

Date: 1st July-2026

**ECOLOGIZATION AND DIGITALIZATION OF INTERNATIONAL
TRANSPORT LAW**

Oppokhonov Azizkhon Akmalkhon ogli

Independent Researcher of
Tashkent State Transport University

Abstract: This article provides an in-depth scientific and theoretical analysis of the evolution of international transport law and the concept of "green transport" in the context of global environmental security and digital transformation. The study highlights the legal mechanisms within UN conventions (CMR, TIR, ADR), the environmental standards of the International Maritime Organization (MARPOL), and the European Union's decarbonization policy. Furthermore, Uzbekistan's participation in international transport corridors, collision problems in multimodal transport (exemplified by the Rotterdam Rules), and the introduction of electronic consignment notes (e-CMR) are examined. In conclusion, conceptual proposals are provided for developing national legislation (specifically, a law on Multimodal Transport) to regulate objective liability for environmental damage and digital logistics.

Keywords: green transport, environmental security, transport law, decarbonization, multimodal transport, digital logistics, international conventions, Uzbekistan.

In the contemporary system of international law, the paradigm of transport sector development is shifting away from purely economic and logistical objectives toward the principles of global environmental security and sustainable development. Today, the concept of 'green transport' has transcended being a mere ecological initiative; it has evolved into a fundamental legal institution regulated through the imperative norms (*jus cogens*) of international transport law, thereby defining the geo-economic strategies of states. This process of transformation encompasses not only environmental protection but also the preservation of the life and health of transport users and operational personnel.

Within the framework of international law, the theoretical and legal foundations for implementing environmentally friendly vehicles are being extensively researched by numerous scholars. According to professor M.A.Sarsembaev, toxic emissions from over a billion automobiles and hundreds of thousands of diesel locomotives worldwide currently inflict irreversible damage on the environment and human health; consequently, establishing robust international legal mechanisms for transitioning to electric mobility and other eco-friendly means of transport remains a paramount issue on the global agenda.²⁶ Concurring with this premise, it is our position that the restriction of conventional fuel-powered vehicles should not be governed solely by soft law norms;

²⁶ Сарсембаев М.А. Казахстанские и международно-правовые нормы об экологически чистых транспортных средствах // Право и государство. – 2019. – №. 1. – С. 97-110.



Date: 1st July-2026

rather, it must be enforced through binding hard law sanctions and limitations codified within international conventions.

One of the most critical dimensions of the 'green transport' concept involves the drastic reduction of carbon dioxide and other toxic substances. In her research, the scholar O.A. Khotko has scientifically substantiated that the ecologization of transport law strengthens its intersectoral linkages, thereby requiring the resolution of decarbonization objectives at the level of regional interstate associations.²⁷ Indeed, the directives adopted within the framework of the European Union's 'Green Deal' have established mandatory environmental standards applicable not only to EU member states but also to all foreign carriers entering this territory.²⁸ Consequently, this compels other states participating in global logistics to modernize their national legislation.

One of the most prominent and problematic examples of implementing environmental security standards into international transport law is the Agreement concerning the International Carriage of Dangerous Goods by Road.²⁹ Although this convention is primarily aimed at ensuring transport safety, its core objective is specifically the prevention of catastrophic environmental disasters. However, in legal practice and scholarly debates, the allocation of liability for transboundary environmental damage in the event of an accident involving dangerous goods—specifically among the carrier, the shipper, or the insurance company—remains a complex conflict-of-laws issue. In our view, it is expedient to address this legal vacuum by directly incorporating the institution of strict and joint-and-several liability for environmental damage into the framework of this convention.

In the law of the sea, the implementation of the green concept is executed through the International Maritime Organization's MARPOL Convention.³⁰ In recent years, the 'IMO 2020' standard, aimed at drastically reducing the sulfur content in marine fuel, has caused a veritable revolution in the international shipping market. Although certain economists and legal scholars express concern that such stringent environmental requirements will lead to an increase in freight rates and the logistical isolation of developing states, the socio-environmental significance of these mandates is paramount. We believe that the reduction of toxic emissions into the atmosphere not only decelerates global warming but also directly contributes to improving the health of populations in port cities and enhancing the working conditions of seafarers.

The aforementioned environmental standards and 'green transport' mechanisms are inherently and inextricably linked to the processes of improving occupational safety and health systems.

²⁷ Хотько О.А. Наука транспортного права: междисциплинарные связи, перспективные направления развития. – 2025. – С.84–91.

²⁸ Fetting C. The European green deal //ESDN report, December. – 2020. – Т. 2. – №. 9. – P.53.

²⁹ Таран И.С., Петров Г.В. Дорожная перевозка опасных грузов (ДОПОГ) // Научно-практические исследования. – 2020. – №. 12-7. – С.52-57.

³⁰ Fitzmaurice M. The international convention for the prevention of pollution from ships (MARPOL) // Research Handbook on Ocean Governance Law. – Edward Elgar Publishing, 2023. – С.91-108.



Date: 1st July-2026

The convergence of environmental security law and occupational safety at this juncture is shaping a new humanitarian dimension within transport legislation. However, the transition to 'green transport' simultaneously generates novel anthropogenic hazards and legal challenges. In the practice of the European Union and Japan, the concept of extended producer responsibility for battery recycling has been strictly incorporated into legislation.³¹ In our view, for a vehicle to be legally recognized as 'environmentally friendly,' its environmental safety must be evaluated based on its entire 'lifecycle'—from production to final disposal—rather than solely on emissions generated during its operational phase.

Indeed, the 'green transport' concept, derived from the Sustainable Development Goals, is fundamentally modernizing international transport law. For the Republic of Uzbekistan, the progressive implementation of foreign environmental standards—specifically those of the European Union—into national legislation is not merely a fulfillment of international obligations, but a strategic prerequisite for maintaining the competitiveness of the national transport system within the global market.

Today, the country's international obligations in the transport sector constitute a complex normative architecture comprising dozens of multilateral conventions and more than one hundred bilateral agreements. Consequently, the core challenge facing the science of transport law remains not the mere ratification of Uzbekistan's international obligations, but rather their deep and systematic incorporation into the national legislative framework.

When analyzing obligations in the field of international road transport, it is essential to acknowledge that Uzbekistan's accession to the Geneva Conventions in 1996—specifically the Convention on the Contract for the International Carriage of Goods by Road (CMR) and the Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention)—marked a historical turning point. However, in our view, although the CMR Convention strictly demarcates the boundaries of liability among the shipper, the carrier, and the consignee, the traditional system predicated on paper-based waybills no longer satisfies the requirements of the digital economy. The implementation of the provisions of the Additional Protocol concerning the Electronic Waybill (e-CMR) into Uzbek practice represents the definitive solution for ensuring transparency within international logistical supply chains.

The legal framework governing Uzbekistan's international transport corridors gives rise to complex conflict-of-laws issues within the scope of multimodal transport. In the carriage of the country's export cargo through Baltic ports (Klaipeda, Riga, Tallinn), European Union states (via Chop and Brest), as well as the Bandar Abbas route in Iran and the Mazar-i-Sharif route in Afghanistan, diverse legal systems inevitably collide.³² For instance, although the Rotterdam Rules, adopted under the auspices of the United Nations,

³¹ Cai Y.J., Choi T.M. Extended producer responsibility: A systematic review and innovative proposals for improving sustainability //IEEE transactions on engineering management. – 2019. – T. 68. – №. 1. – P.272-288.

³² Barakaev, F.I., & Sidiqnazarov, Q.M. (2021). O'zbekiston Respublikasining xalqaro ahamiyatdagi transport yo'laklari bo'ylab joylashgan yo'l bo'yi xizmat ko'rsatish infratuzilmasi [Roadside service infrastructure located along transport corridors of international importance in the Republic of Uzbekistan]. *Scientific Progress*, 2(1), 1845–1850.

Date: 1st July-2026

attempt to unify maritime and inland transport, their adaptability to Central Asian logistics remains a subject of debate. Therefore, we believe that it is imperative for Uzbekistan to enact a specialized law at the national legislative level that clearly delineates the civil liability of multimodal transport operators operating within these transregional corridors.

International obligations in the field of air transport possess a distinct normative architecture and are regulated through global aviation conventions as well as bilateral agreements concluded by the Republic of Uzbekistan with Austria, the United Kingdom, Bulgaria, Belarus, and dozens of other states. As noted in the fundamental research of the legal scholar N.N. Ostroumov, the process of unifying the legal regime of international air transport necessitated a transition from the obsolete Warsaw System to the Montreal Convention, which provides absolute protection for the interests of passengers and cargo owners.³³ From a scholarly perspective, Uzbekistan's international aviation obligations are not confined solely to ensuring flight safety; rather, they entail the proper implementation of carrier liability within national judicial practice in cases of passenger injury, flight delays, or cancellations.

Today, Uzbekistan's international obligations concerning environmental security and 'green logistics' standards are accelerating the process of ecologization within transport law. The country has fully acceded to the Agreement concerning the International Carriage of Dangerous Goods by Road and the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for such Carriage.³⁴

In the fulfillment of international obligations, the implementation of digital transformation and innovative legal regimes stands as a paramount issue of the contemporary era. However, the international legal regulations governing data security and the utilization of big data harvested during the tracking of transit cargo via intelligent transport systems and artificial intelligence are not yet fully established. The experience of the European Union demonstrates that enacting laws that ensure a balance between state sovereignty and private commercial secrets in the governance of digital transport platforms guarantees the digital evolution of transport law.

A scholarly analysis of international standards indicates that the mere accession to conventions is insufficient for fully realizing the transit potential of our country. In our view, predicated on the incorporation of international norms into national legislation, the formulation and enactment of a unified Law 'On Multimodal Transport' (or a dedicated section within the Transport Code) that legally regulates the grounds of liability common to all modes of transport, uncompromising occupational safety standards, and digital logistics represents the most precise and strategic path for integrating the advanced achievements of international transport law into the practice of Uzbekistan.

³³ Остроумов Н.Н. Проблемы унификации и совершенствования правового режима международных воздушных перевозок: автореферат диссертации. – Московский государственный институт международных отношений, 2013. – 57 с.

³⁴ Зельман В.А. Новое в европейском соглашении о международной дорожной перевозке опасных грузов варианта 2019 года ADR/ДОПОГ (2019). – 2019.