



ORGANIZATIONAL AND LEGAL CHALLENGES OF IMPLEMENTING ENVIRONMENTAL RESTRICTIONS ON VEHICULAR TRAFFIC AND PROSPECTS FOR THEIR IMPROVEMENT

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Abstract. This article provides a critical analysis of the "Eco-Transport" system and the vehicle eco-sticker regulation introduced by Resolution No. 750 of the Cabinet of Ministers of the Republic of Uzbekistan dated November 28, 2025. The study identifies four major organizational and legal shortcomings: the issuance of unlimited annual access permits to environmental zones, formal classification based on "Euro" standards on paper rather than real-world emissions, ambiguities surrounding digital enforcement mechanisms, and open-ended exemptions for local residents. Based on a comparative study of advanced international practices (the UK, Germany, Belgium, and Poland) and national scholarly insights, the author formulates scientifically grounded proposals: transitioning to a daily quota-based payment mechanism, implementing on-road remote sensing (using laser and optical sensors) to measure actual exhaust emissions, deploying automated number plate recognition (ANPR) cameras for compliance enforcement, and introducing a two-year phase-in adjustment period for the affected population.

Keywords: eco-transport, environmental zone, eco-sticker, Resolution No. 750, "polluter pays" principle, Euro standards, remote sensing, administrative restrictions, daily quota.

Аннотация. Мазкур мақолада Ўзбекистон Республикаси Вазирлар Маҳкамасининг 2025 йил 28 ноябрдаги 750-сон қарори билан жорий этилган "Экологик транспорт" тизими ва экологик стикерлар бериш тартиби танқидий таҳлил қилинган. Тадқиқот давомида экологик зоналарга киришда 1 йиллик чекланмаган рухсатномалар берилиши, экологик тоифани ҳақиқий эмиссияга эмас, балки ҳужжатдаги «Евро» стандартига қараб формал белгилаш, рақамли назорат механизмларининг ноаниқлиги ҳамда ҳудудда яшовчилар учун чексиз истиснолар назарда тутилгани каби 4 та муҳим ташкилий-ҳуқуқий камчилик очиб берилган. Илғор хорижий тажриба (Буюк Британия, Германия, Бельгия ва Польша) ҳамда маҳаллий олимларнинг қарашларини қиёсий ўрганиш асосида суткалик квотали тўлов механизмига ўтиш, автомобилларни ҳаракат вақтида дистанцион зондлаш (лазер ва оптик қурилмалар) орқали текшириш, назоратни интеллектуал камералар ёрдамида давлат рақамидан автоматик қайд этиш ҳамда аҳоли учун 2 йиллик мослашиш даврини белгилаш бўйича илмий асосланган таклифлар ишлаб чиқилган.

Калит сўзлар: экологик транспорт, экологик зона, экологик стикер, 750-сон қарор, "Ифлослантирувчи тўлайди" тамойили, Евро стандартлари, дистанцион зондлаш, маъмурий чекловлар, суткалик квота.

Аннотация. В данной статье критически проанализированы система «Экологический транспорт» и порядок выдачи экологических стикеров, введенные

постановлением Кабинета Министров Республики Узбекистан № 750 от 28 ноября 2025 года. В ходе исследования выявлены четыре ключевых организационно-правовых недостатка: выдача годовых неограниченных разрешений на въезд в экологические зоны, формальное определение экологического класса по документальным стандартам «Евро» без учета фактических выбросов, неопределенность механизмов цифрового контроля, а также чрезмерно широкие исключения для жителей зон. На основе сравнительного анализа передового зарубежного опыта (Великобритания, Германия, Бельгия и Польша) и позиций отечественных ученых разработаны научно обоснованные предложения по переходу на систему суточных квотированных платежей, внедрению дистанционного зондирования (лазерных и оптических приборов) для контроля выбросов в движении, обеспечению автоматической фиксации нарушений интеллектуальными камерами по государственным номерным знакам, а также установлению двухлетнего адаптационного периода для населения.

Ключевые слова: экологический транспорт, экологическая зона, экологический стикер, постановление № 750, принцип «загрязнитель платит», стандарты Евро, дистанционное зондирование, административные ограничения, суточная квота.

In recent years, atmospheric air pollution and environmental degradation in major cities have emerged as critical threats to human health, urban quality of life, and sustainable development. Within the framework of addressing this global and regional environmental crisis, implementing digital and organizational-legal mechanisms to restrict toxic vehicle exhaust emissions has been established as a top priority.

In order to ensure the execution of Presidential Resolution No. PP-171 dated May 31, 2023, and Presidential Decree No. UP-37 dated February 21, 2024, Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 166 dated March 29, 2024, was adopted¹. As an integral continuation of these reforms, Resolution of the Cabinet of Ministers No. 750 dated November 28, 2025, "On Measures to Introduce the 'Eco-Transport' System to Reduce the Harmful Impact of Motor Vehicles on Atmospheric Air," was approved². Under this resolution, for the first time in our republic, a legal framework was established to classify motor vehicles into "clean," "medium," and "harmful" environmental categories based on their level of toxic atmospheric emissions, assign them color-coded eco-stickers, and designate urban territories into low-emission environmental zones.

Although Resolution No. 750 serves as an essential fundamental baseline for environmental monitoring and traffic flow regulation in our country, its practical implementation and regulations exhibit the following organizational, legal, and conceptual shortcomings:

First, pursuant to paragraph 11 of Annex 2 approved by Resolution No. 750, owners of motor vehicles classified under the "harmful" (red) and "medium" (yellow) categories—those that pollute atmospheric air the most—are entitled to obtain an unrestricted permit to operate

¹ Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 166 dated March 29, 2024, "On Measures to Reduce the Negative Impact of Motor Vehicles on Atmospheric Air", available at: <https://lex.uz/uz/docs/6858809>

² Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 750 dated November 28, 2025, "On Measures to Introduce the 'Ecological Transport' System in Order to Reduce the Harmful Impact of Motor Vehicles on Atmospheric Air," available at: <https://lex.uz/docs/7865964>

freely within the corresponding environmental zones for an entire year simply by paying an annual ecological compensation fee of a mere 1 or 3 BRV (Base Calculation Amount). Instead of establishing genuinely clean zones and safeguarding the environment against degradation, this mechanism ultimately legalizes air pollution for a nominal fee. A one-off, low-cost annual fee (1–3 BRV) provides no economic incentive for drivers of malfunctioning or highly polluting vehicles to repair engines, retrofit filters, or transition to newer, cleaner vehicles. On the contrary, motorists can simply pay the compensation once a year and continue polluting city centers with impunity. In the scholarly community, this issue is rooted in the "Polluter Pays" principle, though perspectives on its practical implementation remain diverse. Specifically, scholars such as S. Dietz and G. Atkinson, as well as C. Morton, G. Mattioli, and J. Anable, have investigated how compensation and fine structures shape public acceptability. Morton, Mattioli, and Anable argue that if an environmental charging scheme is perceived by the public not as an ecological remediation instrument, but rather as merely an additional state revenue stream or a purchasable license to pollute, both policy efficacy and public support plummet to zero³. Meanwhile, S. Dietz and G. Atkinson argue that if the payment rate is not proportionate to the actual damage caused by pollution, the "polluter pays" principle loses its fundamental essence⁴.

On the other hand, studies conducted by V.V. Donchenko, Yu.V. Trofimenko, M.I. Sharov, S.V. Shelmakov, A.V. Lobikov, V.S. Chizhova, and Å. Sjödin argue that entry into an environmental zone requires strictly restricted and differentiated tariffs rather than a one-time annual compensation fee. V.V. Donchenko and V.S. Chizhova emphasize that entry tariffs for vehicles with high emission levels must be sufficiently substantial to compel drivers either to bring their vehicles into proper technical compliance or to refrain from entering the zone altogether⁵. Analyzing the experiences of Antwerp and London, I. Lund and M. Wang demonstrated that granting unrestricted annual permits to defective and highly polluting vehicles is fundamentally flawed, arguing that only a daily permit system anchored in strictly limited annual quotas (for instance, a maximum of 12 days per year) delivers tangible ecological benefits⁶.

In our view, the positions advanced by V.V. Donchenko, Yu.V. Trofimenko, M.I. Sharov, S.V. Shelmakov, A.V. Lobikov, V.S. Chizhova, as well as I. Lund and M. Wang, are justified. Consequently, the mechanism stipulated in Resolution of the Cabinet of Ministers No. 750 granting unrestricted annual permits for entry into low-emission environmental zones proves ineffective in practice.

To resolve this issue, we propose the following measures:

³ Morton C. Public acceptability towards Low Emission Zones: The role of attitudes, norms, emotions, and trust / C. Morton, G. Mattioli, J. Anable // *Transportation Research Part A: Policy and Practice*. – 2021. – Vol. 150. – P. 256–270.

⁴ Dietz S. Public Perceptions of Equity in Environmental Policy: Traffic Emissions Policy in an English Urban Area / S. Dietz, G. Atkinson // *Local Environment*. – 2010. – Vol. 15, № 5. – P. 445–459.

⁵ Донченко В.В. Методические основы организации экологических зон с низкими выбросами автомобильного транспорта: Монография / В.В. Донченко, Ю.В. Трофименко, М.И. Шаров, С.В. Шелмаков, А.В. Лобиков, В.С. Чижова. – СПб.: ИПК «Коста», 2023. – 264 с.

⁶ Lund I. Low Emission Zones: The stakeholders perspectives of the economic impacts: Master's Thesis / I. Lund, M. Wang. – Gothenburg: University of Gothenburg, School of Business, Economics and Law, 2024. – 75 p.



– Revoke the unrestricted annual entry permit for environmental zones and instead introduce a daily fee system strictly limited to a maximum quota of 10–12 days per year for urgent and unavoidable necessities.

– Establish a progressive daily tariff structure for each subsequent entry day (Day 1 — 0.5 BRV, Day 2 — 1 BRV, Day 3 — 2 BRV), and channel the accumulated revenues via the "Green Fund" to subsidize the installation of exhaust filtration systems on older vehicles belonging to vulnerable low-income populations and to finance vehicle scrap-and-recycle programs.

Second, pursuant to paragraph 8 of Regulation 1 approved by Resolution No. 750, motor vehicles whose environmental class (Euro standard) has been certified by the manufacturer are exempt from physical diagnostic testing during registration and re-registration; instead, stickers are issued automatically based on database records. Furthermore, all motor vehicles manufactured within the past three years, as well as gasoline-powered vehicles meeting Euro-2 standards or higher, are directly classified into the "clean" (green) category.

In practice, many drivers operate their vehicles improperly to save fuel or enhance engine power, which substantially increases the concentration of harmful exhaust emissions. Consequently, a vehicle officially designated as Euro-4 in its registration certificate or manufactured in 2023 receives a green sticker automatically based purely on documentary records, allowing it to circulate freely within low-emission zones despite emitting excessive toxic emissions under real driving conditions. This practice ultimately results in regulating documentation rather than actual environmental pollutants.

Scholars in automotive engineering and environmental diagnostics, including J. Borken-Kleefeld, Å. Sjödin, V.N. Lozhkin, and I.V. Satsuk, have empirically demonstrated a substantial discrepancy between factory certification standards and real-world operational emissions. A large-scale study examining over 700,000 vehicles across four European countries, conducted by J. Borken-Kleefeld⁷ and Å. Sjödin⁸, revealed that a notable portion of even Euro-5 and Euro-6 diesel and gasoline passenger cars emit five to six times more toxic emissions than statutory limits due to operational defects or catalytic converter degradation. Borken-Kleefeld underscores that relying exclusively on factory specifications fails to detect high-emitting gross polluters, fundamentally impeding the effectiveness of low-emission restrictions.

In turn, V.N. Lozhkin, I.V. Satsuk, and V.K. Azarov⁹ argue that assessing the environmental safety of motor vehicles necessitates instrumental diagnostics of opacity and toxicity under free acceleration and real-world driving conditions. The kinetic degradation models of catalytic converters developed by V.N. Lozhkin and I.V. Satsuk¹⁰ demonstrate that, depending on vehicle

⁷ Borken-Kleefeld J. Guidance note about on-road vehicle emissions remote sensing [Elektron resurs] / J. Borken-Kleefeld. – San Francisco: International Council on Clean Transportation (ICCT), 2013. – 20 p. – URL: <https://theicct.org>.

⁸ Sjödin Å. Real-driving emissions from diesel passenger cars measured by remote sensing and as compared with PEMS and chassis dynamometer measurements: CONOX Task 2 Report / Å. Sjödin, J. Borken-Kleefeld, D. Carslaw, J. Tate, Y. Bernard et al. // IVL Swedish Environmental Research Institute Report C 294. – Stockholm, 2018. – 40 p.

⁹ Азаров В.К. Разработка комплексной методики исследований и оценки экологической безопасности автомобилей: Автореф. дис. ... канд. техн. наук: 05.05.03 / ФГУП «НАМИ». – Москва, 2014. – 28 с.

¹⁰ Ложкин В.Н. Совершенствование метода оценки негативного экологического воздействия дизельных пожарных автомобилей на режиме свободного ускорения с применением

mileage and operational conditions, actual exhaust emissions diverge substantially from factory specifications.

We fully concur with the conclusions reached by J. Borken-Kleefeld, Å. Sjödin, V.N. Lozhkin, and I.V. Satsuk. We hold that granting green stickers relying solely on the Euro-standard specified in the registration certificate is conceptually flawed. However, subjecting millions of vehicles to annual stationary diagnostic inspections would inevitably generate severe traffic congestion and excessive bureaucratic burdens.

Therefore, it is expedient to deploy a remote sensing system utilizing specialized laser and optical sensor devices to monitor vehicles in transit without halting traffic. Furthermore, if a green-stickered vehicle is detected exceeding statutory emission thresholds on three separate occasions, its sticker validity should be temporarily suspended, and the driver should be issued a summons for a complimentary technical diagnostic inspection.

Third, although Resolution No. 750 explicitly defines the form and technical specifications of eco-stickers, the digital infrastructure and operational enforcement mechanisms for monitoring compliance and detecting violations within urban environments remain unspecified.

Over 5,000 existing intelligent cameras and speed enforcement radars deployed across Tashkent and other major cities are optically incapable of reading a compact 9-centimeter sticker affixed to the corner of a vehicle's windshield, particularly at high speeds, in adverse weather conditions, or during nighttime hours. The resolution fails to clarify whether enforcement relies on automated license plate recognition integrated with the centralized motor vehicle registry or on optical detection of the physical windshield sticker. Consequently, this ambiguity risks leaving enforcement dependent on manual inspections by traffic patrol officers, thereby introducing potential corruption risks.

Substantial scholarly debate exists regarding the governance of intelligent transport systems and eco-sticker enforcement. Specifically, V.V. Donchenko maintains that utilizing conventional colored windshield decals in low-emission zones is suitable only as an initial visual tool. In practice, two automated digital enforcement methods offer the highest operational efficacy: 1) automated license plate recognition (ALPR) fully synchronized with a unified national database, and 2) automated radio-frequency identification (RFID) tracking systems.

D.E. Obertov¹¹ and C. Anglès-Tafalla¹² emphasize in their works that eliminating the human factor (traffic patrol officers) through automated camera-based recognition of vehicle license plates, cross-referenced with a centralized database to verify environmental categorization and entry permits, represents the only equitable and corruption-free enforcement method. Analyzing enforcement frameworks in Krakow and Warsaw, A. Gałczyńska and M. Karkowski demonstrate that legal disputes in Poland emerged precisely

роботизированного манипулятора / В.Н. Ложкин, И.В. Сацук // Проблемы управления рисками в техносфере. – 2025. – № 4 (76). – С. 251–266.

¹¹ Обертов Д.Е. Методы и алгоритмы обработки информации в системах мониторинга автомобильного транспорта на основе датчиков дорожного покрытия: Дис. ... канд. техн. наук: 05.13.01 / СПбГУ ИТМО. – Санкт-Петербург, 2014. – 165 с.

¹² Anglès-Tafalla C. Privacy-preserving and secure decentralized access control system for low emission zones // IEEE INFOCOM 2019 Workshops. – Paris, 2019. – P. 1–6.

from procedural ambiguities in enforcement protocols, thereby underscoring the necessity of enshrining automated violation processing via cameras as mandatory within regulatory frameworks.

We fully endorse the positions advanced by V.V. Donchenko, D.E. Obertov, and A. Gałczyńska¹³. Relying on visual manual inspections of 90-millimeter windshield decals by traffic patrol officers is practically ineffective and inherently generates traffic congestion and administrative bureaucracy.

Therefore, it is expedient to identify the environmental category of vehicles not through physical windshield stickers, but automatically via existing urban surveillance cameras reading license plates, and to institute a fully automated, unmanned citation system that issues fines directly to violators entering unauthorized low-emission zones.

Fourth, pursuant to paragraph 13 of Regulation 2 approved by Resolution No. 750, citizens permanently residing or employed within the low-emission zone, as well as visitors to medical institutions, are entitled to circulate within said territory without restrictions or prohibitions.

This exemption is excessively broad and ambiguous. Considering that residents and employees in central urban areas account for the largest share of the overall vehicle fleet, granting them indefinite and unrestricted exemptions effectively reduces the environmental zone's capacity to remediate atmospheric air quality to zero.

Scholarly opinions remain divided on this issue. In particular, V. Lurkin¹⁴ highlights that the efficacy of a low-emission zone directly depends on operational regulatory stringency and public behavioral response. If the scope of exemptions is excessively broadened, road users will neither adapt their behavior nor upgrade their vehicles, ultimately undermining environmental remediation efforts.

Citing the experiences of London, Berlin, and Warsaw, I. Lund, M. Wang, and experts from the Institute for European Environmental Policy¹⁵ emphasize that permanent exemptions were never granted to local residents in these jurisdictions. Instead, permanent residents and employees were provided with a phased transition period of one or two years. During this interim window, residents were required to upgrade their vehicles to meet clean category standards, renew them using state subsidies, or transition to public transit¹⁶. Furthermore, Ch. Liotta and C. Holman et al¹⁷ maintain that permanent, indefinite exemptions should be reserved exclusively for emergency and specialized public services—such as ambulances, fire services, and police—as well as specially adapted vehicles operated by persons with disabilities.

¹³ Gałczyńska A. Stakeholder dynamics in the implementation of Low Emission Zones / A. Gałczyńska, M. Karkowski // Roads and Bridges – Drogi i Mosty. – 2025. – Vol. 24. – P. 577–590.

¹⁴ Lurkin V. Urban Low Emissions Zones: A Behavioral Operations Management Perspective / V. Lurkin, J. Hambuckers, T. van Woensel // Preprint submitted to Elsevier. – 2020. – P. 1–32. Geerlings

¹⁵ IEEP Policy Brief. Social aspects of low emission zones: Warsaw case study [Elektron resurs] / Institute for European Environmental Policy. – Brussels, 2024. – 12 p. – URL: <https://ieep.eu>.

¹⁶ Wappelhorst S. Update on Zero-Emission Zone Development Progress in Cities [Elektron resurs] / S. Wappelhorst, H. Cui. – Washington, DC: ICCT, 2022. – URL: <https://theicct.org>

¹⁷ Holman C. Review of the efficacy of low emission zones to improve urban air quality in European cities / C. Holman, R. Harrison, X. Querol // Atmospheric Environment. – 2015. – Vol. 111. – P. 161–169.

In our view, fully aligning with the scholarly approaches advanced by Lund and M. Wang, the experts of the Institute for European Environmental Policy, and Ch. Liotta¹⁸, establishing indefinite exemptions for permanent residents and individuals conducting labor activities within the low-emission zone under Cabinet of Ministers Resolution No. 750 is fundamentally flawed.

To eliminate this issue and ensure the regulatory efficacy of the restrictions, it is expedient to introduce the following measures:

Revoke the permanent exemptions granted to citizens residing and working within low-emission zones, instituting instead a two-year transitional adaptation period to allow them to upgrade their vehicles or reduce toxic emission levels.

Reserve unrestricted, permanent exemptions strictly for emergency response services and specially adapted motor vehicles operated by persons with disabilities.

Resolution of the Cabinet of Ministers No. 750 represents a significant step toward mitigating vehicular air pollution and establishing an electronic eco-sticker system in our country. Nevertheless, for the regulatory framework to operate effectively in practice, it is imperative to reinforce administrative liability provisions, transition enforcement fully to digital mechanisms via intelligent surveillance cameras, and replace open-ended annual permits with a daily quota system. The proposed administrative and legal solutions will safeguard national ecological security while upholding public interests and the principles of social justice.

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¹⁸ Liotta C. What drives inequalities in Low Emission Zones' impacts on job accessibility? // Transport Policy. – 2025. – Vol. 160. – P. 29–41.

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