).[10] Spatially, air pollution is more severe in the north than in the south. This spatial disparity reflects a distinct heterogeneity in emission sources and economic structures between the two regions. In the North, particularly the Red River Delta, pollution is driven by a heavy reliance on coal-fired power generation and heavy industry. Recent source apportionment studies indicate that industrial activities and biomass burning are the predominant contributors in Hanoi, accounting for approximately 29% and 26% of annual $PM_{2.5}$ mass, respectively, while transport contributes around 15%. The region accounts for nearly 65% of the country's total coal ash generation, with major thermal power hubs concentrated in Quang Ninh and Hai Phong provinces, thereby intensifying regional haze events (Cuong et al., 2022, pp. 63).

Conversely, air quality in the Southern region, anchored by Ho Chi Minh City (HCMC), is more heavily influenced by transport emissions and a mix of anthropogenic sources typical of light industry and rapid urbanization. In HCMC, mobile sources and biomass burning, together with crustal dust, account for over 36% of $PM_{2.5}$, with a significant portion of secondary aerosols (ammonium sulfate) derived from regional background sources (Tran et al., 2024, pp. 6-8). Unlike the North, where winter monsoon conditions frequently trap pollutants, the South benefits from better dispersion, yet localized hotspots near industrial zones such as Dong Nai and Binh Duong remain critical concerns due to the high density of manufacturing SMEs.

Table 2. Comparison of annual mean $PM_{2.5}$ concentrations in key Vietnamese cities with National (QCVN) and WHO Guidelines

City/Region	Year	Annual mean $PM_{2.5}$ (µg/m³)	Exceedance factor vs. QCVN 05:2013 (25 µg/m³)	Exceedance factor vs. WHO AQG (5 µg/m³)
Hanoi	2019	40.8	1.6 times	8.2 times
	2021	42.9	1.7 times	8.6 times
	2023	28.3	1.1 times	5.7 times

[10] World Health Organization – WHO, (2026). Air Pollution in Viet Nam. Available at: Https://Www.Who.Int/Vietnam/Health-Topics/Air-Pollution [Accessed 25.04.2026]

Ho Chi Minh City	2019	20.9	0.8 times	4.2 times
	2021	24.4	1.0 times	4.9 times
	2023	28.3	1.1 times	5.7 times
Bac Ninh	2020	33.0	1.3 times	6.6 times

III.3 The Policy-Performance Disconnect

A critical analysis of Vietnam's environmental policy journey reveals a stark and troubling incongruence between legislative action and air quality outcomes. When the timeline of policy enactment is juxtaposed with the timeline of pollution data, it becomes evident that the comprehensive laws and ambitious national strategies have had a limited, if any, sustained impact on reducing ambient air pollution. Despite the passage of four major environmental laws over three decades, there is no clear, demonstrable correlation showing that these interventions have durably bent the curve of pollution downwards. For example, the period from 2014 to 2020, following the implementation of the LEP 2014 and the National Action Plan (Decision 985a), did not usher in an era of cleaner air. Instead, $PM_{2.5}$ levels in Hanoi remained stubbornly high, with some studies indicating that 2019 was a peak pollution year,[11] demonstrating a clear failure to meet the plan's objectives (Thao and Anh, 2023, pp. 44-45).

The nationwide lockdowns imposed during the COVID-19 pandemic in 2020 provided a powerful, albeit unintentional, "natural experiment". The dramatic reduction in traffic, industrial production, and construction activities led to a significant and immediate improvement in urban air quality, with marked decreases in $PM_{2.5}$ and carbon monoxide (CO) concentrations (Thao and Anh, 2023, pp. 44; Le et al., 2021, pp. 1-2). This period of cleaner skies provided a clear demonstration that ambient air quality in Vietnam is overwhelmingly determined by the intensity of economic activity rather than by the effectiveness of the existing regulatory framework. The argument is further strengthened by the rapid return of pollution to pre-pandemic levels, and in some cases worse, by 2023, once economic activities fully resumed.[12] This rebound strongly suggests that the underlying policy and enforcement mechanisms are insufficient to decouple economic growth from pollution.

This policy-performance disconnect is not an abstract observation but is reflected in the consistent failure to meet specific targets. Critical reviews of national environmental strategies have shown that many objectives are "far from accomplished" (Thang and Thi, 2023, pp. 4). For instance, a key goal for the 2011-2020 period was to treat 70% of domestic wastewater in urban areas; by 2020, the actual figure was a mere 13% (Thang and Thi, 2023, pp. 4). Similarly, despite regulations requiring industrial zones to have centralized wastewater and emission treatment systems, a significant proportion remain non-compliant, continuing to discharge pollutants into the environment with minimal consequence.[13] This pattern of setting ambitious

[11] ICLEI, (2022). Addressing Air Pollution in Hanoi, Vietnam. Available at: Https://Acp.Iclei.Org/Wp-Content/Uploads/2022/02/Vie_Air-Quality.Pdf [Accessed 25.04.2026].
[12] United Nations Development Programme – UNDP, (2024). Viet Nam's Heavy Air Pollution Needs Stronger Action. Available at: Https://Www.Undp.Org/Vietnam/Blog/Viet-Nams-Heavy-Air-Pollution-Needs-Stronger-Action [Accessed 25.04.2026].
[13] General Statistics Office – GSO, (2025). The Status of Wastewater Treatment and Environmental Protection in Vietnam and Lessons from Denmark. Available at: Https://Www.Nso.Gov.Vn/En/Other-News/2025/01/the-Status-of-Wastewater-Treatment-and-Environmental-Protection-in-Vietnam-and-Lessons-from-Denmark/ [Accessed 25.04.2026].

goals that are subsequently missed points to a systemic breakdown between policy design and execution.[14]

This history fosters an "illusion of progress," where the act of creating policy becomes a substitute for achieving results. Official communications from the government and its international partners often highlight the passage of new laws, such as the LEP 2020, or ambitious international commitments, like the net-zero pledge at COP26, as evidence of Vietnam's strong commitment to environmental protection.[15] While these actions are politically significant, they create a facade of progress that masks a reality of systemic inertia and continued environmental degradation.[16] The true measure of success is not the sophistication of the legal text, but the quality of the air citizens breathe.[17] External evaluations, such as the Climate Action Tracker, which rates Vietnam's policies as "Critically Insufficient," confirm that current actions are not aligned with stated goals. This decoupling of policy-making from tangible outcomes is a central feature of Vietnam's environmental challenge.[18]

The disconnect between policy and practice regarding air pollution is a shared challenge across rapidly developing Southeast Asian economies. Nations such as Indonesia and Thailand similarly face hazardous air quality levels driven by industrialization and urbanization outstripping regulatory capacity. However, the governance response varies significantly within the region. While some ASEAN contexts have begun to utilize judicial mechanisms to drive accountability, Vietnam's environmental governance model predominantly emphasizes legislative development and administrative compliance. Consequently, the primary challenge in the Vietnamese context is not the absence of legal frameworks, but rather the transition from policy formulation to effective field implementation. This comparative lens suggests that to address the implementation gap, Vietnam must focus on strengthening the practical authority of local enforcement agencies and effectively integrating community-based monitoring roles already codified in the 2020 Law on Environmental Protection.

III.4 Systemic Barriers to Policy Implementation

The persistent gap between Vietnam's environmental policy aspirations and its air quality reality is not accidental but is rooted in a complex interplay of systemic barriers. Deconstructing this implementation gap reveals deep-seated challenges in governance, political economy, and enforcement capacity. These barriers, summarized in Table 3, collectively undermine the effectiveness of the nation's legal framework.

A primary cause is institutional and governance failure. Environmental management in Vietnam is characterized by fragmentation and poor coordination. Responsibilities are split across multiple ministries, including the Ministry of Natural Resources and Environment (MONRE), the Ministry of Industry and Trade, and the Ministry of Transport, often leading to

[14] East Asia Forum, (2025). Vietnam's Renewable Surge Shouldn't Distract from Chronic Environmental Policy Failures. 24 May 2024. Available at: Https://Eastasiaforum.Org/2024/05/24/Vietnams-Renewable-Surge-Shouldnt-Distract-from-Chronic-Environmental-Policy-Failures/ [Accessed 25.04.2026].
[15] United Nations Development Programme – UNDP, (2024). Viet Nam's Heavy Air Pollution Needs Stronger Action. Available at: Https://Www.Undp.Org/Vietnam/Blog/Viet-Nams-Heavy-Air-Pollution-Needs-Stronger-Action [Accessed 25.04.2026].
[16] World Health Organization – WHO, (2026). National Scientific Conference on Combating Air Pollution and Improving Air Quality in Viet Nam. Available at: Https://Www.Who.Int/Vietnam/News/Detail/25-04-2025-National-Scientific-Conference-on-Combating-Air-Pollution-and-Improving-Air-Quality-in-Viet-Nam [Accessed 25.4.2026].
[17] International Trade Administration, (2024). Vietnam - Environmental Technology. U.S. Department of Commerce. Available at: Https://Www.Trade.Gov/Country-Commercial-Guides/Vietnam-Environmental-Technology [Accessed 25.04.2026].
[18] Climate Action Tracker, (2025). Viet Nam. 28 October 2025. Available at: https://climateactiontracker.org/countries/vietnam/ [Accessed 25.04.2026]

conflicting priorities and a lack of unified action (Thang and Thi, 2023, pp. 9-16).[19] This is compounded by what has been termed as a "paradox of over-decentralization" (Thang and Thi, 2023, pp. 9-11). While laws delegate enforcement responsibilities to provincial-level Departments of Natural Resources and Environment (DONREs), this delegation is often not accompanied by the necessary financial resources, technical expertise, or, most importantly, the political authority to enforce regulations against powerful state-owned or private enterprises that are crucial to the local economy.

This leads directly to the second major barrier: the primacy of economic growth. Despite official state policy embracing sustainable development, there is a clear and consistent lack of "operational commitment" to this principle (Thang and Thi, 2023, pp. 15-20). At both the national and provincial levels, economic growth targets frequently override environmental protection mandates. Local governments, whose performance is often judged by GDP growth and the attraction of investment, are reluctant to impose costly environmental standards on industries that provide jobs and tax revenue.[20] This dynamic fosters an environment of regulatory forbearance and weak compliance. The country's declining adjusted net savings rate, a metric that accounts for the depletion of natural resources and pollution damage, serves as a stark indicator of this unsustainable development trend (Thang and Thi, 2023, pp. 3-5).

Consequently, the legal framework is crippled by weak enforcement and a culture of low compliance. While authorities uncover tens of thousands of environmental violations annually, the penalties imposed are often too low to serve as an effective deterrent, making it economically rational for polluters to pay the fine rather than invest in expensive treatment technologies.[21] The absence of mandatory, independent third-party monitoring for most industries means that enforcement relies on under-resourced and sometimes compromised government agencies (Nguyen et al., 2018). This is exacerbated by data gaps and a lack of transparency. Vietnam's official air quality monitoring network remains limited and fragmented, hindering accurate pollution assessment, source apportionment, and public warning systems.[22]

Finally, a fundamental contradiction exists regarding the role of civil society. The LEP 2020 formally empowers "residential communities" to participate in environmental protection and monitoring. Public demand for a cleaner environment is a recognized driver of policy change (Thang and Thi, 2023, pp. 9-11). However, in practice, the state has used ambiguous legal instruments, such as tax laws, to imprison and silence some of the country's most prominent and effective environmental advocates and NGO leaders, creating a chilling effect on independent activism (Huong Thien, 2024). This act of legally inviting public participation while politically punishing effective, critical oversight neutralizes a vital mechanism for holding both the State and corporate polluters accountable, thereby ensuring the implementation gap remains firmly in place.

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[19] Vietnam News Agency, (2025). Environmental Law Enforcement to Be Further Strengthened. Vneconomy. Available at: Https://En.Vneconomy.Vn/Environmental-Law-Enforcement-to-Be-Further-Strengthened.Htm [Accessed 25.04.2026]

[20] East Asia Forum, (2025). Vietnam's Renewable Surge Shouldn't Distract from Chronic Environmental Policy Failures. 24 May 2024. Available at: Https://Eastasiaforum.Org/2024/05/24/Vietnams-Renewable-Surge-Shouldnt-Distract-from-Chronic-Environmental-Policy-Failures/ [Accessed 25.04.2026].

[21] Vietnam News Agency, (2025). Environmental Law Enforcement to Be Further Strengthened. Vneconomy. Available at: https://En.Vneconomy.Vn/Environmental-Law-Enforcement-to-Be-Further-Strengthened.Htm [Accessed 25.04.2026]

[22] World Health Organization – WHO, (2026). National Scientific Conference on Combating Air Pollution and Improving Air Quality in Viet Nam. Available at: https://Www.Who.Int/Vietnam/News/Detail/25-04-2025-National-Scientific-Conference-on-Combating-Air-Pollution-and-Improving-Air-Quality-in-Viet-Nam [Accesed 25.04.2026].

Table 3. Systemic barriers to effective environmental policy implementation in Vietnam

Barrier category	Specific barrier	Description
Governance & Institutional	Inter-agency Fragmentation	Overlapping mandates and poor coordination between ministries (MONRE, Industry, Transport) lead to conflicting policies and inaction.
	Over-decentralization	Provincial authorities (DONREs) are given enforcement responsibility without adequate financial resources, technical capacity, or political power to act against powerful polluters.
Economic & Political	Primacy of Economic Growth	De facto prioritization of GDP growth and investment attraction over environmental protection at both national and local levels.
	Lack of Operational Commitment	The national goal of balancing growth and environment is not translated into concrete, enforceable actions and budgets.
Enforcement & Legal	Weak Sanctions and Deterrence	Fines for environmental violations are often too low to deter polluters, who find it cheaper to pollute and pay than to comply.
	Limited Monitoring & Data	The official environmental monitoring network is insufficient and fragmented, hindering effective management, forecasting, and public information.
Technical & Social	Constrained Civil Society Space	While laws encourage community participation, the state actively suppresses independent environmental activists and NGOs, neutralizing a key accountability mechanism.
	Low Public Awareness/Access	Limited public access to real-time, reliable environmental data and a lack of transparency about industrial polluters hinder public pressure for change.

IV. Conclusions

Vietnam's three-decade endeavor in environmental governance has produced an advanced legal architecture for air quality management that, on paper, meets international

standards. This review's definitive conclusion, however, is that this legislative progress is fundamentally disconnected from the reality on the ground, where hazardous air pollution persists as a major threat to public health and economic stability. This chasm between policy and performance is not a procedural delay but a systemic failure, rooted in institutional fragmentation, the continued subordination of environmental integrity to economic targets, ineffective enforcement, and the paradoxical suppression of civil society. The nation's reactive cycle of amending laws in response to past failures has created a "legislative treadmill," producing the appearance of action without achieving substantive results. Consequently, until Vietnam confronts these foundational challenges, its sustainable development goals will remain unattainable. A paradigm shift is required one that moves beyond policy formulation to a resolute commitment to enforcement, institutional accountability, data transparency, and the empowerment of independent oversight. Ultimately, ensuring breathable air for its citizens requires Vietnam to pivot from the symbolism of legal reform to the substantive work of vigorous, transparent implementation.

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