

Difficulties and shortcomings in implementing air quality management policies in Vietnam and propose perfect solutions

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1. OVERVIEW OF THE POLICY SYSTEM ON AIR POLLUTION MANAGEMENT IN VIETNAM

Although air quality management has been addressed since the Law on Environmental Protection of 1993, the Law on Environmental Protection of 2004, and particularly the Law on Environmental Protection of 2014, the provisions set out in these laws and their implementing decrees remain largely general in nature. They have not provided specific guidance or solutions for air quality protection tailored to different sectors, levels of administration, or regulated entities (Articles 62 - 64 of the 2014 Law on Environmental Protection). As a result, the law has not delved deeply into the issue, nor has it fully harnessed the strengths of legal instruments in protecting and improving air quality.

The Law on Environmental Protection of 2020 addressed and remedied the shortcomings of the previous framework. It explicitly defined the responsibilities of various levels of government, sectors, organizations, and individuals, with particular emphasis on the critical role of local authorities in air quality management. This responsibility extends from planning, promulgation, and implementation of action plans, to ensuring cross-regional and interprovincial coordination in air quality governance. Furthermore, the law established provisions for information disclosure to the public, the responsibility of provincial governments to assess air quality and make results publicly available, the obligation to provide community warnings, and the mandate to implement remedial measures in cases where degraded air quality threatens public health. Importantly, the law also stipulated emergency measures in circumstances of severe air pollution, with direct coordination from the central to local levels of government.

To ensure effective implementation of the Law, the Government issued Decree No. 08/2022/ND-CP dated January 10, 2022 detailing a number of articles of the Law on Environmental Protection, which was amended and supplemented by Decree No. 05/2025/ND-CP dated January 6, 2025. Accordingly, the Decrees have continued to institutionalize the viewpoints, guidelines and policies of the Government and the Prime Minister in reducing administrative procedures, promoting decentralization to localities in the field of environmental protection; creating more favorable

conditions when implementing new policies of the Law on Environmental Protection; ensuring consistency between legal provisions on environmental protection, contributing to continuing to improve the investment and business environment, supporting businesses to recover after the Covid-19 pandemic. Decree No. 153/2024/ND-CP dated November 21, 2024 of the Government has stipulated environmental protection fees for emissions, institutionalizing the Party and Government's policy on air environmental protection. Accordingly, entities subject to environmental protection fees for emissions are projects, production facilities, businesses, and service establishments that are required by law to obtain an environmental permit, including authorization for air emission discharge. These entities are responsible for treating dust and industrial emissions released into the environment (emission facilities). The Government has also issued directive and management documents, specifically the Decision No. 1973/QĐ-TTg dated November 23, 2021 of the Prime Minister approving the National Plan on Air Quality Management for the 2021-2025 period; the Decision No. 224/QĐ-TTg dated March 7, 2024 of the Prime Minister approving the national environmental monitoring master plan for the 2021-2030 period, with a vision to 2050 (replacing the Decision No. 90/QĐ-TTg dated January 12, 2016 of the Prime Minister); the Directive No. 03/CT-TTg dated January 18, 2021 of the Prime Minister on strengthening air pollution control.

With the responsibility assigned by the Government and the Prime Minister as the focal point for state management of air quality, the Ministry of Agriculture and Environment has been active in developing guiding documents and specific implementation plans such as: the Circular No. 02/2022/TT-BTNMT dated January 10, 2022 of the Ministry of Natural Resources and Environment detailing the implementation of a number of articles of the Law on Environmental Protection and amended and supplemented by the Circular No. 05/2025/TT-BTNMT dated February 28, 2025 of the Ministry of Natural Resources and Environment; the Circular No. 10/2021/TT-BTNMT dated June 30, 2021 of the Ministry of Natural Resources and Environment regulating environmental monitoring techniques and management of information and data



on environmental quality monitoring which includes air quality monitoring; the Circular No. 01/2023/TT-BTNMT dated March 13, 2023 on national technical regulations on environmental quality (soil, air, surface water, groundwater, seawater); the Circular No. 45/2024/TT-BTNMT dated December 30, 2024 of the Ministry of Natural Resources and Environment promulgating national technical regulations on industrial emissions; the Circular No. 06/2025/TT-BNNMT dated June 16, 2025 of the Ministry of Agriculture and Environment promulgating national technical regulations on emissions of automobiles participating in road traffic ...

In addition, ministries, sectors, and local authorities have developed and promulgated regulatory documents in accordance with their assigned functions and responsibilities. The Ministry of Transport (now the Ministry of Construction) has formulated and issued regulations on the control of emissions from road motor vehicles, particularly regarding the control of emissions from imported as well as domestically manufactured and assembled road motor vehicles; and developed the Ministry of Transport's Plan for implementing the "Action Program on Green Energy Transition and Reduction of Carbon and Methane Emissions in the Transport Sector." The Ministry of Construction has advised and submitted to the Prime Minister for approval the Strategy for the Development of Vietnam's Building Materials for the period 2021 - 2030, with orientations toward 2050, under Decision No. 1266/QĐ-TTg dated August 18, 2020, of the Prime Minister. It has also promulgated the National Technical Regulation QCVN 18:2021/BXD on Safety in Construction, issued together with Circular No. 16/2021/TT-BXD dated December 20, 2021, of the Minister of Construction. Other ministries have likewise formulated and implemented management policies within their assigned functions and responsibilities. Local authorities have developed and issued provincial-level air quality management plans, with 23 provinces and cities having adopted such plans to date.

2. SOME DIFFICULTIES AND SHORTCOMINGS IN IMPLEMENTING CURRENT AIR QUALITY MANAGEMENT POLICIES

In the process of implementing policies and regulations of the law on air quality management at the central and local levels, the Ministry of Agriculture and Environment has found some shortcomings, specifically in the following groups of issues:

Institutional and policy issues: Although the Law on Environmental Protection 2020 has dedicated a section with three provisions specifically regulating air environment protection, along with detailed

instructions in Decree No. 08/2022/ND-CP of the Government, there is still no separate specialized law on air environment. This is an important legal gap, making air pollution management and control ineffective and lacking specific binding. Notably, there are still no clear and strong regulations on the responsibilities of local government leaders - from provincial to commune and ward levels - in detecting, preventing and handling sources of air pollution. Therefore, there is a need for more specific and detailed instructions for local authorities in cases where air quality is seriously polluted.

Group of issues on controlling dust and gas emissions (point sources, mobile sources and power sources): At present, there are no sufficiently strong regulations to manage and sanction violations that generate dust and emissions from construction works, transport infrastructure, and public utility projects (such as road and sidewalk renovation, collectively referred to as "road dust sources"), which are major contributors to dust pollution in large and rapidly developing urban areas. In addition, the burning of waste, garbage, agricultural by-products (e.g., post-harvest rice straw in fields as part of cultivation cycles) and biomass (leaves, firewood for heating during cold days) is still very common and frequent in the Northern Delta region and the Hanoi city area, but up to now, there are still no strong enough sanctions to control and completely handle these acts, causing very serious impacts on the air quality of the whole region. In addition, another major challenge is the development of regulations on controlling emissions from vehicles, especially old vehicles using fossil fuels such as motorbikes and scooters, which is difficult because the users are mainly low-income people. Meanwhile, the scale of use of these vehicles is very large - with more than 70 million motorbikes and scooters nationwide, Hanoi alone has about 7 million (not including the number of vehicles from neighboring provinces entering the inner city), causing great pressure on the quality of urban air environment.

Group of issues on environmental monitoring and data information: Currently, the system of automatic and continuous air quality monitoring remains inconsistent and has not yet been fully implemented nationwide. At the same time, the application of low-cost sensor-based monitoring systems needs to be further promoted in order to provide supplementary information that can effectively support air quality forecasting and warning. In addition, solutions and mechanisms for the public disclosure and dissemination of real-time air quality data and information are still lacking, unlike practices already adopted in many advanced countries in the region and around the world.

Groups of issues related to financial mechanisms and resources: The available resources (including organizational structure, human resources, and funding) for carrying out activities related to air quality management, monitoring, and the disclosure of air quality information remain inadequate to meet practical requirements. At the same time, the capacity of the technical staff is still limited, and there are very few dedicated programs or tasks specifically targeting air pollution control and air quality improvement. In addition, investment funds from the State budget for periodic monitoring activities as well as the construction, installation and maintenance of automatic and continuous air monitoring stations are still not commensurate with the speed of socio-economic development and actual management needs. Therefore, it is necessary to establish effective mechanisms to mobilize resources from private organizations. Furthermore, there is also a shortage of resources for investing in and implementing alternative solutions aimed at controlling and reducing dust and air pollutant emissions from point sources, area sources, and mobile sources.

Group of issues related to communication, information, and awareness-raising: Communication, information dissemination, and educational efforts to raise public and business awareness about air quality have not been carried out regularly and continuously. As a result, awareness has not yet been translated into self-conscious action at the individual level. Urban residents, particularly low-income groups and laborers, still lack adequate understanding of the long-term health impacts of air pollution. Moreover, there are currently no clear guidelines on specific action measures that citizens, businesses, or local governments can undertake. Consequently, both the public and businesses remain unclear about the causes of pollution, as well as their responsibility in contributing to and addressing air quality problems.

3. SOME PROPOSALS AND RECOMMENDATIONS TO IMPROVE AIR QUALITY MANAGEMENT POLICIES

To enhance and complete the policy framework for air quality management, the Ministry of Agriculture and Environment has proposed a set of targeted solutions corresponding to the key challenges and shortcomings that have been identified.

First, with respect to institutions and policies, it is essential to continue the systematic review and refinement of existing regulations and policies governing air quality management. At the same time, there must be clear stipulations assigning accountability to the heads of local governments at all levels for the timely detection, prevention, and handling of emission sources that contribute to pollution. In addition, the establishment of standardized procedures for the implementation of emergency measures is necessary in circumstances where air quality reaches critically hazardous levels within their jurisdiction.

Second, concerning measures to control emission sources, it is crucial to immediately implement an inventory to identify, classify, and quantify emissions from point sources, area sources, and mobile sources, thereby enabling the formulation

of appropriate and targeted interventions. Regulations on the prevention, monitoring, and sanctioning of violations that generate dust and emissions from construction projects, transportation works, public infrastructure projects, and road or pavement renovation activities must be thoroughly reviewed and strictly enforced. It is also necessary to develop specific rules for detecting, controlling, and sanctioning the burning of solid waste, biomass, and agricultural residues. With regard to vehicular emissions, measures should include raising emission standards for automobiles in line with an established timeline; instituting systematic emission testing for motorcycles and motorbikes in accordance with regulatory standards and schedules; and, in parallel, creating mechanisms to support the replacement and retirement of old vehicles, especially for socially vulnerable groups such as low-income households. Strengthened inter-sectoral cooperation is also required for inspection, enforcement, and the public disclosure of violations, thereby fostering deterrence and setting clear precedents.

Third, for air quality monitoring and data management, investments should be directed towards the expansion of automatic, continuous air monitoring stations in major urban centers, industrial clusters, and traditional craft villages, in alignment with the master plan already approved by the Prime Minister. At the same time, low-cost sensor (LCS) networks should be widely deployed to supplement data coverage. A national open data system should be established, ensuring real-time connectivity and accessibility of information for both the public and businesses.

Fourth, with regard to financial mechanisms and resource mobilization, priority should be given to public investment and budget allocations for provinces and cities with high population densities and severe air pollution levels, ensuring the establishment of sufficiently dense and rational monitoring networks to support management activities and provide reliable information to the public. Moreover, mechanisms should be developed to attract extra-budgetary resources (socialized funding) to support air quality monitoring. Businesses should be encouraged to adopt carbon credit models and green finance mechanisms as part of their emissions reduction strategies.



Finally, in the field of communication and awareness-raising, the development of an accessible, transparent, and user-friendly air quality information system is imperative. Such a system should be capable of integrating with various applications, providing not only real-time data but also long-term forecasts and pollution alerts. Large-scale and in-depth communication campaigns should be organized, alongside the incorporation of air quality education into national curricula and training programs. Efforts must also be made to strengthen communication capacity among local governments, businesses, and social organizations, while at the same time developing practical guidelines for citizens and enterprises to adopt concrete actions in response to air pollution.

4. CONCLUSION

Air quality has emerged as one of the most pressing challenges to the pursuit of sustainable development in Vietnam, particularly in major urban centers and in regions undergoing rapid urbanization and industrialization. In recent years, with the concerted efforts of the Ministry of Agriculture and Environment, alongside other ministries, sectors, and local authorities, notable progress has been achieved in the governance of air quality. These achievements include the establishment and refinement of the legal framework, the gradual development of air quality monitoring systems, the conduct of emission inventories, as well as the implementation of warning and forecasting programs. Nevertheless, practical realities also reveal persistent shortcomings and limitations, ranging from institutional and resource constraints to weak coordination mechanisms and insufficient public awareness regarding the importance of air quality management.

To enhance the effectiveness of air quality management in the coming period, it is imperative to further improve and harmonize legal and policy frameworks, while prioritizing investment in monitoring infrastructure and strengthening the control of major emission sources. In parallel, it is essential to accelerate the integration of digital technologies in environmental management and supervision, thereby ensuring more accurate, timely, and transparent information for policymakers and the public alike. Equally important is the need to clearly define the responsibilities of local authorities at all levels, to foster the active participation of communities and enterprises, and to leverage the role of communication and education in raising social awareness and collective responsibility for air quality protection. Only when these measures are implemented in a coherent, continuous, and well-coordinated manner across all relevant stakeholders can the objective of genuinely improving air quality

be realized. Such efforts are indispensable not only for safeguarding public health but also for advancing the long-term goal of sustainable development in Vietnam.

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