Transport in Review

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Transport sector sustainability assessment: Uzbekistan – Working Paper

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https://asiantransportobservatory.org/

ADB ASIAN DEVELOPMENT BANK AIIB ASIAN INFRASTRUCTURE INVESTMENT BANK

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Abbreviations

2/3W	Two/ Three-Wheeler
2G, 3G, 4G	Generation of wireless data communication for mobile carriers
AI	Artificial Intelligence
ATO	Asian Transport Observatory
BASA	Bilateral Air Service Agreements
BAU	Business-As-Usual
BC	Black Carbon
BEV	Battery Electric Vehicle
BR	Biennial Report
CAREC	Central Asia Regional Economic Cooperation
CDRI	Coalition for Disaster Resilient Infrastructure
CIESIN	Centre for Integrated Earth System Information
CKD	Completely Knocked Down
COPD	Chronic Obstructive Pulmonary Disease
COVID	Coronavirus Disease
CNG	Compressed Natural Gas
CO2	Carbon Dioxide
CRRN	Core Rural Road Network
DC	Direct Current
EU	European Union
EV	Electric Vehicle
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIS	Geographic Information System
GUTC	Green Urban Transport Corridors
GVA	Gross Value Added
HDV	Heavy Duty Vehicle
IATA	International Air Transport Association
ICCT	International Council on Clean Transportation
IMF	International Monetary Fund
IoT	Internet of Things
iRAP	Infrastructure Rating and Assessment Program
IRJ	International Railway Journal
ITDP	Institute for Transport Development Policy
ITS	Intelligent Transportation Systems
JSC	Joint Stock Company
KBA	Key Biodiversity Area
km	kilometer
LDV	Light Duty Vehicle
LPI	Logistics Performance Index
LSCI	Liner Shipping Connectivity Index
MJ	Megajoules
NC	National Communication
NDC	Nationally Determined Contribution
NOx	Nitrogen Oxides
NRVI	National Road Vulnerability Index
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
OSM	Open Street Map
PM2.5	Particulate Matter (particles less than 2.5 micrometers)
PPP	Public-Private Partnership or Purchasing Power Parity
RAI	Rural Access Index
RRF	Republican Road Fund
SAF	Sustainable Aviation Fuel
R&D	Research and Development
SDG	Sustainable Development Goals
SEDAC	Socioeconomic Data and Applications Center
SOx	Sulfur Oxides
SUV	Sports Utility Vehicle
TEU	Twenty-foot Equivalent Unit
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Program
USD	US Dollars
USD (PPP)	USD (Purchasing power parities)
UzCAA	Uzbekistan's aviation framework rests with the Civil Aviation Agency
UZS	Uzbekistani Som
VAT	Value-Added Tax
WHO	World Health Organisation
WIPO	World Intellectual Property Organization

Executive Summary

Uzbekistan stands at a crossroads, a landlocked nation of 36 million, striving for upper-middle-income status by the decade's end. Its ambition: to become Central Asia's central transit hub. Drawing on data-driven analysis, this report benchmarks Uzbekistan's transport performance against regional and global benchmarks, revealing progress, despite vulnerabilities. This status report is timely, as the UN Decade of Sustainable Transport commences in November 2025, reminding us that 'to build for a better tomorrow is to acknowledge the lessons of yesterday'.

Uzbekistan's transport sector, contributing nearly 8% to GDP and employing 1 million people, has seen its labor productivity triple in 30 years. Yet, it remains below the Asia-Pacific average. Comprising 97% of the network, roads are largely paved (95%), with 83% reported to be in good condition. Railways, at 3% of the network, have received more investment in recent years, but 90% of rolling stock requires renewal. Urban rapid transit is expanding, with Tashkent Metro nearly doubling in length since 2017, but overall availability is still lower than Asian and OECD averages. The aviation sector shows modest growth in terms of global reach, with international traffic driving activity. A notable improvement has occurred in logistics performance, as Uzbekistan soared from 129th in the 2014 LPI rankings to 88th in 2023.

Despite these strides, several challenges persist. Transport costs in Uzbekistan are the highest in Central Asia due to its double-landlocked status, and infrastructure gaps. The sector faces high growth in energy consumption and carbon emissions, with road transport accounting for 97% of transport energy and 98% of transport CO2 emissions. The nation's vehicle fleet is expanding at a rate that far exceeds road network growth, resulting in a disproportionate reliance on the road sector for both passenger and freight movement. This dominance, however, comes with a severe cost: road crashes. They represent a major concern, making up 74% of the estimated cost if transport externalities. Additionally, while the transport sector's share of PM10 emissions has declined since 2015, its share of NOx emissions has increased over the same period.

Policy initiatives are in progress to tackle some of these challenges, emphasizing infrastructure expansion, sustainable financing, and promoting inclusive, eco-friendly mobility. The "Development Strategy of New Uzbekistan for 2022-2026," for example, proposes railway electrification and road network enhancements to boost transit cargo volume By 2035, rural road development plans aim to ensure 85% of the population has all-season access. Meanwhile, urban areas are seeing strategies that focus on expanding public transit, limiting private vehicle use, and developing cycling facilities. Furthermore, Uzbekistan is committed to strengthening its climate efforts, targeting a 35% reduction in GHG emissions per GDP by 2030 through fuel diversification and electric vehicle adoption. Incorporating climate resilience into transport planning is also underway, though this will require substantial investment to address both deferred maintenance and future needs. Finally, road safety policies are focusing on improvements to public transport, fleet renewal, and infrastructure upgrades.

Uzbekistan's future as a true crossroads depends not only on building more, but on building better – connecting people, goods, and opportunities with efficiency, while keeping a keen eye on the environmental compass.

Uzbekistan's future as a true crossroads depends not only on building more, but on building better

Introduction

Uzbekistan stands at a pivotal crossroads. Home to 36 million people, half of whom live in cities, this lower-middle-income nation aspires to become an upper-middle-income country by the end of this decade.

It is double landlocked, i.e., bounded to the north and west by Kazakhstan, to the southwest by Turkmenistan, to the south by Afghanistan, to the southeast by Tajikistan, and to the east by the Kyrgyz Republic. Uzbekistan's transport sector plan highlights its goal to become a central transit hub in Central Asia by boosting connectivity, integrating into global transport networks, and modernizing infrastructure across multiple modes. The aim is to overcome its unique double-landlocked status and re-establish itself as Central Asia's central transit hub, a vital bridge connecting East and West.

Achieving this vision requires balancing environmental, social, economic, technological, policy, and behavioral considerations. This is critical in a sector that, by its nature, continually evolves to accommodate increasing demands for economic and social activities.

This report cuts through the complexities, offering a sharp, data-driven assessment of its progress. We've meticulously benchmarked Uzbekistan's transport performance and trends against regional peers, high-income nations, and global counterparts. What we found is not straightforward: while significant strides have been made, severe vulnerabilities persist. This dual narrative is particularly crucial as the UN Decade of Sustainable Transport kicks off in November 2025 (ATO, 2025). This report, therefore, isn't just a study; it's the critical baseline Uzbekistan needs to monitor its journey throughout this pivotal decade.

We utilize a comprehensive suite of 51 indicators to track progress and identify gaps. Sustainable transport is examined through six interconnected lenses: infrastructure and connectivity; access, mobility; equity and prosperity; energy consumption and carbon emissions; climate resilience and disaster preparedness; and health and environmental impacts of transport (Figure 1).

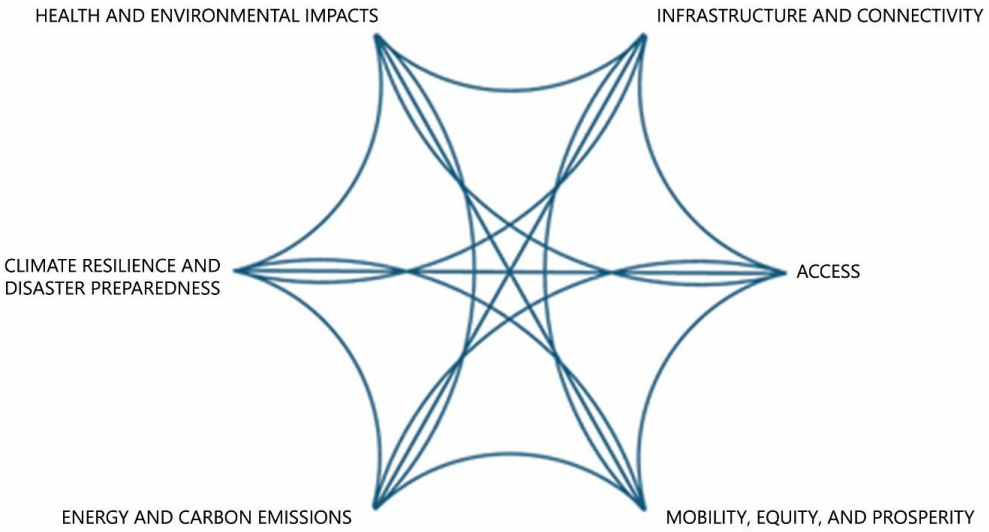

Figure 1. Sustainable transport assessment framework
Source: ATO (2025)

Infrastructure and Connectivity

II.Infrastructure and Connectivity

Quality infrastructure and seamless connectivity are not just conveniences– they are the backbone of economic and social development. While directly aligned with Sustainable Development Goal (SDG) 9 (Industry, Innovation, and Infrastructure), infrastructure and connectivity have a ripple effect, influencing virtually every dimension of the 2030 Agenda.

Road Sector: Expanding Capacity

Uzbekistan's growing trade and landlocked status demand continued road development. Uzbekistan had approximately 175,000 kilometers of roads in 2023, equivalent to 5.1 kilometers per thousand population and 398 meters per square kilometer, which is on par with the Asian average of 4.8 kilometers and 440 meters, but significantly below the OECD average of 17 kilometers and 670 meters (Figure 2). The good news: 95% of Uzbekistan's roads are paved, with 83% in good condition (van et al., 2024).

Yet, challenges persist. Out of the entire road infrastructure, 6% consists of primary roads, 94% secondary roads, and tertiary roads. The primary road density, which is extremely important for intercity transport, i.e., 24 m/sq. km., is significantly lower than other developed economies such as Japan (420) and the Republic of Korea (450) (Nirandjan et al., 2022; Wiedenhofer et al., 2024). Historically, in high-income economies, the share of primary roads increases with economic development—a path Uzbekistan appears to be heading towards. Already, in the 2035 strategy, a roadmap for the construction and repair of 43,693 kilometers of roads has been

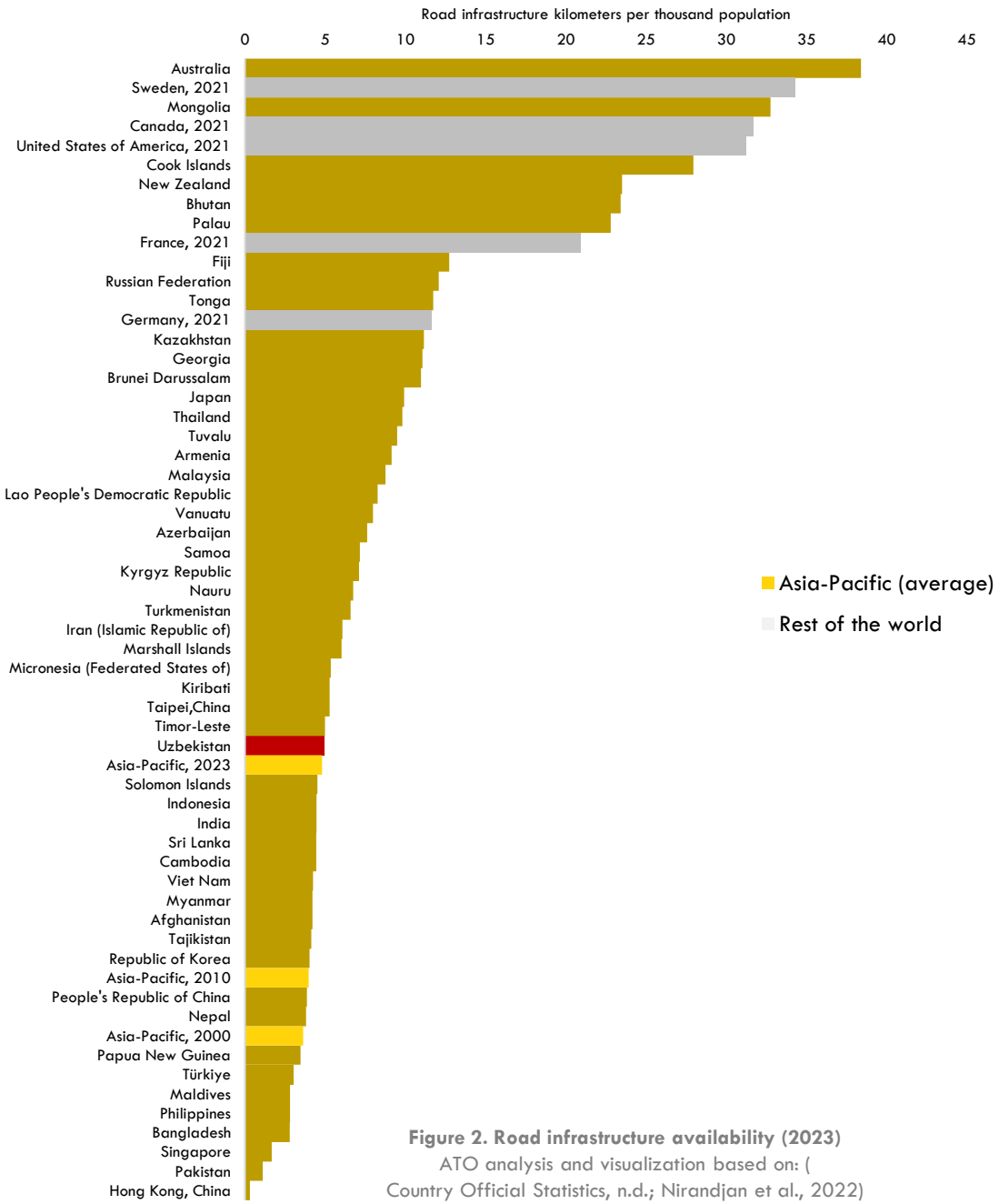

Figure 2. Road infrastructure availability (2023)
ATO analysis and visualization based on: (Country Official Statistics, n.d.; Nirandjan et al., 2022)

targeted. Estimates indicate that the road infrastructure capacity must increase by 486 per cent by 2030 and by 1,365 per cent by 2050 to meet the expected volume of freight that will pass through Uzbekistan (World Bank, 2023b).

The proposed capacity expansion and quality improvement could support the goal of reducing transport costs. Uzbekistan aims to reduce the level of specific transport costs in product prices by 2035, from 15% in 2018 to 10% by 2035.

Uzbekistan's roads, once under the Uzbek Agency for Automobile Transport, now fall under the Ministry of Transport, which was established in 2019. This Ministry shapes national transport policy. Under its purview, the Committee for Roads is responsible for the full lifecycle of public roads, from planning and design to construction and operation, executed through its 13 regional departments and the Directorate for the Construction and Reconstruction of Roads. International investment projects are managed by the Republican Road Fund (RRF). Subsequent reforms have focused on separating regulatory and commercial functions: state road construction enterprises have been corporatized and transferred to the state-owned Directorate for Construction and Reconstruction, with all new construction, rehabilitation, and reconstruction projects now subject to competitive bidding. The sector continues to require further reforms and capacity-building to fully modernize (ADB, 2022).

Previously, the RRF was the primary financing mechanism for roads, supported by turnover taxes and other revenues. In 2019, its financing role was abolished, along with the 3.2% corporate turnover levy previously allocated to trust funds. A new Republican Trust Fund for Road Development was established, funded by state budget allocations and interest-free loans from the Fund for Reconstruction and Development, specifically for road construction, reconstruction, and rehabilitation. This shift has coincided with a significant decline in maintenance funding. While the government generates substantial revenue from fuel taxes, vehicle purchase fees, and excise duties, these funds are not specifically earmarked for the road sector, leading to a notable gap between available revenues and the sector's actual needs (ADB, 2022).

The reform of Uzbekistan's road financing framework aims for sustainable development, pushing for clearer, more efficient, and accountable public spending. Moving from earmarked turnover taxes to direct state budget allocations and interest-free loans promotes more strategic, needs-driven investment in road infrastructure. The dedicated trust fund enables better long-term planning, and competitive bidding enhances both cost and quality (ADB, 2022).

Estimates indicate that the road infrastructure capacity must increase by about fourteen-fold by 2050 to meet the expected volume of freight that will pass through Uzbekistan

Railways: Accelerating Towards Modernization

Railways in Uzbekistan were initially built by the Russian Empire and later by the Soviet Union. The first railway in Central Asia, known as the Central Asian Railway, was completed in 1888 and ran from Krasnovodsk (now Turkmenbashy) port on the Caspian Sea to Tashkent, passing through Bukhara and Samarkand.

The distribution of surface infrastructure in Uzbekistan shows a strong dominance of roads, making up most of the total land transport network (97%). In comparison, heavy railways account for only 3%, and urban rapid transit systems comprise less than 1% of the network (Figure 3). This intermodal imbalance can lead to inefficiencies and environmental impact. In terms of heavy railway infrastructure availability (km per million population), Uzbekistan (139) is higher than the Asia-Pacific average (122), and network coverage is denser than in most other CAREC countries (Figure 4).

Currently, the national heavy railway network spans nearly 4,718 kilometers; the network is mainly broad gauge (1,520 mm). The length of the electrified network is 2,530 km electrified (54%) (CAREC, 2021).

JSC "O'zbekiston temir yo'llari" (Uzbekistan Railways) is a key entity in Uzbekistan's railway sector. Established in 1994 by presidential decree and transformed into an open joint-stock company in 2001, it is the successor to the former state railway enterprise (Government of Uzbekistan, 2025). The company's main objective is to "ensure the sustainable and efficient operation of railway transport, enhance transport safety, and improve the quality of services to meet the needs of the state, legal entities, and individuals." It aims to provide world-class services, increase competitiveness, and implement a tariff policy focused on cost reduction and service quality improvement.

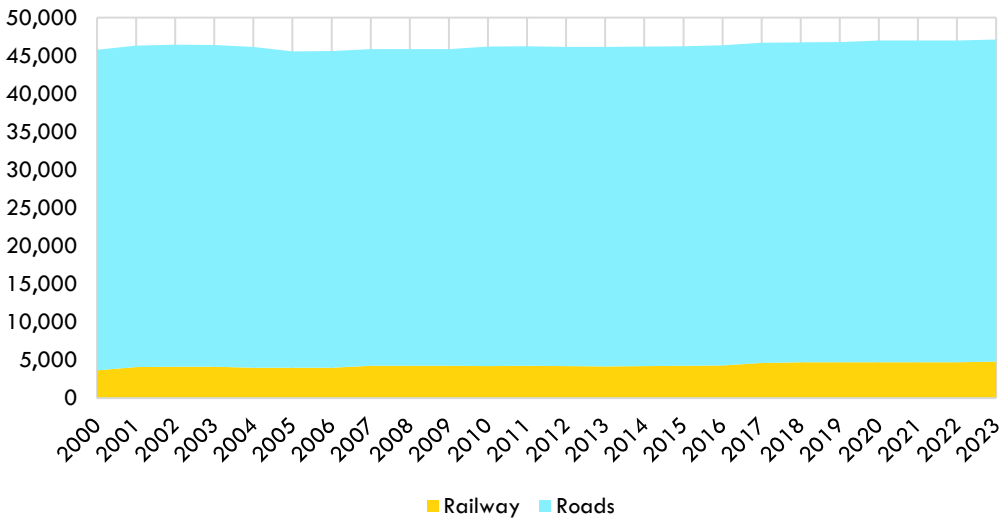

Figure 3: Uzbekistan Road and Railway Infrastructure (km)
ATO analysis and visualization based on: Country Stats

The distribution of surface infrastructure in Uzbekistan shows a strong dominance of roads, making up most of the total land transport network (97%)

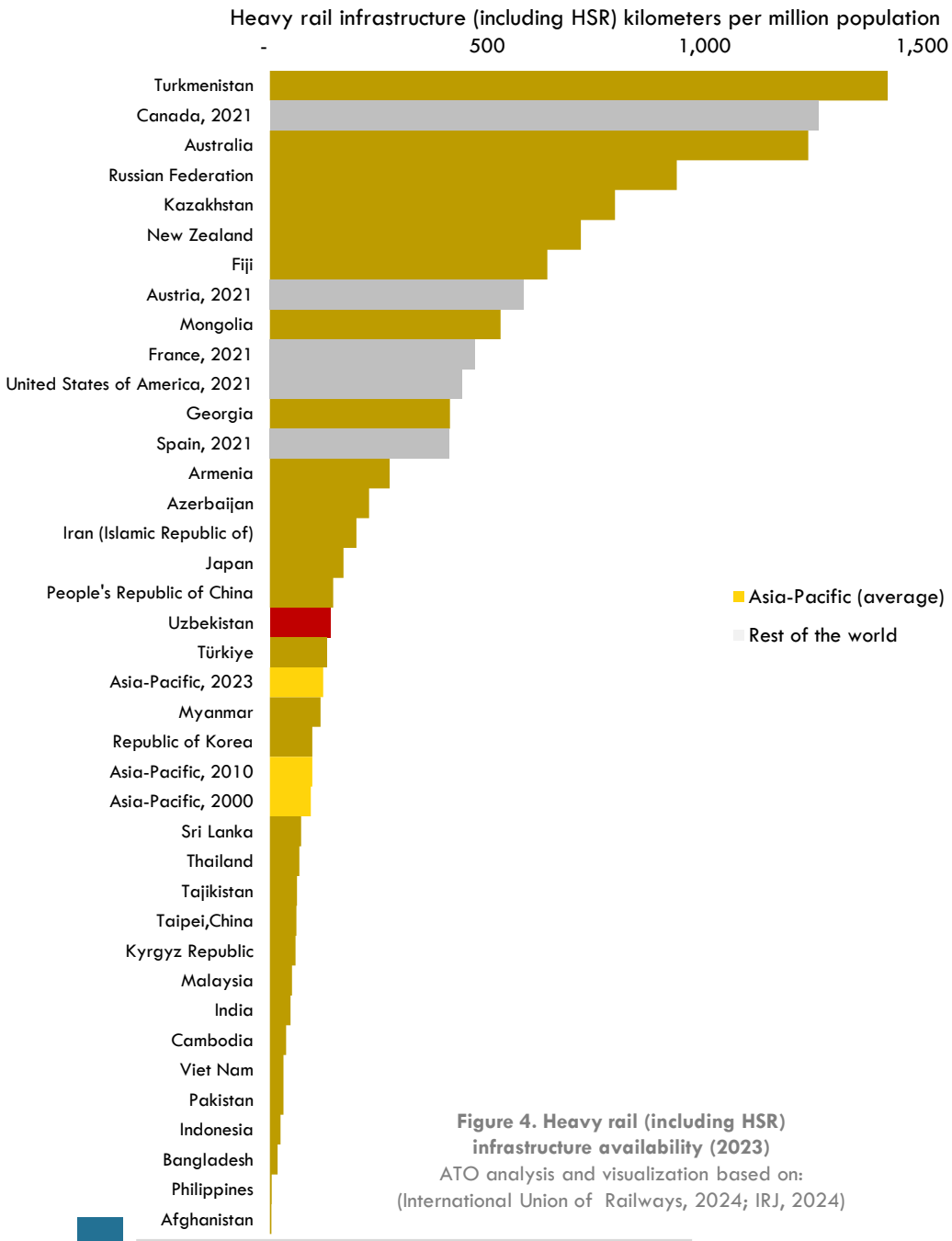

Figure 4. Heavy rail (including HSR) infrastructure availability (2023)
ATO analysis and visualization based on:
(International Union of Railways, 2024; IRJ, 2024)

Following the Presidential resolution of October 10, 2023, significant reforms have been initiated in the railway sector. Over the past few years, Uzbekistan Railways has undergone a structural overhaul, transitioning from a loss-making enterprise to a profitable one (Uzbekistan Railways, 2024). However, the future challenge is huge - nearly 90% of the current rolling stock will require renewal over the next 10 years (World Bank, 2022b). This necessitates a sustained investment and operational ingenuity to maintain this hard-won momentum.

Urban Rapid Transit: Enhancing Urban Mobility

Uzbekistan's urban rapid transit, primarily a metro system, grew from 50 kilometers in 2020 to about 70 kilometers with 50 stations by 2024 (UZ Daily, 2025). The Tashkent Metro nearly doubled in length between 2017 and 2024. Current rapid transit availability (4 kilometers per million urban inhabitants) is lower than both the Asian (8) and the OECD average (12) (IRJ, 2024; ITDP, n.d.;) (Figure 5). Unmapped informal systems may skew these figures, but clearly, more investment and expansion are needed for urban mobility.

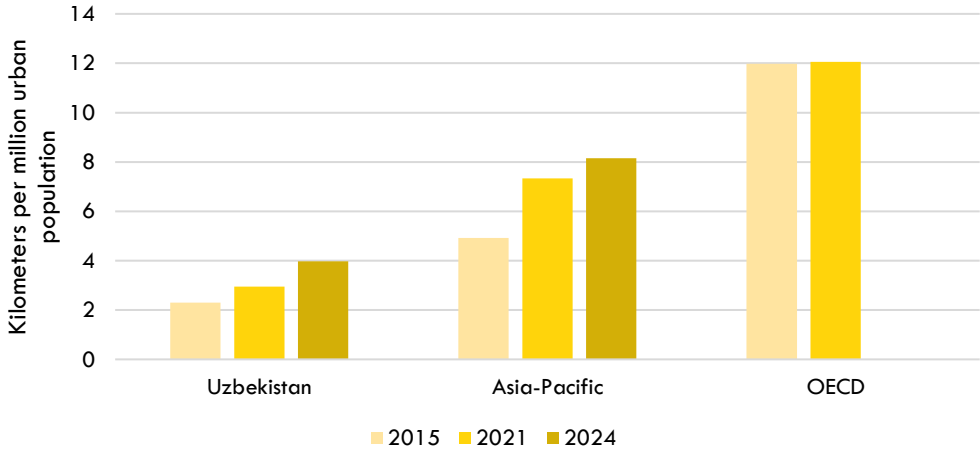

Figure 5. Urban rapid transit ratio, kilometers per million urban population (2015-2024)
ATO analysis and visualization based on: (ITDP, 2024b)

Aviation Sector: Modest Growth in Global Reach

Uzbekistan's aviation sector has grown despite global volatility. In 2025, it had 11 civil airports with scheduled commercial flights, with Tashkent International Airport serving as a key Central Asian hub.

While direct aviation employment is modest (12,400 people, generating USD 96.5 million, equivalent to 0.1% of GDP), its total contribution, including supply chain, employee spending, and tourism, is USD 795.5 million, supporting 128,300 jobs. This multiplier effect underscores the often-underestimated indirect benefits of air transport infrastructure (IATA, 2025).

International air traffic is a major driver of this activity, accounting for 81% of Uzbekistan's total origin-destination departures in 2023, which translates to 3.9 million passenger movements. Europe is the leading international market, accounting for 63% (2.5 million passengers), followed by the Middle East with 19% (741,600 passengers), and the Asia Pacific with 15% (582,100 passengers). Since 2014, Uzbekistan's international air connectivity index has increased significantly, by 19% in the Asia Pacific region and by 395% across all other regions (IATA, 2025). When compared to 2019, the improvement is 73% (ACI, 2025).

However, Uzbekistan's air connectivity still lags that of many regional counterparts — a critical bottleneck in a doubly landlocked country for expanding both tourism and high-value exports.

Understanding the character of aviation connectivity is also essential. Analysis indicates that a considerable 97% of passengers either concluded their journey at the point of entry or continued using a different mode of transport. In comparison, only 3% of all international arrivals proceeded to a destination in another country. This suggests that while Uzbekistan is emerging as a destination in its own right, its role as a regional transit hub for international air travel remains relatively limited.

Uzbekistan's aviation framework rests with the Civil Aviation Agency (UzCAA), under the Ministry of Transport (Civil Aviation Agency, 2025). The UzCAA regulates civil aviation, ensuring safety and security. This aligns with International Civil Aviation Organization (ICAO) standards, ratified by Uzbekistan in 1992 under the Chicago Convention. The UzCAA issues licenses, oversees air traffic via Uzaeronavigatsia, and certifies personnel and aircraft. Uzbekistan Airports manages international hubs, seeking modernization and private investment. The flag carrier, Uzbekistan Airways, remains a central part of operations.

Significant reforms are underway. Presidential Decree No. 5584 (2018) separated airline and airport operations. The goal: attract private capital and liberalize the market. Global evidence, from Europe to Africa, shows liberalization cuts fares and improves service. Econometric models suggest that liberalizing air transport, through changes to bilateral air service agreements (BASAs), will boost traffic. Trade, economic ties, and geography will drive this growth (World Bank, 2019). The way forward is clear. The advantages are substantial.

Logistics Performance Challenges

Better infrastructure, stronger connectivity, and supportive policies directly contribute to improved logistics performance, as measured by indicators such as the Logistics Performance Index (LPI)[1]. Since 2014, Uzbekistan has made significant improvements in logistics performance, with its rank consistently improving from 129 in 2014 to 99 in 2018 and 88 in 2023 (World Bank, 2024b) (Figure 6). The strategy is direct: enhance regional corridors, boost freight efficiency, and secure transit through multilateral agreements.

[1] The LPI index measures a country's logistics competencies in several key areas: customs efficiency, infrastructure quality, ease of organizing international shipments, competence of logistics services, tracking and tracing capabilities, and the punctuality of shipments.

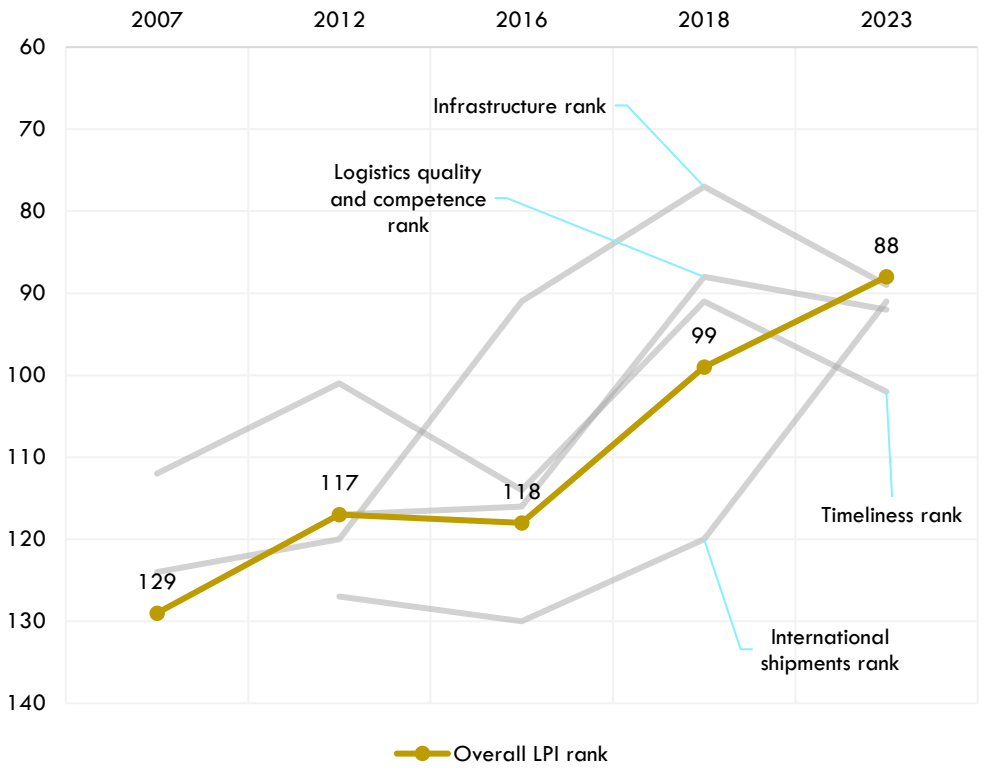

Figure 6. Overall LPI Ranking
ATO analysis and visualization based on: (World Bank, 2024b)

However, while the economic performance has improved, the environmental and social performance of the freight sector demands far greater scrutiny and proactive intervention. In terms of sustainable freight rankings , Uzbekistan ranks 107th out of 160 countries (UNCTAD, n.d.).

Being double-landlocked with a higher distance to reach global supply chain nodes and with gaps in infrastructure, equipment, and quality, leads to Uzbekistan having the highest transport costs in Central Asia (World Bank, 2022b). For example, transport costs are around 200% of production costs for farmers and small and medium enterprises (World Bank, 2022b).

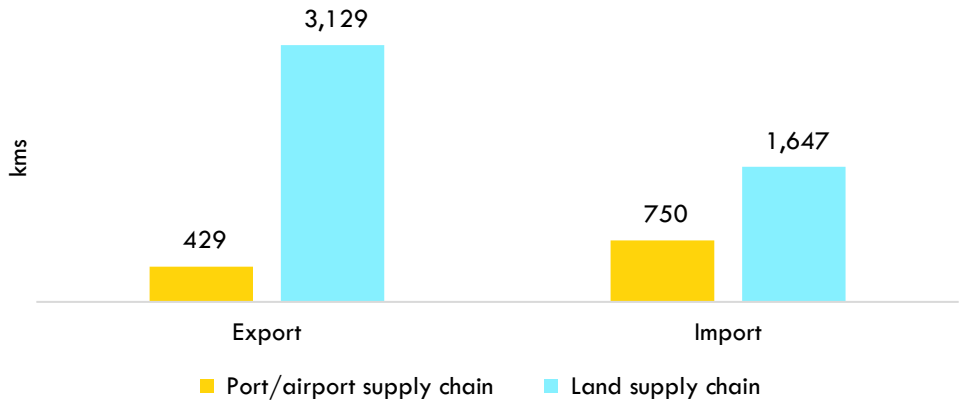

Figure 7. Supply chain distance, kilometers
ATO analysis and visualization based on: (World Bank, 2024b)

The adoption of the National Trade Facilitation Roadmap is a significant step, crucial for Uzbekistan's goal of joining the WTO by 2026. The country has already achieved 85% trade facilitation performance, the highest in Central Asia. It aims for a top 50 LPI ranking, with digitalization and sustainability at the forefront (UNECE, n.d.).

The Ministry of Transport, directs Uzbekistan's unified transport policy. This Ministry oversees road, rail, air, river, metro, and logistics infrastructure. Within its structure, the Center for Transport and Logistics Development steers strategic planning, digitalization efforts, corridor development, and transit cooperation with international partners (Trend news agency, 2025).

Uzbekistan Railways JSC has formed a new entity: the Main Directorate for Logistics and Digitalization. The creation of this unit was a direct response to the need for a stronger logistics sector. Its mandate includes analyzing the transport services market, identifying strategies to increase transit traffic, and fostering coordination with global transport and logistics firms, alongside cargo owners. The Directorate is tasked with advancing Uzbekistan's logistics and transit strategies, establishing efficient transit corridors, and improving the nation's LPI ranking. Its work also extends to digitalizing transport processes and strengthening international and regional cooperation within the global transport services market (Trend news agency, 2025).

Transport Infrastructure Investments

Transport investments accounted for 2.1% of GDP in 2021, approximately € 2.1 billion. Regarding infrastructure, the distribution was 75% for roads, 24% for railways, and 0.7% for airports. Maintenance represented 38% of investments (OECD, n.d.). Research shows that transport infrastructure investments have averaged around 2% from 2010 to 2020.

Analysis of official development assistance (ODA) directed towards Uzbekistan's transport sector reveals a noticeable increase in investment over the past decade. Between 2010 and 2015, the country received $246 million in ODA for transport initiatives. This figure rose to $325.6 million in the subsequent period of 2016-2022, indicating a growing commitment to modernizing and expanding the nation's transport infrastructure.

A more granular examination of the 2016-2022 ODA allocation reveals the priorities (Figure 8). Roads absorbed the majority share, accounting for 60% of these investments. Rail infrastructure followed with a significant 39% share, underscoring the ongoing emphasis on inland transport. Airports, while crucial for international connectivity, received a comparatively modest 1% of the total ODA. This distribution reflects a strategic focus on enhancing domestic and regional overland connectivity. The implications for freight movement and passenger mobility within Central Asia are clear: strengthening road and rail networks remains the core investment strategy (OECD, n.d.).

In parallel, Uzbekistan lacks significant Public-Private Partnership (PPP) initiatives in the transport sector (World Bank, 2024c). As of late 2024, Uzbekistan's total PPP commitments reached an impressive USD 31 billion, equivalent to 27% of its GDP. However, 90% of the PPP projects were in the energy sector. Looking ahead, a decisive shift is expected. Presidential Decree 308 outlines a substantial pipeline of PPP projects for 2025-2030, totalling USD 30.2 billion. The transport sector is anticipated to attract the largest share of these new projects (IMF, 2025).

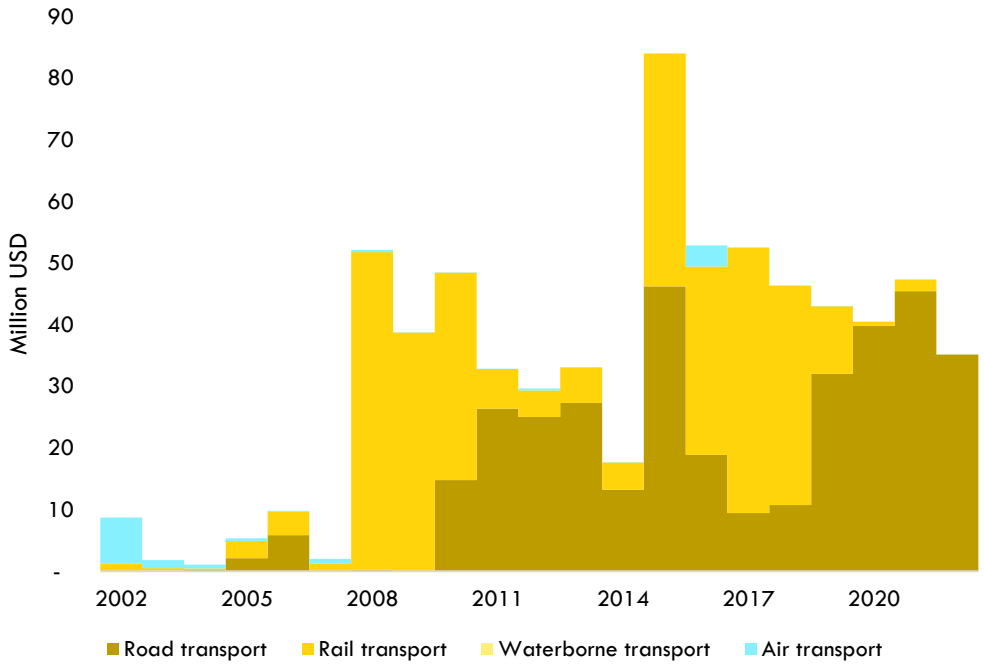

Figure 8. Official development assistance for transport sector, million USD
ATO analysis and visualization based on: (OECD, n.d.)

Policy Insights: Infrastructure Expansion and Asset Management

Uzbekistan's policy framework towards infrastructure is clear: substantial investments in transport infrastructure, facilitated by effective policy instruments, are crucial for reducing costs, boosting cross-border trade, and leveraging its strategic transit position.

A core tenet of Uzbekistan's infrastructure and connectivity improvement approach is the formation of a unified comprehensive development policy aimed at reducing transport costs and ensuring the effective functioning of the transport sector. The "Development Strategy of New Uzbekistan for 2022-2026" (Government of Uzbekistan, 2022) is central to these ambitions, outlining plans for transport and logistics infrastructure, with a specific goal of increasing railway electrification to 60%, and accelerating road network development. The strategy also highlights the expansion of "green corridors" and transit routes within the transport system to boost foreign trade, aiming for a significant rise in transit cargo volume up to 15 million tons.

Beyond these broad objectives, the country is actively working to enhance public transport systems, ensure accessible urban passenger transport for persons with disabilities, and establish transport connections to remote areas. For example, the "Development Strategy of New Uzbekistan for 2022-2026" aims to make intercity and suburban rail routes more attractive and establish transport connections to schools and preschools in remote areas (Government of Uzbekistan, 2022).

Uzbekistan is also actively reconstructing and expanding its road network. Main achievements include the reconstruction of 125 km of the A-380 highway, "Guzor-Bukhara-Nukus-Beineu," and a 58-km section of the A-373, "M-39 Gulistan-Buka-Angren-Kokand-Andijan-Osh Highway," featuring a cement-concrete surface. The "Third National Communication of the Republic of Uzbekistan under the UN Framework Convention On Climate Change" (Uzhydromet, 2016) and the "First Biennial Update Report of the Republic of Uzbekistan" (Uzhydromet, 2021) both emphasize the development of road infrastructure, with significant construction and reconstruction of major roads.

Looking forward, the "Draft Strategy for the Development of the Transport System of the Republic of Uzbekistan until 2035" outlines ambitious plans to build and upgrade 11 international airports (Government of Uzbekistan, 2019a). It also outlines various railway projects, including the construction of new electrified lines, such as Angren-Pap, and the electrification of sections like Misken-Nukus and Kashkadarya-Bukhara, to increase railway electrification. The strategy focuses on enhancing logistics services, streamlining transport connectivity, establishing multimodal logistics centers, and upgrading existing container terminals. The country also plans to lower transport costs as a percentage of product prices, aiming to reduce this to 7% by 2035 under a specific scenario.

Uzbekistan prioritizes transport infrastructure investment to cut costs, enhance trade, and capitalize on its transit position

Access

III. Access

Access to transport isn't just about mobility; it's about opportunity. It underpins economic opportunity, social inclusion, and quality of life. In cities, good access translates to shorter commutes, safer streets, and stronger local economies. In rural areas, it connects isolated communities to markets, schools, and basic services that are otherwise out of reach. This access, whether urban or rural, forms the foundation of sustainable transport.

Rural Access

Uzbekistan faces significant challenges in ensuring comprehensive rural access, as evidenced by the estimated Rural Access Index (RAI) of 62% (Figure 9). This metric, adopted as SDG indicator 9.1.1,[2] signifies that approximately 38% of the rural population, equating to 6.3 million individuals, resides beyond the 2 km threshold of an all-season road. (Center for International Earth Science Information Network, 2023a).

The rural road network in Uzbekistan comprises over 24,000 km of local roads and nearly 140,000 km of inter-farm rural roads. While the majority of local roads are paved (93%) and technical class IV or higher (72%), a substantial 31% need capital repairs. The inter-farm rural roads, which constitute a much larger network, are predominantly unpaved (67%) and of the lowest technical class and needs significant capital repairs (Committee for Roads, 2023).

A 2022 nationwide access level survey revealed that while 20% of rural settlements are directly connected by international and state roads, and 46% by local roads, 33% rely on inter-farm rural roads. A small but critical 0.6% of overall rural settlements—home to 65,600 people—lack any road access. Thus, an estimated 5.8 million rural residents endure physical isolation for at least part of the year. To address this, a core rural road network (CRRN) of approximately 36,000 km is estimated as necessary to connect all rural settlements, representing 22% of the total rural road network.

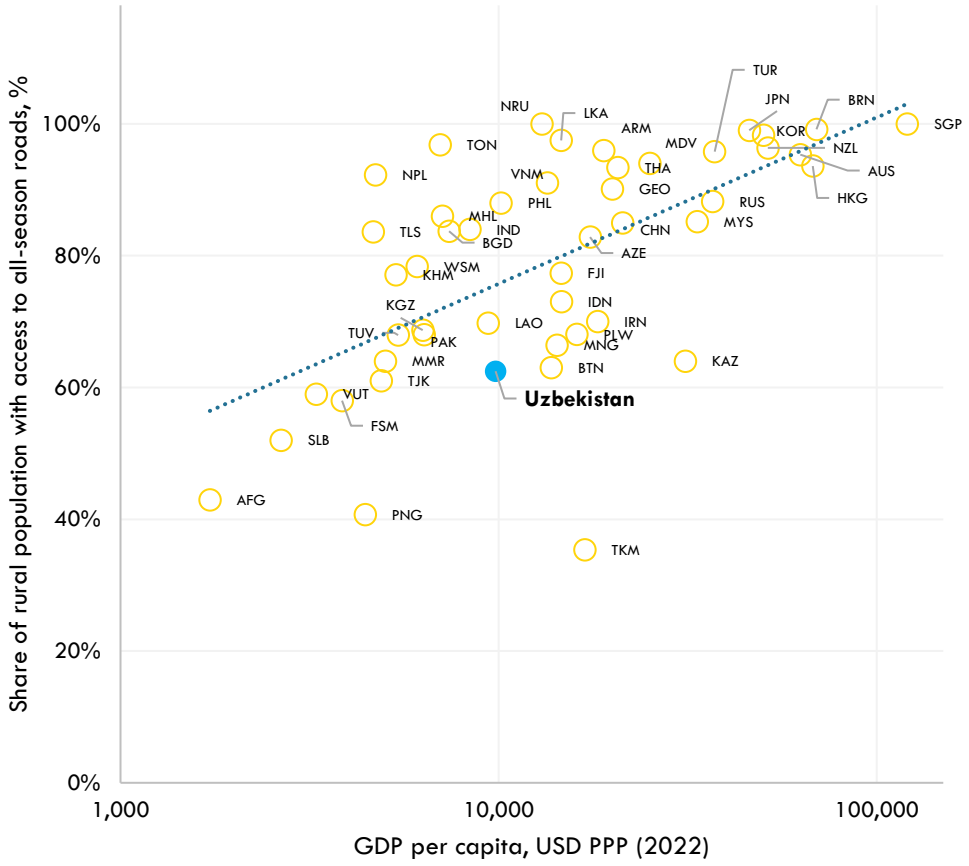

Figure 9. Rural access index vs. GDP per capita (2022)
ATO analysis and visualization based on: (Center for International Earth Science Information Network, 2023a; World Bank, 2023a)

[2] Proportion of the rural population who live within 2 km of an all-season road.

Urban Access

To monitor progress toward urban access, as outlined in SDG target 11.2,[3] it is necessary to measure access to a reliable and high-quality public transport network. This is achieved by using a proxy for the percentage of the population living within 0.5 kilometers of a low-capacity public transit network or a 1-kilometre walking distance to a high-capacity public transit network. In Namangan, approximately 8% of the population has convenient access, while Samarkand sees about 12%. Tashkent's access varies significantly, ranging from 8% to 23%, with an average of about 15%, depending on the survey methodology (Figure 10). It is essential to note that these figures only include mapped public transport stops, potentially underreporting access in cities with extensive, yet unmapped, informal systems. Additionally, the urban area delineation used for these estimates may not align with official municipal boundaries, further influencing the reported per centages. (Center for International Earth Science Information Network, 2023b) (ITDP, 2024a). (Center for International Earth Science Information Network, 2023b) (ITDP, 2024a).

In terms of access to healthcare and education facilities, Samarkand and Tashkent have approximately 44% and 38% of their populations living within a 1 km walk of both healthcare and education facilities.

Figure 10. Share of population with convenient access to public transport (2022)
ATO analysis and visualization based on: (Center for International Earth Science Information Network, 2023b)

[3] By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

Increasing Street Sprawl

Urban accessibility is affected by the typology of their road network and its susceptibility to "street sprawl". Street sprawl, defined by road expansions that create dead ends or increase the distances between intersections, causes longer driving and trip durations, thereby reducing the effectiveness of public transport operations. Globally (and sub-regionally), a trend of growing street disconnection has emerged since the early 2010s (Figure 12). Uzbekistan's cities, mirrors these global trends (Barrington-Leigh & Millard-Ball, 2025).

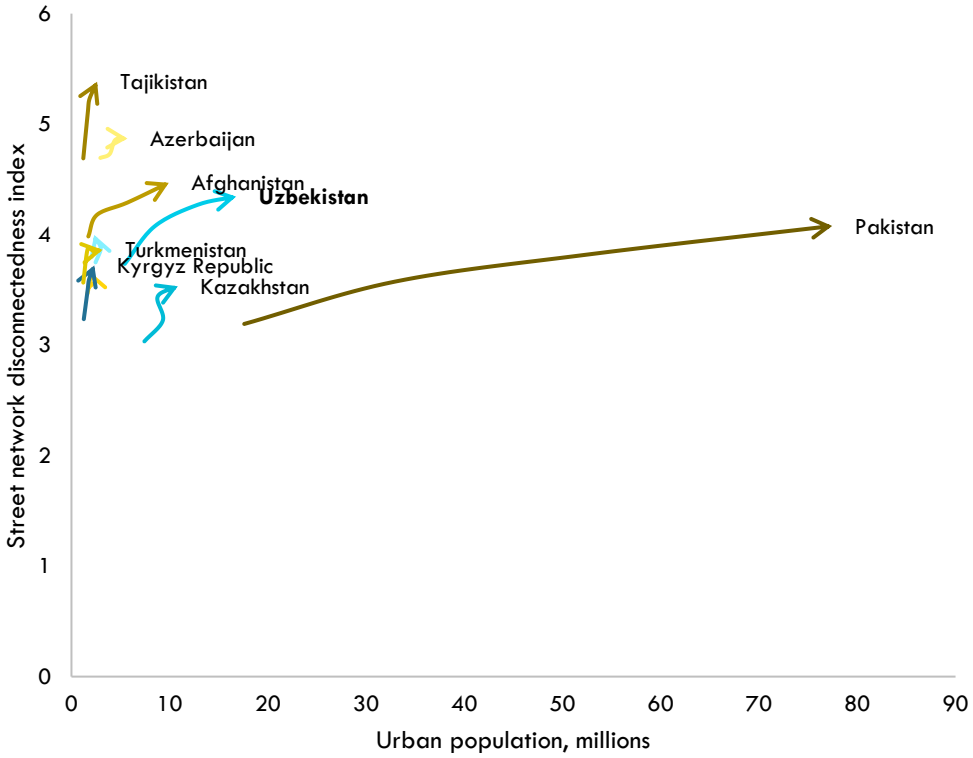

Figure 12. Street network disconnectedness index (1975 – 2020)
ATO analysis and visualization based on: (Barrington-Leigh & Millard-Ball, 2025)

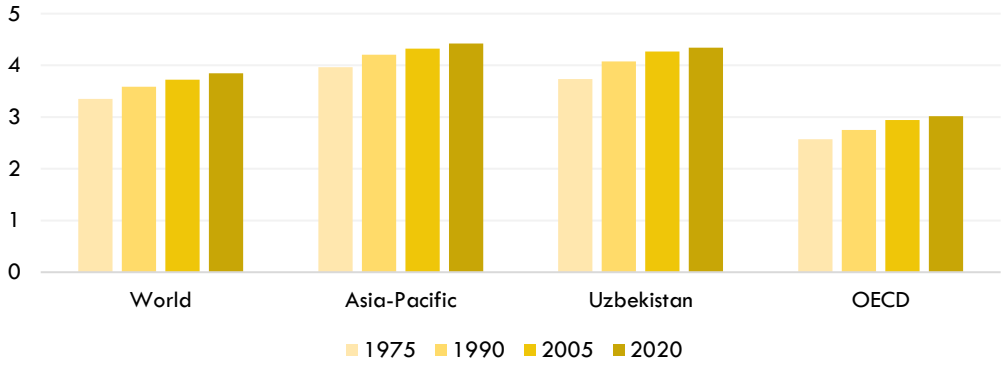

Figure 11. Street network disconnectedness index (1975 – 2020)
ATO analysis and visualization based on: (Barrington-Leigh & Millard-Ball, 2025)

Bicycle Trade

Bicycle trade data serves as a proxy for cycling activity. Uzbekistan has seen a notable rise in bicycle imports, accompanied by negligible exports, which suggests a limited domestic manufacturing industry (Figure 13)

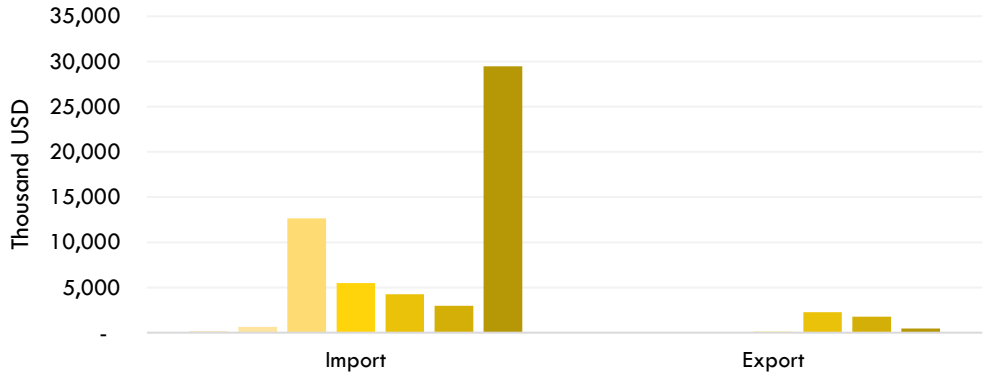

Figure 13. Bicycle trade value (2017-2023)
ATO analysis and visualization based on: (International Trade Centre, n.d.)

Policy Insights: Promoting Inclusive and Eco-Friendly Mobility

In Uzbekistan, transport access improvement measures are increasingly focused on promoting inclusive and environmentally friendly mobility. The multi-pronged strategy includes improving pedestrian infrastructure to cater to the specific needs of the elderly, children, and persons with disabilities; actively encouraging bicycle and pedestrian access in urban environments; introducing financial incentives designed to enhance accessibility for individuals with reduced mobility; and ensuring fair and transparent access to the national railway infrastructure through calibrated fee and capacity allocation systems.

An essential part of improving urban access is ensuring inclusivity. The Development Strategy of New Uzbekistan for 2022-2026 explicitly calls for the creation of conditions to strengthen the connection of persons with disabilities to their families, society, and the state, allowing them to stay in a supportive environment with unhindered access to urban passenger transport, social, and other infrastructure facilities (Government of Uzbekistan, 2022).

The Draft Strategy for the Development of the Transport System until 2035 elaborates on this by proposing measures to create an accessible transport environment for people with disabilities and other low-mobility groups (Government of Uzbekistan, 2019a). These include producing and acquiring low-floor buses equipped with information systems, voice informants, ticker tapes, illuminated route signs, ramps, wheelchair mounts, and air conditioning. It also highlights the importance of developing a regulatory framework to standardize urban and road transport infrastructure, ensuring a barrier-free environment through features like sound-enabled traffic lights and tactile tiles at pedestrian crossings.

Beyond urban centers, the nation is tackling the challenge of rural connectivity with the "Rural Road Strategy 2035" (Committee for Roads, 2023). The main goal is ambitious: by 2035, aim for at least 85% of all rural settlements in each region—home to roughly 16.1 million rural residents—to have reliable year-round road access. This marks a crucial step toward the government's long-term goal of providing universal all-season road access for all 17.3 million rural residents.

The financial commitment to this rural transformation is substantial. To achieve desired rural access, the strategy allocates substantial funds, with a total investment of UZS 29,250 billion dedicated to repairing and upgrading the main rural road network (CRRN). This investment is set to increase steadily from UZS 1,500 billion annually to UZS 3,000 billion by 2035 (adjusted for inflation), facilitating the repair and upgrade of 10,000 km of CRRN roads to maintainable all-season standards. This will extend connectivity to an additional 2,500 rural settlements and 4.0 million people currently lacking adequate access. Furthermore, UZS 29,790 billion is allocated for ongoing maintenance and repairs of the expanding 30,500 km all-season CRRN, ensuring the longevity and sustainability of these connections.

By 2035, these efforts are expected to provide 85% of all rural settlements and 90% of the rural population with essential all-season road access.

transport access improvement measures are increasingly focused on promoting inclusive and environmentally friendly mobility

Mobility, Equity, and Prosperity

IV. Mobility, Equity, and Prosperity

Since 2010, the GDP has grown at an annual rate of approximately 7.4%, a pace that is four times faster than the population growth rate. This pace of expansion has put fresh demands on Uzbekistan's transport system, which must keep pace with economic growth, urbanization, and the country's development as a regional transit hub.

Transport Sector's Economic Contribution and Employment

The transport sector is a rapidly growing and strategically important part of the economy. It is estimated to contribute nearly 8% of the GDP and employs about 1million people directly, i.e., about 9% of total employment. Since 2000, employment in the transport sector has increased by 3.4%, outpacing the Asian average rate of 2.5%, while also outpacing population growth by 1.6% and total employment growth by 1.3% (International Labour Organization, 2024; United Nations Department of Economic and Social Affairs Population Division, 2022).

Moreover, notable shifts in productivity are taking place within the transport sector. Despite the COVID pandemic, the average labor productivity levels in Gross Value Added (GVA) per employee have nearly tripled over the last thirty years (International Labour Organization, 2024). Yet, this progress is tempered by a persistent challenge: productivity levels remain significantly lower than the Asia-Pacific average. The road ahead demands further strides (Figure 14).

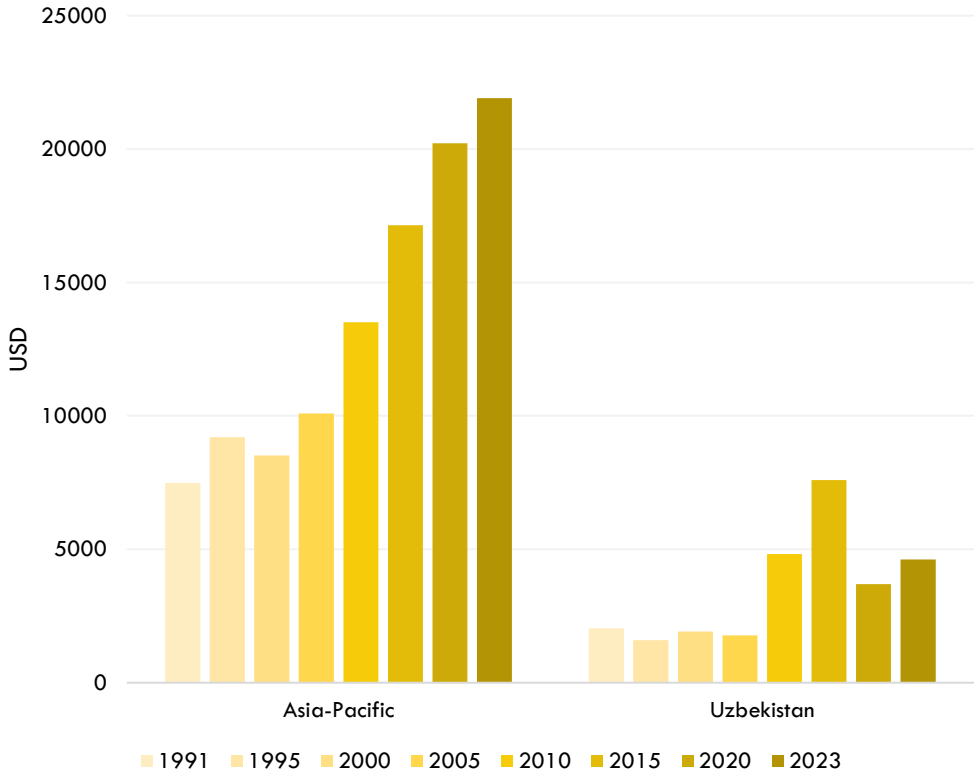

Figure 14. Transport GVA per employee vs. Asia-Pacific (1991 – 2023)
ATO analysis and visualization based on: (International Labour Organization, 2024)

In Uzbekistan, transport accounts for about 14% of total household consumption expenditure, significantly surpassing many Asian and OECD countries (World Bank, 2021) (Figure 15). This figure shows the part of final spending by resident households on transport-related needs, including items like cars and everyday essentials such as food, clothing, housing, energy, healthcare, leisure, and various services. A larger share of spending on transport compared to other daily necessities may indicate a heavy reliance on personal vehicles, mainly passenger cars, or relatively costly public transportation systems, or both.

Transport sector estimated to contribute nearly 8% of the GDP and employs about 1million people directly, i.e., about 9% of total employment

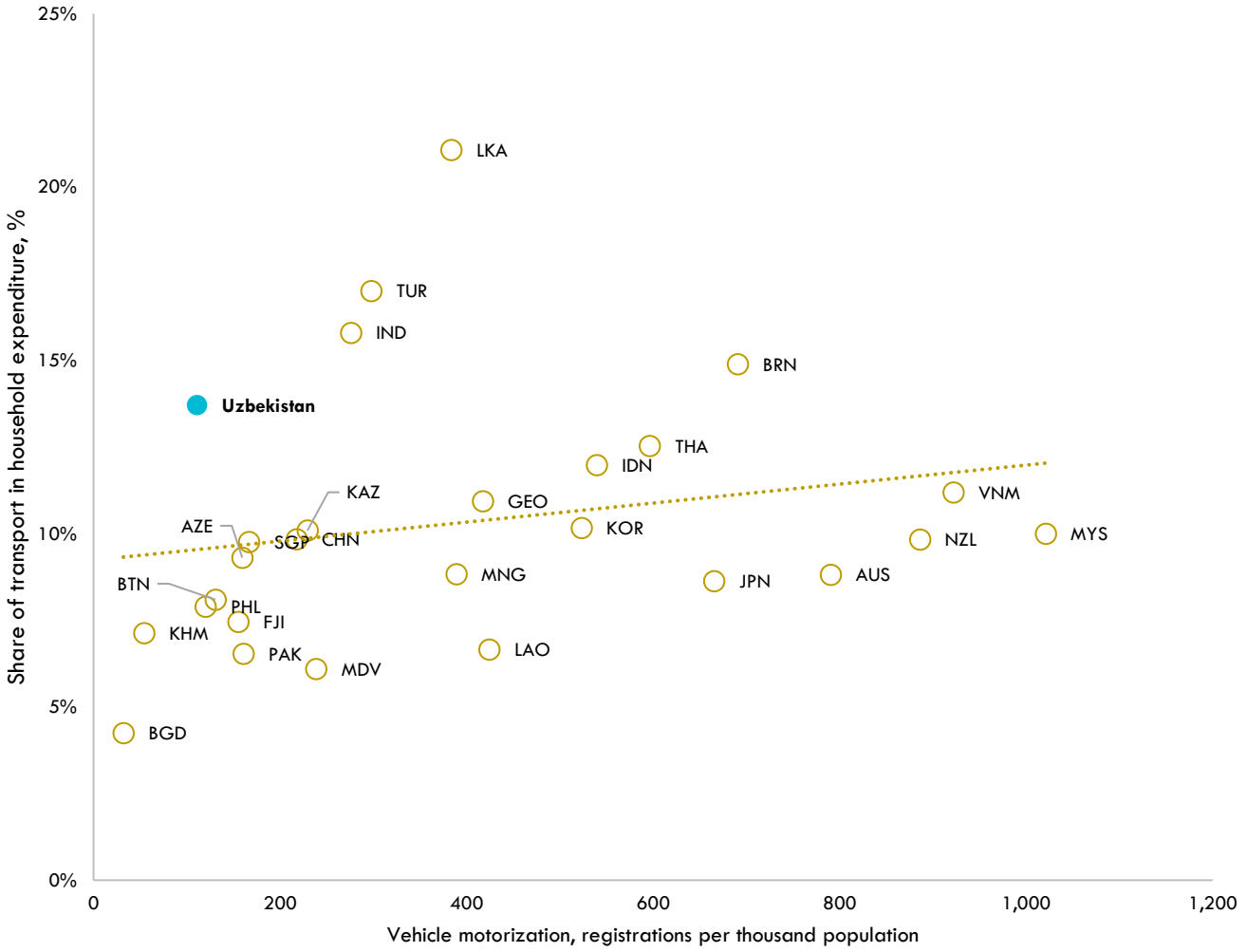

Figure 15. Share of transport in household expenditure (2021)
ATO analysis and visualization based on: (World Bank, 2021)

Vehicle Fleet Growth and Road Sector Dominance

In 2021, Uzbekistan had 3.8 million registered vehicles (Figure 16) (111 per thousand people), with the fleet nearly doubling since 2010. Motorization growth (5.8%) significantly outpaces population growth (1.6%) and road expansion (0.8%). Light-duty vehicles comprise 80% of registered vehicles. The proportion of buses decreased from 0.9% in 2015 to 0.4% in 2021, a common trend in motorizing economies where individual ownership outpaces public transport.

The upward trends in economic growth and motorization have been accompanied by rising road transport activity. In the last decade, the number of vehicle kilometers traveled by passenger cars has increased by 1.5 times, buses by 1.7 times, and trucks by 12 times.

A closer look at the passenger and freight activity highlights key shifts over time. From 2000 to 2010, passenger volumes expanded at an average annual rate of 11%, but this pace has moderated to 4.3% annually since 2010. The passenger activity has grown faster than the population but slower than GDP growth. The per-capita passenger transport activity was 1,200 kilometers in 2000, approximately 3,000 kilometers in 2010, and 4,300 kilometers in 2023. With such rapid growth, the mobility landscape has undergone significant evolution.

Historically, this evolution came at a cost to the rail sector. In 2000, railways held a 13% share of inland passenger transport, while roads claimed 87% (OECD, n.d.). A decade later, by 2010, the picture had shifted dramatically, with rail's share dipping to 4% and roads increasing to 96% (Figure 16). This indicates a significant challenge despite a more recent silver lining. Increased investments and supportive policies for railways since 2010 have helped stem mode share erosion to some extent. By 2023, the rail mode share had stabilized at 3%, with roads accounting for 97%. Furthermore, rail passenger activity had not yet returned to pre-COVID levels. While the mode share gap remains massive, the deceleration of rail's decline suggests that targeted efforts can indeed influence these trends.

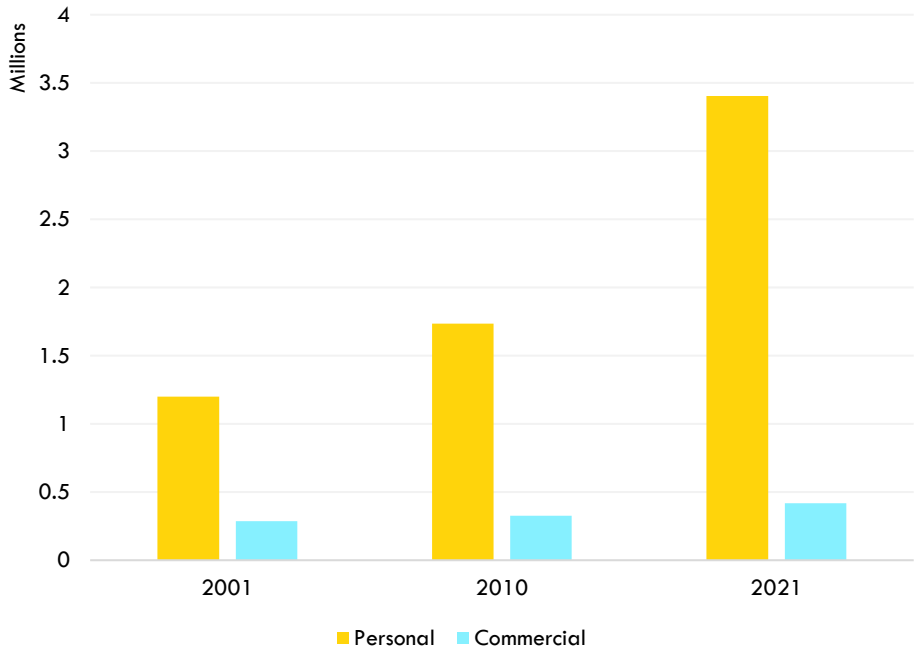

Figure 16. Vehicle Registrations
ATO analysis and visualization based on: (Country Official Statistics, n.d.)

Motorization growth significantly outpaces population growth and road expansion

Turning our attention to freight transport, activity has also seen a robust increase, growing at an annual rate of 2.7% from 2000 to 2010 and 3.5% since 2010. Like passenger transport, this outpaces population growth but lags GDP expansion and even passenger transport growth. The per-capita freight transport activity, measured in ton-kilometers, climbed from about 1,000 kilometers in 2000 to 1,400 kilometers in 2023. Here, railways traditionally held a central position. Between 2000 and 2010, railways even saw their mode share rise from 62% to 71%, while the road sector's share decreased from 37% to 29%. However, the past decade reveals a significant reversal. The road freight mode share has increased from 29% in 2010 to 45% in 2023, while railways have experienced a substantial reduction in their share (Figure 17). It's worth noting that aviation remains a minor player, contributing less than 1% of the total ton-kilometer share.

Railway Utilization: Optimizing Investments

For effective railway systems, infrastructure growth should match utilization. In Uzbekistan, railway expansion has increased freight activity, but passenger activity has only marginally increased since 2010, an area for optimization.

Uzbekistan has developed several policy documents addressing the challenges and opportunities in the rail sector. The "Draft Strategy for the Development of the Transport System of the Republic of Uzbekistan until 2035" (Government of Uzbekistan, 2019a) outline key targets and measures.

A primary objective is to significantly increase the volume of transit cargo turnover to 15 million tons, as outlined in the "Development Strategy of New Uzbekistan for 2022-2026" (Government of Uzbekistan, 2022) and the "Voluntary National Review 2023" (Government of Uzbekistan, 2023). Railways are central to this goal, facilitating high-volume, long-distance international freight movement and supporting the expansion of "green corridors."

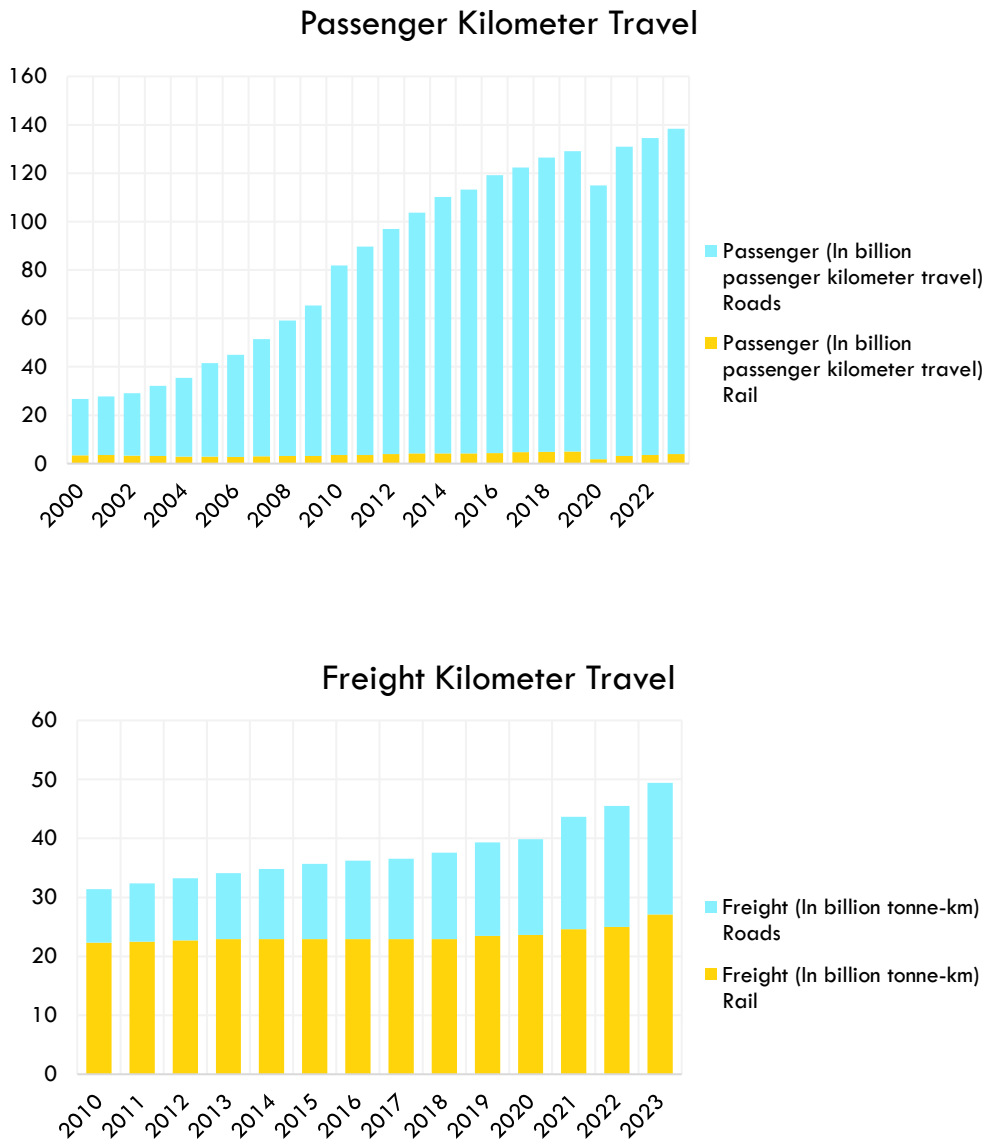

Figure 17. Modal distribution of the Passenger and Freight activity
ATO analysis and visualization based on: (Ministry of Transport and Infrastructure, 2023)

Railways contribute significantly to the broader national objective of reducing specific transportation costs in the price of products. The "Draft Strategy for the Development of the Transport System of the Republic of Uzbekistan until 2035" (Government of Uzbekistan, 2019a) targets a reduction from 15% in 2018 to 10% (basic option) or 7% (innovative option) by 2035. Efficient rail operations are crucial for achieving these economic competitiveness goals.

The policy includes developing transport interchange systems, with a plan to establish 14 transport interchange nodes in major cities by 2035. These nodes, outlined in the "Draft Strategy for the Development of the Transport System of the Republic of Uzbekistan until 2035," (Government of Uzbekistan, 2019a) could leverage railways as anchors for seamless multimodal transfers, optimizing logistics and passenger connectivity.

Urban Transport Mode share

Uzbekistan's urban transport landscape is heavily individualized. Automobiles, both private and taxi, shoulder the overwhelming majority of trips, evidence of a system prioritizing individual motorized transport. Public transport and active mobility, despite their crucial role in sustainable urban development, captures a mere fraction of the mode share, highlighting a significant imbalance. This snapshot highlights the urgent need for a strategic pivot toward integrated, multimodal solutions, aligning with global efforts to decarbonize urban mobility and enhance livability. Figure 19, derived from Google's 2025 analysis, serves as a critical baseline for future interventions. The evidence strongly suggests an urgent and strategic reorientation is required.

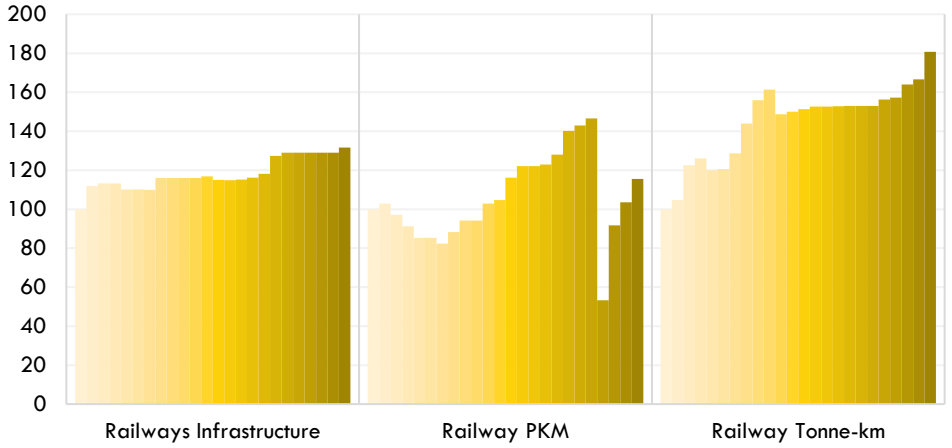

Figure 18. Railway infrastructure vs. transport activity (2000 – 2023)
ATO analysis and visualization based on: (Country Official Statistics, n.d.)

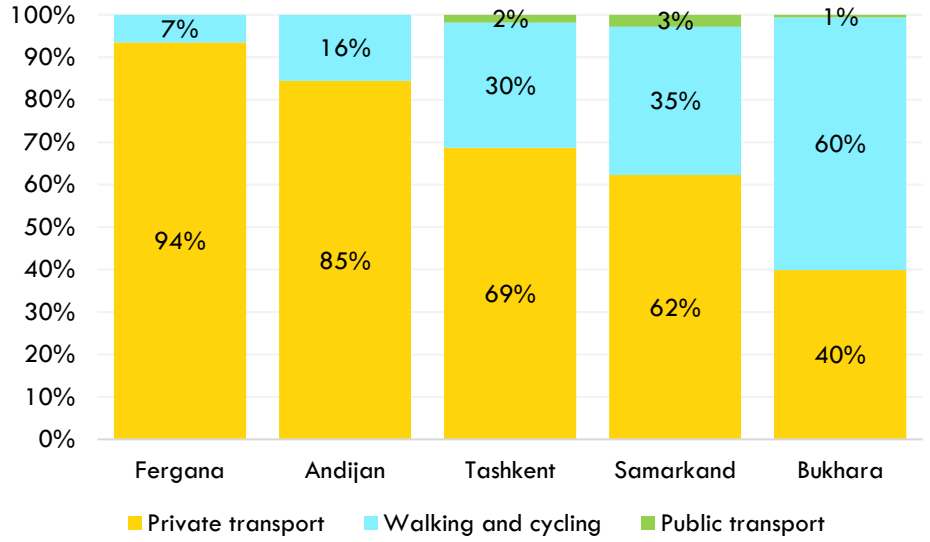

Figure 19. Urban Transport Trip Mode Share in 2018 (% Trips)
ATO analysis and visualization based on: (Google, 2025)

According to existing policies, the International Transport Forum (ITF) has estimated that Tashkent's passenger mobility will double between 2015 and 2050 (ITF, 2023). The growth is reflected in the doubling of the number of trips, passenger kilometers traveled, and vehicle kilometers traveled. The majority of the increase would be in the passenger cars. However, the qualifications also reveal that with effective policies in an ambitious scenario, passenger activity growth could be restricted by about 30%, vehicle kilometer travel by 45% and the growth trajectory of individual modes in passenger mobility could be transformed. The current public transit mode share could triple by 2050 at the cost of passenger cars. This could lead to significant economic, environmental, and social benefits.

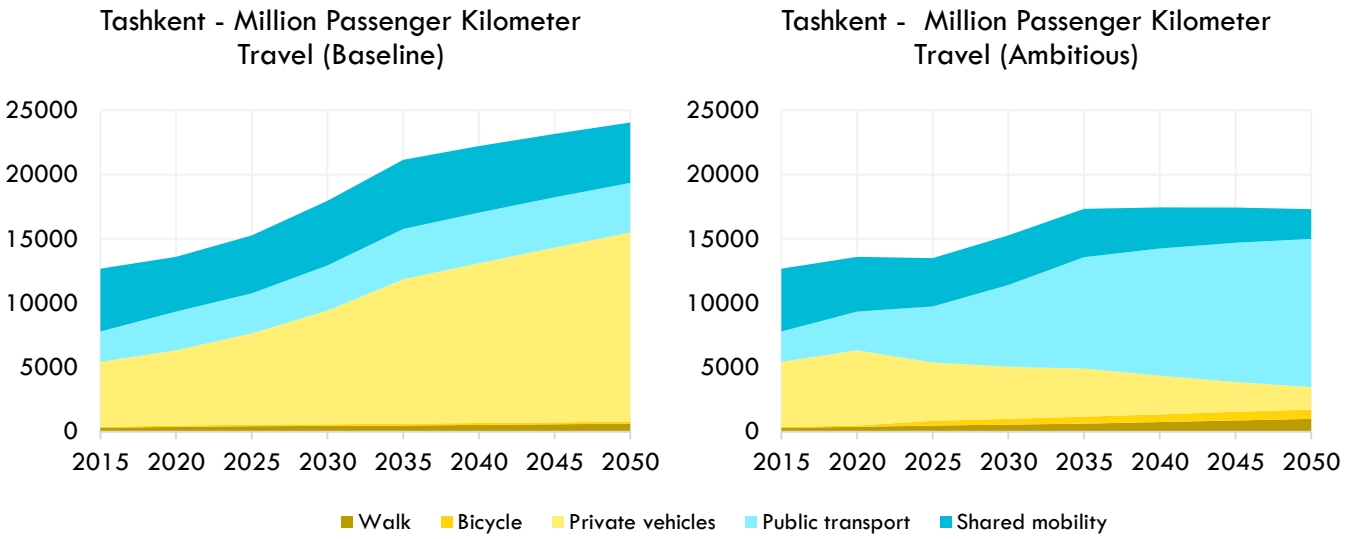

Figure 20: Passenger Activity Estimates and Projections
ATO analysis and visualization based on: (ITF, 2023)

Urban Transport Policies

Uzbekistan is pursuing several policy measures to transform urban mobility. A central theme across these policies is the "modal shift," prioritizing the development of urban public transport. This includes measures

The "Draft Strategy for the Development of the Transport System of the Republic of Uzbekistan until 2035" proposes the implementation of urban area zoning mechanisms, including car-free and public transport-only zones (Government of Uzbekistan, 2019a). The "Strategy on the Transition of the Republic of Uzbekistan to a 'Green' Economy 2019-2030" underscores the aim to reduce transport costs and ensure effective functioning of the transport sector, while developing "green" transport in line with urban development plans and environmental safety (Government of Uzbekistan, 2019b).

A significant focus is placed on enhancing public transport systems and infrastructure, particularly in Tashkent and other regions, as highlighted in the "Development Strategy of New Uzbekistan for 2022-2026" (Government of Uzbekistan, 2022). This commitment extends to a crucial aspect of inclusive mobility: improving the accessibility of urban passenger transport for persons with disabilities, thereby ensuring unhindered access to transport and other vital infrastructure facilities.

The "Voluntary National Review 2023 - UZB" (Government of Uzbekistan, 2023) explicitly highlights the objective of increasing the share of public transport use among the population across large, medium, and small cities. Complementing these efforts, the "Draft Strategy for the Development of the Transport System of the Republic of Uzbekistan until 2035" outlines detailed plans for the construction of new metro lines, specifically the 2nd stage of the Yunusabad metro line (2 stations) and the Sergeli subway line (7 stations) (Government of Uzbekistan, 2019a). The strategy also includes renewing existing rolling stock, and introducing flexible fare payment systems designed to incentivize the use of single transport cards with bonuses or discounts. Furthermore, the promotion of cycling in large cities and towns is a stated objective, as noted in the "First Biennial Update Report of the Republic of Uzbekistan" (Uzhydromet, 2021).

Transport Equipment Trade

Trade in transport equipment offers valuable insights into the policy environment and industrial capabilities. Uzbekistan is a significant player in the trade of motor vehicles, aviation and railway equipment. Since 2015, Uzbekistan has brought in approximately 17,400 used passenger cars. Conversely, road vehicle imports increased significantly in 2023, exhibiting an average growth of 200%, effectively tripling the import volume of 2022 (Figure 21). Railway equipment imports saw their peak in 2021, reaching $256 million USD, and have since trended downwards (Figure 22). In 2023, the total value of transport equipment imports into Uzbekistan surpassed $4.5 billion.

Gender in the Transport Sector: Addressing Disparities

While the sector's share in total female employment has seen a marginal increase from 1% to 1.4% over the last two decades, suggesting a slightly better performance compared to other sectors in attracting women, the proportion of women employed within the transport sector itself has remained stagnant at about 9-10% over the same period. This is significantly below the average regional benchmarks. (International Labour Organization, 2024). This indicates a persistent challenge in achieving internal gender balance.

However, a significant policy shift came into effect on February 12, 2024, with the abolition of labor code regulations (which had been in place since 2018) that had previously prohibited women from operating vehicles with a capacity of 2.5 tons or more and buses designed for over 14 passengers (The times of Central Asia, 2024). The Ministry of Transport's stance in adopting the policy shift was to foster gender equality and attract women into roles such as conventional and electric bus driving. This strategic opening of traditionally male-dominated positions, particularly with the transition to public transit and logistics, presents a tangible opportunity to rebalance the workforce.

A recent research from the International Transport Forum in Tashkent (ITF, 2023) highlights that women "prefer public transport and shared mobility to cars more than men". This observation is corroborated by wider academic research indicating that "going by public transport is more usual for women". This modal preference for women is not simply a matter of individual choice. In fact, it is often a consequence of systemic factors such as shorter commute distances, lack of access to motorized vehicles, and longer total travel durations due to the phenomenon of "trip chaining."

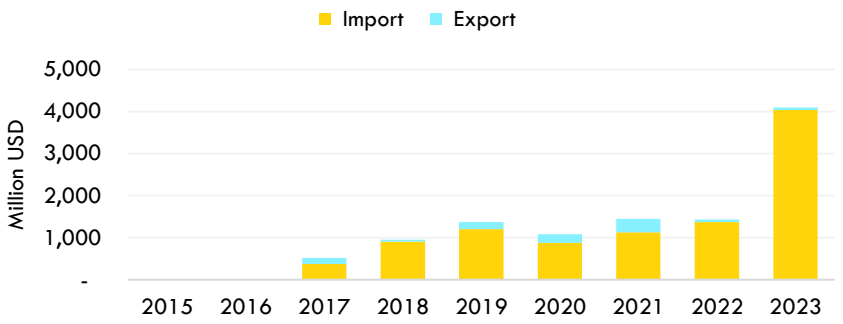

Figure 21. Road Vehicle Equipment Trade Value (2015 – 2023)
ATO analysis and visualization based on: (International Trade Centre, n.d.)

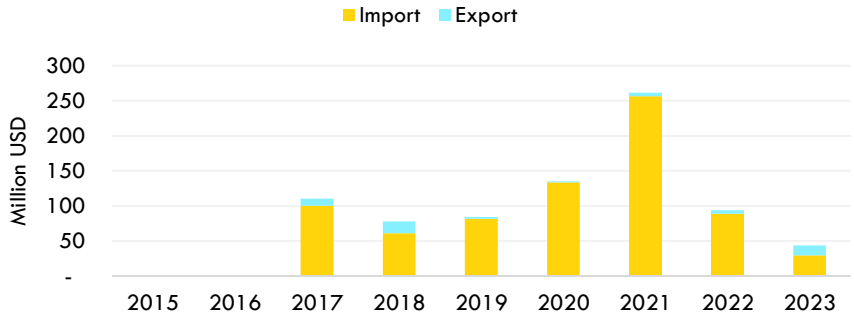

Figure 22. Rail Transport Equipment Trade Value (2015 – 2023)
ATO analysis and visualization based on: (International Trade Centre, n.d.)

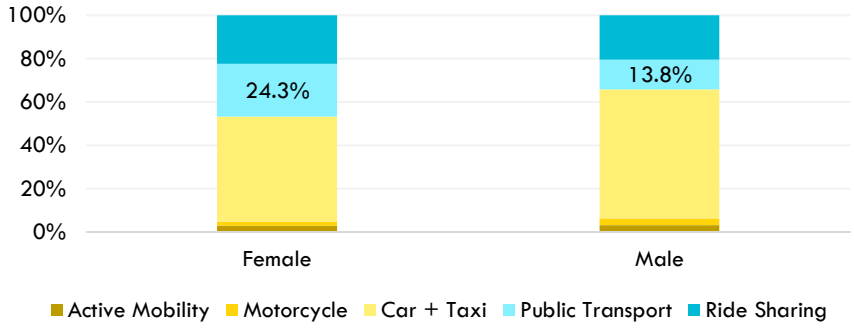

Figure 23. Passenger Travel – Mode Shares by Gender
ATO analysis and visualization based on: (ITF, 2023)

Transport Energy and Carbon Emissions

V. Transport Energy and Carbon Emissions

Uzbekistan's transport sector is exhibiting a significant increase in energy consumption and carbon emissions; a trend that warrants close examination (Crippa et al., 2024; United Nations Statistics Division, 2024).

By 2022, the sector's energy consumption reached 273,125 terajoules (TJ), i.e., approximately 21% of the country's total energy consumption. This energy demand marks a significant shift from the preceding decade. Following a period of consistent decline between 2000 and 2010, when energy consumption in the transport sector decreased by an average of 2% annually, the trend has reversed. Since 2010, the sector has experienced a substantial yearly growth rate of 12%. This expansion is primarily driven by road transport, which accounted for approximately 97% of the total transport energy in 2022. In contrast, rail accounted for 2%, and domestic aviation less than 1%. This highlights a growing reliance on road-based transport, as evidenced by its increasing share of overall transport energy consumption, which rose from 91% in 2010.

While oil products constituted 41% of the transport sector's energy consumption in 2022, a significant shift from 97% in 2010 towards natural gas (Figure 24), the penetration of biofuels and electricity in this segment remains negligible, at about 1%. The transformation in the energy profile of transport is the use of natural gas. The share of natural gas has increased from 2.7% in 2010 to about 57% in 2021. Yet, the nation's transport energy intensity, at 0.76 megajoules (MJ) per USD of GDP in 2022, still exceeds the Asia-Pacific average of 0.38 MJ per USD (United Nations Statistics Division, 2024). The implications of this energy consumption pattern are clearly reflected in Uzbekistan's transport sector CO2 emissions. In 2023, these emissions amounted to 16 million tons, accounting for 12% of the total economy-wide emissions. While emissions growth was modest at 1.9% annually between 2010 and 2023, despite significant reductions during the COVID period (2020-2023), the long-term trend reveals amore concerning picture (Figure 25). Transport emissions are growing faster than other major sectors, such as buildings and power generation.

The dominance of road transport in energy consumption directly translates to its overwhelming share in emissions, contributing 98% of the transport CO2 emissions in 2023, a significant increase from an average share of 86% between 2000 and 2015. This situation presents a dual challenge in decoupling transport growth from emissions: the profound reliance on road transport and its inherent dependence on fossil fuels.

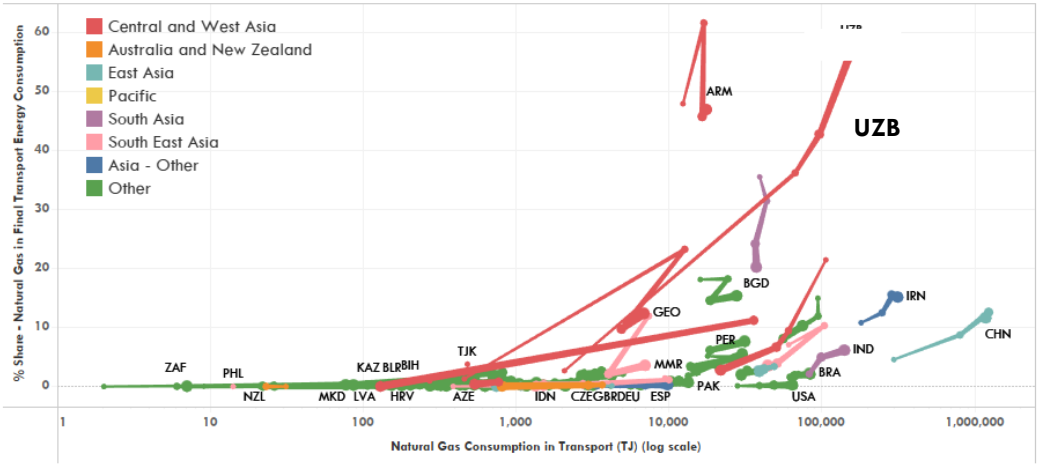

Figure 24. Share natural gas of transport energy consumption by source (2022)
ATO analysis and visualization based on: (United Nations Statistics Division, 2024)

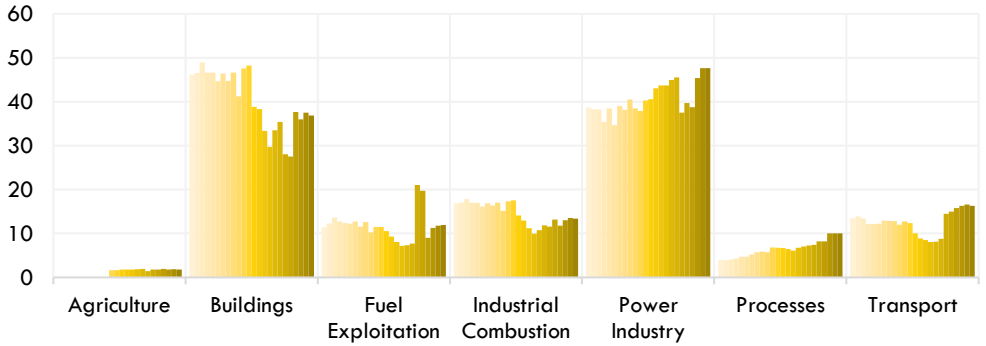

Figure 25. Transport CO2 emissions (Mt) (2000 – 2022)
ATO analysis and visualization based on: (Crippa et al., 2024; UNStats, n.d.)

Transport Sector Climate Mitigation Ambition

Uzbekistan has signaled a heightened ambition in its climate mitigation efforts in its revised Nationally Determined Contribution (NDC). The nation aims for a 35% reduction in greenhouse gas (GHG) emissions per unit of GDP by 2030, benchmarked against 2010 levels—a significant increase from the initial 10% target. Notably, this economy-wide objective fully encompasses the transport sector, one of the fastest-growing emission sectors in Uzbekistan.

Beyond the overarching NDC, Uzbekistan is demonstrating a concerted effort to flex the link between GDP and emissions within its transport domain. This commitment is articulated through a multi-pronged approach, focusing on fuel diversification, modernizing freight operations, and achieving substantive improvements in fuel efficiency. By the end of 2025, a shift is targeted, with alternative fuels projected to constitute 9.3% of total vehicle fuel consumption, slated to nearly double to 18.7% by 2035. A particular emphasis is placed on natural gas engine fuel, with targets of 9.7% by 2025 and 18.7% by 2035 as per the First Biennial Update Report of Uzbekistan to the UNFCCC (Government of Republic of Uzbekistan, 2021).

The ambition extends directly to the vehicle fleet itself. Uzbekistan aims to significantly increase the adoption of hybrid, electric, and other alternative fuel vehicles, targeting a 10% share by 2025 and a 20% share by 2035. In a particularly impactful move for urban areas, approximately 80% (or around 6,500 units) of public transport is slated to transition to gas fuel and electric traction.

Furthermore, the nation is actively pursuing greater "electrification of activity" within its railway infrastructure, aiming for an impressive 60% electrification level. Concurrently, efforts are underway to decouple freight activity from carbon intensity, with targets to reduce CO2 emissions per ton-km of freight transport by 5% for automobiles and 15% for railways by 2025. These targets are set to deepen further, reaching 10% and 24% respectively, by 2035.

From a demand-side efficiency perspective, Uzbekistan has combined vehicle emission standards improvement with efforts to drive improvements in fuel economy in a phased manner. While the precise details regarding the 2021 implementation of the initial Euro 4 standard, which aimed for a 5% reduction in fuel consumption, remain somewhat opaque, a subsequent phase of Euro 4, demanding a 10% reduction across all car classes by weight, is firmly targeted for 2025.

The Ministry of Transport is mandated for the gradual transition of public transport to natural gas and electric traction. It implements measures to expand the production and use of vehicles with improved energy efficiency and environmental friendliness.

Rail Electrification and Efficiency

Rail is an efficient transport mode with low energy use and CO2 footprint, making its expansion a sensible strategy for reducing both oil dependence and emissions. Uzbekistan's railways has exhibited significant energy efficiency improvements. Since 2000, the emission intensity of rail transport —measured as Carbon emissions emitted per unit of GDP—has declined significantly, reaching 0.6 grams per USD in 2023, down from 5 grams per USD in 2000 (Crippa et al., 2024). This represents a significant improvement.

Reports indicate that about half of the rail network is electrified (World Bank, 2019). The railway sector has seen a notable shift toward electric energy, which now constitutes a larger share of total energy consumption. Since 2010, diesel consumption has increased by only 16%, while electric energy consumption has increased by 160%.

In terms of the stock, in 2018, the total railroad fleet in operation consisted of 82 mainline diesel locomotives, 98 mainline electric locomotives, 21 electric multiple units, and 172 shunting locomotives. By 2022, a total of 103 electric locomotives were operational (Yakhshilikov et al., 2024).

Explicit targets for reducing CO2 emissions from railways include a 15% reduction by 2025 and a 24% reduction by 2035, measured per ton-km. These ambitious goals, detailed in the "First Biennial Update Report of the Republic of Uzbekistan," position rail as a key facilitator in national decarbonization efforts, particularly through electrification (Government of Republic of Uzbekistan, 2021).

Railway electrification also supports the broader national target of transitioning 80% of public transport units to natural gas fuel and electric traction by 2030. This objective, found in the "Concept of environmental protection until 2030" and the "Updated Nationally Determined Contribution," aligns railway development with Uzbekistan's international climate commitments. These are precisely the kinds of structural and technological shifts that yield substantial long-term environmental benefits.

Electric Vehicles: Unlocking Decarbonization Potential

Electric vehicles (EVs) promise increased energy efficiency and reduced emissions. Uzbekistan is in the initial phase of EV growth. In 2023, the total number of battery electric vehicle (BEV) sales reached 7,139 vehicles. The trend continued into 2024, with car sales of plug-in hybrid electric vehicles (PHEVs) reaching 17,480 and BEVs reaching 24,095. This represents a significant increase from 2023, when PHEV car sales totaled 12,300 and BEV car sales reached 16,084. The overall EV share of car sales in Uzbekistan was 2.2% in 2023, increasing to 5% in 2024 (IEA, 2025b).

The growth in sales is also reflected in the EV stock. The stock of PHEV cars in Uzbekistan increased from 9,200 in 2023 to 26,000 in 2024 (Figure 25). Similarly, the BEV car stock increased from 760 in 2023 to 6,400 in 2024. As a result, the EV share of the total car stock in Uzbekistan rose from 0.34% in 2023 to 0.87% in 2024. While the focus has been primarily on cars, the bus sector is also seeing some EV integration, with 300 BEV bus sales in 2023 and 200 in 2024. The EV share of bus sales was 3.5% in 2023 but decreased to 2.1% in 2024.

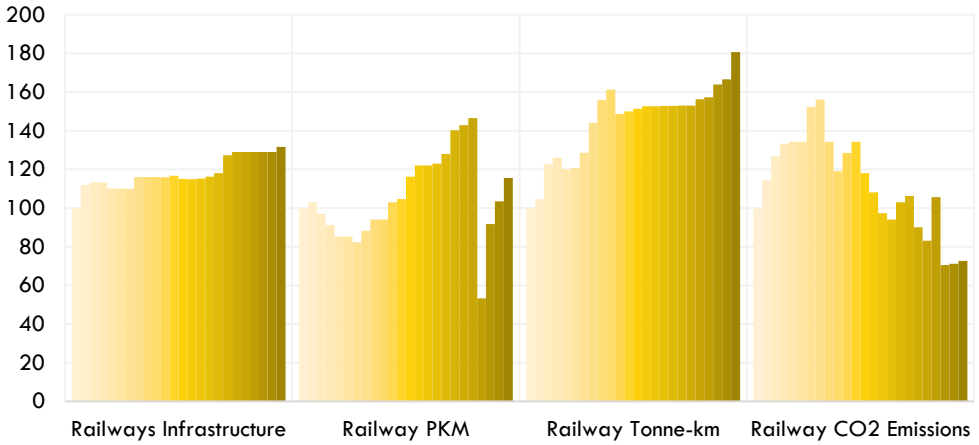

Figure 26. Railway activity and CO2 emissions (2000-2023)
ATO analysis and visualization based on: Country Official Statistics, n.d.

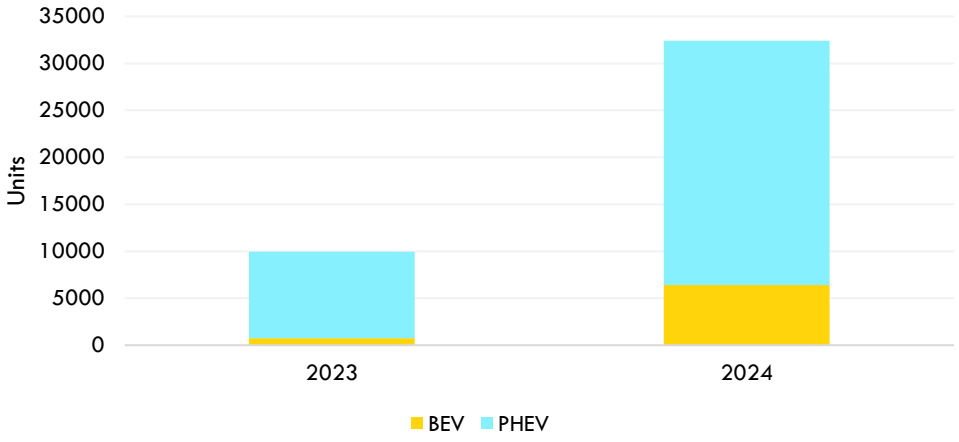

Figure 27. Electric vehicle stock in Uzbekistan
ATO analysis and visualization based on: (IEA, 2025b)

Despite this uptake, the negligible rate of domestic EV patent registrations suggests a disconnect between adoption rates and local innovation. Currently, Uzbekistan relies entirely on imports for its electric vehicles, lacking local production or assembly facilities. Efforts are underway to bridge this gap, with UzAuto Motors partnering with BYD Auto to establish the BYD Uzbekistan Factory, aiming for a production capacity of 50,000 plug-in hybrid EVs annually. Uzbekistan is also actively pursuing a strategy to become a CKD (Completely Knocked Down) production base, encompassing stamping, painting, welding, and assembly. Additionally, ADM Jizzakh is collaborating with Chery International to produce hybrid and electric cars.

From 2017 to 2023, electric vehicle imports totaled USD 4.21 billion. Electric vehicle imports increased from 0% in 2019 to approximately 28% of total vehicle imports (by value) by 2023 (Figure 25) (International Trade Centre, n.d.). Most were eLDVs, accounting for 95 percent. Two-wheelers followed with 4 percent, and trucks made up 1 percent. The numbers demonstrate that the shift is coming faster in Uzbekistan compared to the Asia Pacific average.

Operational costs for EVs may be economical due to Uzbekistan's low electricity prices ($0.03/kWh in 2021). However, nearly 40% of power generation infrastructure has exceeded its lifespan, causing outages. Electricity grids are mainly natural gas-powered (82%) (IEA, 2025a), with stagnant, high grid emission factors (1,000-1,200 gCO2 per kWh) (Ember, 2024)

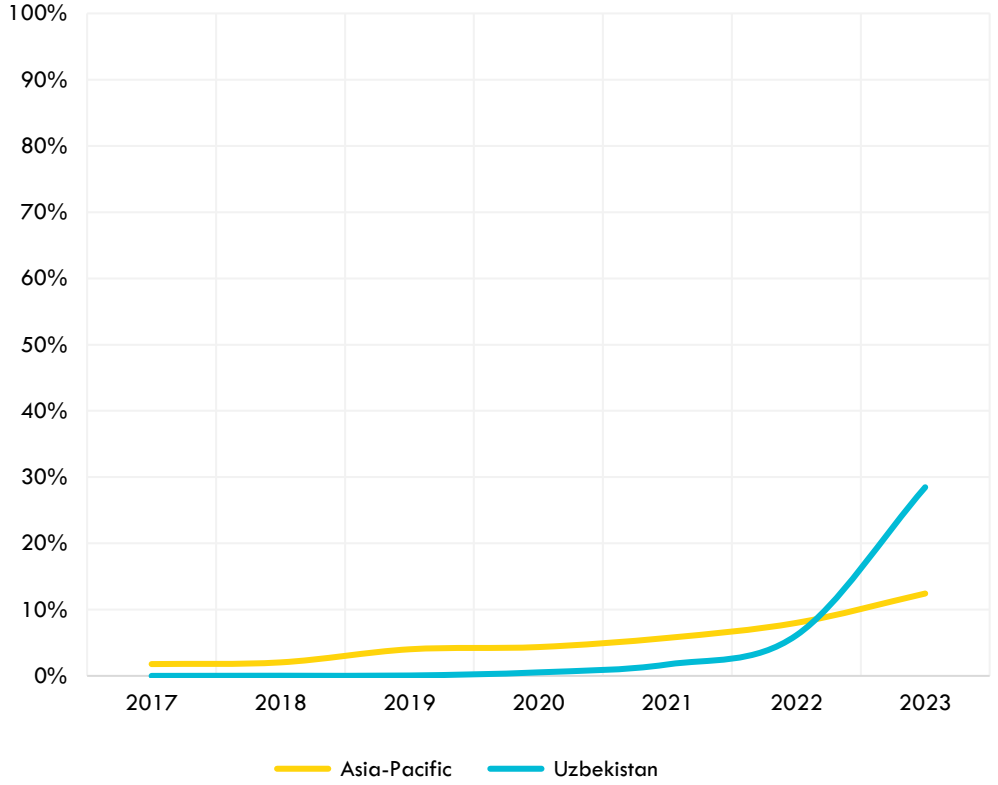

Figure 28. Share of EVs in total road vehicle imports to Uzbekistan (by Value)
ATO analysis and visualization based on: (International Trade Centre, n.d.)

Electrification-related Strategies and Institutions

Uzbekistan has initiated several polices to align its transport sector with a greener economy. A foundational step was taken through Presidential Decrees UzPQ-443 and UzPQ-444, both issued on December 19, 2022, which articulated the national strategy for road transport decarbonization (Yakhshilikov et al., 2024).

These decrees are further supported by a collection of strategic policy documents and regulations including the Strategy on the Transition of the Republic of Uzbekistan to a Green Economy 2019-2030 (Government of Uzbekistan, 2019b) , the Development Strategy of New Uzbekistan for 2022-2026 (Government of Uzbekistan, 2022), the First Biennial Update Report of the Republic of Uzbekistan (Uzhydromet, 2021), the Voluntary National Review 2023 – UZB (Government of Uzbekistan, 2023), and the Third National Communication of the Republic of Uzbekistan under the UN Framework Convention on Climate Change (Uzhydromet, 2016).

Central to these directives is the push for vehicle electrification. To accelerate the adoption of electric and hybrid vehicles, the government has exempted customs duties on their spare parts and waived license fees for relevant service providers. In

parallel, substantial investment is planned to expand the charging infrastructure, targeting 2,500 stations by the end of 2024, and 32,000 EV charging stations by the end of 2025. This infrastructure is supported by tax incentives for businesses offering charging services (kunu.uz, 2024a). Plans also include establishing specialized research laboratories to foster domestic production of battery electric and hybrid electric vehicles.

However, a significant policy shift occurred on May 1, 2025 (kunu.uz, 2024b), with a substantial increase in utilization fees for electric vehicles. This adjustment, formalized by a Prime Ministerial resolution, fundamentally reshapes the cost landscape for EV acquisition in the country. Specifically, the recycling fee for electric vehicles under three years old quadrupled from 30 to 120 base calculation units (BCU), equating to approximately 45 million UZS. Older electric vehicles, those manufactured more than three years ago, saw their fee increase 2.3-fold, from 90 to 210 BCU, now roughly equivalent to 78.75 million UZS—exceeding $6,100 USD at current exchange rates. Such increased fees can raise retail prices for imported EVs in Uzbekistan, leading to a trickle-down effect on fleet penetration, including a shift toward local production and battery recycling.

Looking ahead, Uzbekistan aims for hybrid, electric, and alternative fuel vehicles to constitute 10% of its fleet by 2025, rising to 20% by 2035 according to its First Biennial Update Report of the Republic of Uzbekistan, and the Draft Strategy for the Development of the Transport System of the Republic of Uzbekistan until 2035. A significant transformation is also underway in public transport, with the "Concept of Environmental Protection until 2030" targeting an 80% transition (approximately 6,500 vehicles) to gas fuel and electric traction by 2030 (First Biennial Update Report of the Republic of Uzbekistan; Voluntary National Review 2023 - UZB; Updated Nationally Determined Contribution – UZB).

Uzbekistan steers its electric mobility and climate change agenda through the Ministry of Transport and the Ministry of Ecology, Environmental Protection and Climate Change (Government of Uzbekistan, n.d.). These ministries form the backbone, orchestrating national strategies for clean transport and climate mitigation. A dedicated e-mobility unit, housed within the Ministry of Transport and supported by UNDP, actively pursues gender-inclusive electric mobility solutions. It spearheads pilot Green Urban Transport Corridors, commencing in Tashkent (GEF, 2024).

International support fortifies these national endeavors. Uzbekistan participates in a Green Climate Fund (GCF)-backed program promoting electric buses, pedestrian infrastructure, and low-emission corridors within urban mobility plans (Green Climate Fund, 2024). Institutions such as the Asian Development Bank (ADB) and Asian Infrastructure Investment Bank (AIIB) complement these efforts. Their broader climate transition programs support Uzbekistan's green recovery, enhance institutional capacity, and facilitate long-term decarbonization.

The Tashkent – Accelerating Investment in Low Emission Vehicles (TAILEV) (GEF, 2024) Project has a singular focus: low-carbon movement. It targets electric vehicles (EVs) and Green Urban Transport Corridors (GUTCs), starting in Tashkent. This aligns with Uzbekistan's 2030 and 2035 plans. The objective is direct: reduced pollution, cleaner air, and sustainable transport. The project seeks to create a replicable model, advancing EV adoption and decreasing fossil fuel dependence nationwide.

Emissions Outlook

Uzbekistan's journey toward a carbon-neutral future by 2060, as envisioned by World Bank modelling (World Bank Group, 2023), presents a formidable challenge for the transport sector. In 2019, this sector accounted for approximately one-quarter of the nation's total energy emissions. However, without deliberate interventions, this share could increase to nearly a third by 2060. This sector, alongside heavy industry, will be among the last to decarbonize, reaching near-zero emissions only as the 2060 target approaches.

The need dictates a strategic pivot: prioritizing natural gas for power generation and industrial processes, thereby reducing its footprint in transport. The net-zero trajectory for decarbonizing transport hinges on a mix of structural and technological shifts. The foundation for net zero is the rigorous enforcement of enhanced fuel efficiency standards across the fleet. Further, the energy carrier mix undergoes a transformation. The dominance of natural gas (54% of energy consumption in 2019) is expected to decline significantly to a mere 2 per cent by 2060. In its place, electricity could become the primary energy source, escalating from a marginal 2% to an 82% of consumption by 2060. Furthermore, hydrogen emerges as a vital, although later-stage, energy provider, accounting to 16 per cent of transport energy by 2060, particularly for heavy-duty applications. Biofuels will continue to play an insignificant role in Uzbekistan (World Bank Group, 2023).

This shift in energy carriers is accompanied by a significant restructuring of mobility services and fleet technologies. Passenger road and rail transport are slated for extensive electrification, with EVs beginning their widespread deployment post-2030, projected to constitute virtually the entire passenger fleet with over 9 million units by 2060. For freight, light-duty trucks are expected to largely electrify, while heavy-duty segments will increasingly rely on a combination of electrification and hydrogen, with a fleet of 61,000 hydrogen-fueled heavy trucks envisioned by 2060. Beyond the vehicle itself, the scenario highlights the critical role of modal shifts: a greater reliance on well-designed public transport systems (including 210,000 electric buses by 2060 and fully electrified rail), coupled with urban planning that prioritizes active mobility. This will reduce the demand for purchase of over 3 million new passenger vehicles compared to the reference case.

Research from the International Transport Forum in Tashkent (ITF, 2023) confirms the need for an integrated approach, encompassing both technological improvements and behavioral/structural changes to navigate its transport sector towards deep decarbonization. An integrated approach can achieve a 78% reduction in Tashkent's urban transport emissions compared to baseline levels by 2050 (Figure 29).

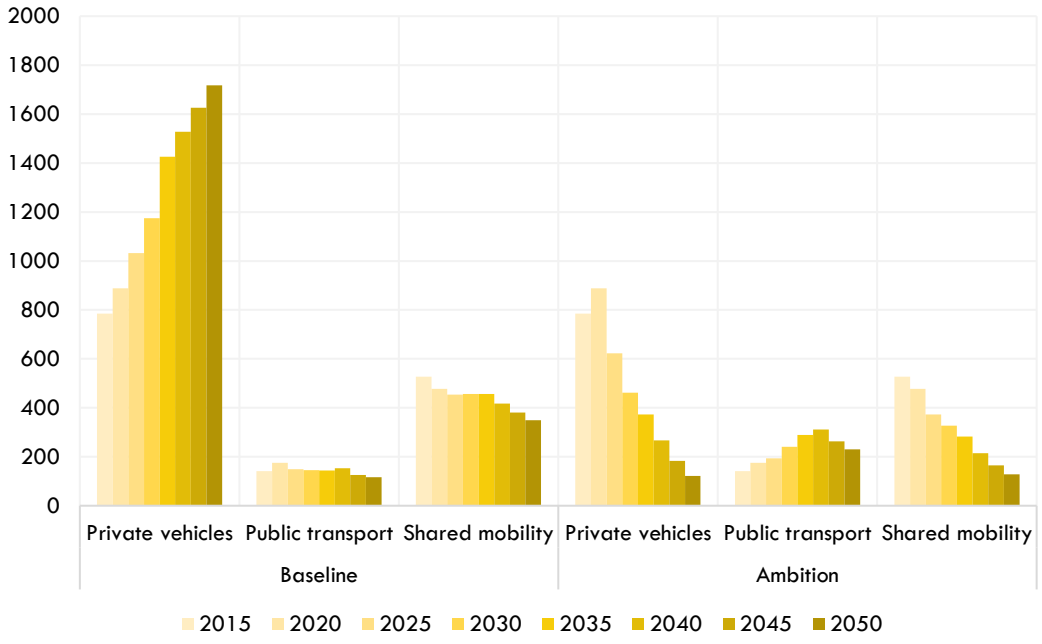

Figure 29. Transport CO2 Emissions in Tashkent (Thousand tons CO2)
ATO analysis and visualization based on: (IEA, 2025b; ITF, 2023)

Climate resilience and disaster preparedness in transport

VI. Climate resilience and disaster preparedness in transport

Uzbekistan's strategic location and growing economy necessitate resilient transport infrastructure, but climate shifts expose networks to disruptions. The operational integrity of Uzbekistan's transport network is currently being compromised by a substantial backlog of deferred maintenance. This existing deficit is compounded by rapidly expanding future demands: projections indicate that road infrastructure capacity needs to be extended by approximately 486% by 2030 and 1,365% by 2050 to accommodate the anticipated increase in freight traffic (World Bank Group, 2023). Furthermore, road transport is projected to increase by 50% by 2050, while rail traffic, although expected to grow by 2030, could decline thereafter without supportive policies. These divergent trends demand strategic foresight (World Bank Group, 2023).

The World Bank's economic projections paint a complex picture: without decisive action, climate change could deflate Uzbekistan's economy by 10% by 2050 (World Bank Group, 2023), triggering widespread employment losses and poverty. This underscores the critical need to integrate climate resilience in transport sector planning and investments.

The country's unique geographical and climatic characteristics amplify its vulnerability. Uzbekistan is highly susceptible to natural hazards such as earthquakes, droughts, and floods, events that impact approximately 1.4 million people annually and account for an economic drain equivalent to around 5 percent of its GDP.

Current literature indicates that transport infrastructure damages are projected at USD 8 million (approximately 0.02% of Uzbekistan's GDP), with roads accounting for 70%, rail for 27%, and airports for 4% (CDRI, 2023) (Figure 30). Bridges and tunnels, which account for only 0.2% of infrastructure, contribute to 5.2% of potential annual losses (CDRI, 2023; Wiedenhofer et al., 2024).

Uzbekistan ranks 148th out of 208 countries in the national road vulnerability index, indicating that its limited infrastructure with network redundancies increases the likelihood of potential disruptions. This is a crucial element of resilience that is often overlooked (Koks et al., 2023).

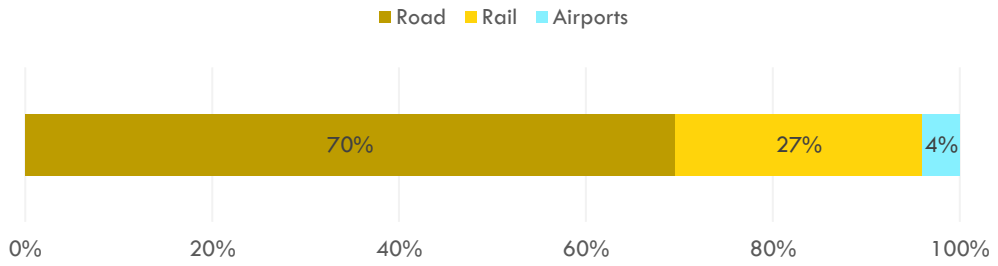

Figure 30. Share of average annual losses by mode
ATO analysis and visualization based on: (CDRI, 2023)

Policy Insights: Integrating Preparedness and Adaptive Infrastructure

Uzbekistan has started integrating climate resilience and adaptation into its transport sector planning and development. The nation's "Strategy for the transition of the Republic of Uzbekistan to a 'green' economy for the period 2019-2030" (Government of Uzbekistan, 2019b) underscores this commitment, directly supporting obligations under the Paris Agreement. Furthermore, the "Development Strategy of New Uzbekistan for 2022-2026" (Government of Uzbekistan, 2022) highlights the attraction of public-private partnerships for investments across various sectors, including transport, totalling $14 billion, which can facilitate the adoption of resilient infrastructure. This financial approach—paired with efforts to strengthen the efficiency of institutions overseeing national transport policy—aims to build a more adaptable transport system.

Reflecting this integrated strategy, key initiatives focus on modernizing engineering systems, upgrading communication networks, and developing road transport infrastructure. Recent efforts have seen significant reconstruction of major highways, incorporating materials like cement-concrete where appropriate, which can enhance durability against climate impacts. Furthermore, the draft "Strategy for the Development of the Transport System of the Republic of Uzbekistan until 2035" (Government of Uzbekistan, 2019a) outlines measures to introduce new design and technological solutions and materials.

Uzbekistan ranks 148th out of 208 countries in the national road vulnerability index, indicating that its limited infrastructure with network redundancies increases the likelihood of potential disruptions

Health and Environmental Impacts

VII. Health and Environmental Impacts

Road Crashes: A Persistent Public Safety Challenge

Road safety remains a significant concern in Uzbekistan, with road crashes accounting for 74% of external transport costs. While precise figures can vary across sources – with the World Health Organization (WHO) estimating approximately 3,000 road crash fatalities in 2021, and the Global Burden of Diseases reporting around 4,000 for the same year – the human cost is high, accounting for about 1.9% of all deaths in the country. This translates to roughly 18 fatalities for every thousand kilometers of road, underscoring the severity of the issue (WHO, 2023).

National statistics reveal a more nuanced picture. After a decline in registered road crashes from 2017 to 2020, incidents surged by 43% in 2021, reaching 10,001 cases. In 2022, the numbers stabilized slightly, with 9,902 road crashes reported. Similarly, the number of lives lost on the roads, which had decreased from 2,473 in 2017 to 1,957 in 2020, rose again to 2,426 in 2021 before experiencing a marginal reduction to 2,356 in 2022. Injuries, too, followed a similar trajectory, initially falling by 46% between 2017 and 2020, only to rebound sharply in 2021, effectively returning to 2017 levels in 2022 (UNECE, 2024) (Figure 31).

In terms of relative safety indicators, Uzbekistan's performance places it among mid-performing nations globally, with 63.5 fatalities per 100,000 vehicles in 2021 and 6.7 fatalities per 100,000 inhabitants in 2022. An analysis of vehicle types involved in road crashes indicates that passenger cars are predominantly involved, with a significant increase from 2020 to 8,451 incidents in 2021. Particularly, road crashes involving bicycles have been on a continuous upward trend, reaching 1,078 in 2021, a concerning development for vulnerable road users. Heavy goods vehicles (673 road crashed in 2021) constitute one of the most frequently involved category.

Pedestrians consistently bear the burden of road crashes, accounting for the highest numbers of both fatalities and injuries. A particularly alarming trend is the rising toll on women: between 2017 and 2022, the proportion of female fatalities more than doubled from 0.85% to 2.04%, while injuries increased by 40% to reach 3.85% of the total. Furthermore, the economic impact is concentrated within the most productive segments of the population, with almost 90% of fatalities occurring among those aged 17-60.

The financial penalty of road crashes is substantial, with fatalities and serious injuries estimated to have cost Uzbekistan approximately 2 billion USD in 2021, representing roughly 3% of its GDP. The International Road Assessment Programme (iRAP) posits that an annual investment of $ 469 million (0.7% of GDP) could avert approximately 1,000 lives each year (iRAP, 2024).

While Uzbekistan's road traffic crash fatality rate of 9.3 per 100,000 population in 2021 is indeed lower than the Asia-Pacific average of 15.2 and the Central and West Asia average of 13.1, the pace of improvement warrants closer attention.

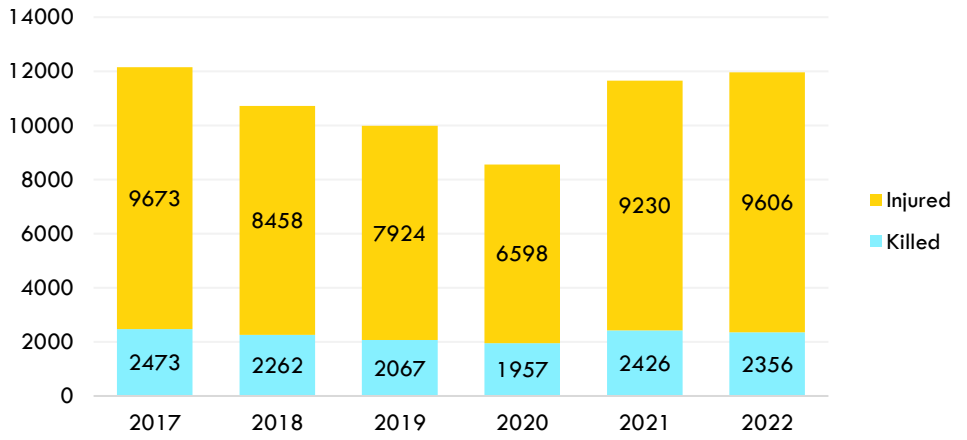

Figure 31. Road crash fatalities and injuries (2017 – 2022)
ATO analysis and visualization based on: (UNECE, 2024)

Policy Insights: Moving Towards Safer Roads

Uzbekistan's road safety policies follow the "avoid, shift and Improve" approach. A key focus is enhancing public transport and reducing reliance on private vehicles. Policies focus on developing efficient public transport systems, increasing their share, and enhancing infrastructure. Emphasis is placed on "modal shift," prioritizing urban public transport, limiting city center access, establishing paid parking, and developing bicycle infrastructure. The "Draft Strategy for the Development of the Transport System of the Republic of Uzbekistan until 2035" (Government of Uzbekistan, 2019a) details measures to stimulate public transport use, such as car-sharing and dynamic parking pricing, and proposes car-free zones. Vehicle fleet renewal is crucial. Policies promote energy-efficient and environmentally friendly vehicle production and use, including electric transport, and incentive programs for recycling old cars. The Ministry of Transport is committed to transitioning public transport into natural gas and electric traction. The "Draft Strategy for the Development of the Transport System of the Republic of Uzbekistan until 2035" (Government of Uzbekistan, 2019a) outlines legal acts to encourage fleet upgrades, including phased decommissioning of older buses and minibuses. It also aims to enhance the regulatory framework by incentivizing fleet renewal, strengthening fuel efficiency and emissions standards.

Infrastructure development and safety measures are high priorities. Policies include improving railway and road networks, modernizing engineering and road transportation infrastructure, and reconstructing transport corridors. The strategy addresses road safety directly with programs to equip highways with modern environmental protection means, improve traffic organization, and introduce intelligent transport systems. The "Concept of Road Safety in the Republic of Uzbekistan for 2018-2022" measures like creating separate lanes for public transport and modern bicycle paths (Government of Uzbekistan, 2018) outlines.

Legislation and enforcement are central to improving road safety in Uzbekistan. The "Law of the Republic of Uzbekistan 'On road safety'" (Government of Uzbekistan, 2013) emphasizes vehicle technical condition compliance with standards. The "Law of the Republic of Uzbekistan 'On road transport'" (Government of Uzbekistan, 2021) prohibits import, production, sale, or use of vehicles not meeting safety requirements. The "Draft Strategy for the Development of the Transport System of the Republic of Uzbekistan until 2035" (Government of Uzbekistan, 2019a) proposes new laws and amendments to strengthen measures against oversized vehicles and improve driver training. The "Concept of Road Safety" (Government of Uzbekistan, 2018) details measures to avoid accidents from speeding and faulty vehicles, and enhance legal mechanisms for pedestrian accountability. The "Safely Connected: A Regional Road Safety Strategy for CAREC Countries, 2017–2030" (ADB, 2017) proposes legislative reviews of vehicle standards.

Uzbekistan's road safety policies follow the "avoid, shift and Improve" approach. A key focus is enhancing public transport and reducing reliance on private vehicles.

Transport Air Pollution

Beyond crashes, transport also contributes to air pollution, a silent killer. Particulate Matter (PM 2.5) consists of tiny inhalable particles with diameters typically measuring 2.5 micrometers or less. Some of the primary sources include the transport sector, residential fuel combustion, energy generation, industrial production, agriculture, dust carried by the wind, waste incineration, and construction activities. The relative contributions from these sources to ambient PM2.5 levels vary globally.

In 2019, surface transport contributed approximately 5% and shipping contributed approximately 0.3% of ambient PM2.5 pollution in Uzbekistan (State of Global Air, 2025) (Figure 32).

Understanding the true impact of transport-related air pollution requires looking beyond aggregate figures. While overall trends suggest progress, a closer examination reveals a more complex and uneven reality.

In terms of tailpipe emissions, the transport sector's share in Uzbekistan's emissions has certainly evolved across various pollutants. For instance, the transport share of PM10 emissions has reduced from 17% in 2000 to 5.6%. However, a critical observation here is the stagnation of this progress since 2015. This pattern is mirrored in the trends for black carbon (a potent, short-lived climate pollutant and significant contributor to particulate matter, derived from incomplete combustion) and SOx emissions.

The situation with NOx emissions, however, presents a significant challenge. While initially showing a promising decline from 41% in 2000 to 26% in 2015, the period between 2015 and 2022 saw a reversal, with the transport sector's share increasing to 38%. This trend warrants careful consideration. An analysis of annual average changes in road transport emissions from 2015 to 2022 shows rising trends in Uzbekistan: PM2.5 and black carbon increased by about 5% annually, NOx by 6%, and SOx by 2%. This is particularly striking when compared to an 8% GDP growth over the same period. For comparison, the Asia-Pacific regional averages for these pollutants during this timeframe showed reductions or near-stagnation (around -1%

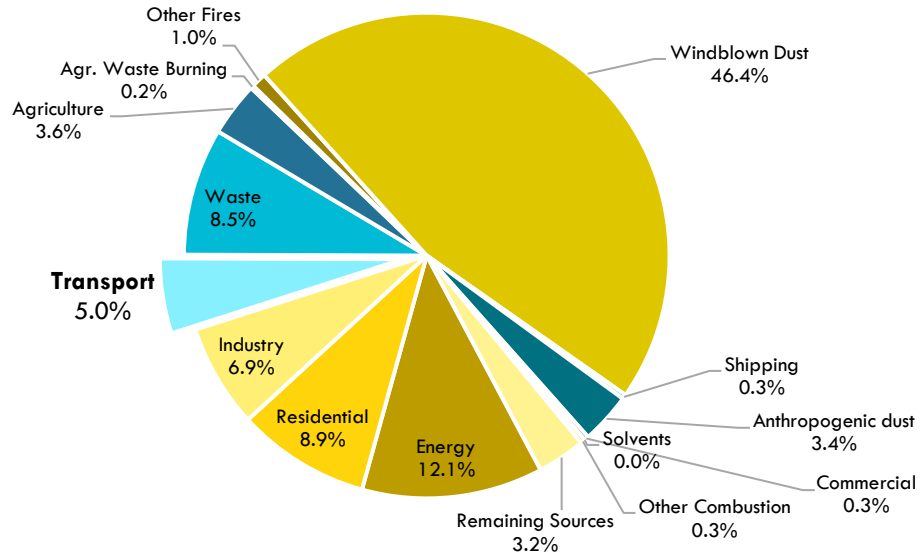

Figure 32: Ambient PM2.5 in Uzbekistan, contribution by source
ATO analysis and visualization based on: (State of Global Air, 2024)

for PM2.5, -0.1% for NOx, 0% for SOx, and -1% for black carbon), despite a comparable 7% GDP growth. This highlights a critical decoupling Uzbekistan has yet to achieve: economic growth from increasing transport-related air pollution. This is extremely important considering the overall magnitude of road transport's contribution to overall emissions in Uzbekistan (approximately 5% for PM2.5, a substantial 35% for NOx, 0.36% for SOx, and a significant 47% for black carbon) (Crippa et al., 2024).

Ultimately, air pollution takes a serious toll on human health. The total attributable deaths due to PM2.5 and ozone air pollution from the transport sector in Uzbekistan actually rose, slightly, from 1,342 in 2017 to 1,367 in 2019. Within this tragic toll, road transport accounted for 4% of these deaths, while non-road sources (such as rail transportation, agricultural equipment, construction machinery and other non-road mobile machinery) contributed the majority, i.e., 91%, and international shipping 6%. This disaggregation points to the need for a more targeted, rather than generalized, policy response.

The World Bank's modelling in Tashkent (World Bank, 2024a) indicates that urban transport strategies—such as adopting electric vehicles (buses, cars, two-wheelers), implementing Euro 6 emission standards for new light-duty vehicles, Euro VI standards for new heavy-duty vehicles, and establishing effective inspection and maintenance programs with enforced repair or retirement of faulty vehicles—can reduce PM2.5 exposure by 7.9 μg/m³.

Uzbekistan's proposed transport air pollution policies, outlined in the draft Presidential Decree for the Uzbekistan 2030 Strategy (Ministry of Ecology, Environmental Protection and Climate Change, 2025), follow a similar approach. The focus on banning the sale and use of motor fuels below "Euro-4" standards by the end of 2025 directly targets a key source of vehicle emissions: fuel quality. This is especially relevant given the widespread use of lower-octane fuels like AI-80 gasoline, which, as studies show, produce higher emissions of carbon monoxide, unburned hydrocarbons, and PM2.5 particles. The strict ban on customs clearance of AI-80 gasoline starting March 1, 2025, and the proposed prohibition of its production by January 1, 2026, are decisive steps to promote the shift to cleaner fuels, particularly in heavily polluted urban areas like Tashkent. Successful implementation will depend on ensuring the availability and affordability of higher-octane, Euro-4 compliant fuels, along with supportive policies encouraging cleaner vehicle technologies or modal shifts. These policy measures demonstrate a strong commitment to reducing the public health and environmental impacts of transport-related air pollution, bringing Uzbekistan closer to international standards practice.

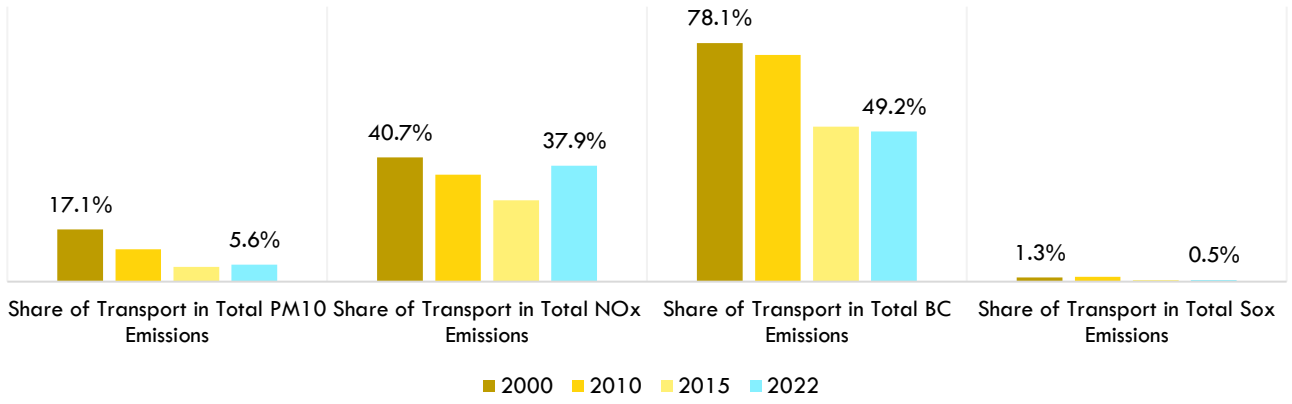

Figure 33. Share of transport in total emissions
ATO analysis and visualization based on: (Crippa et al., 2024)

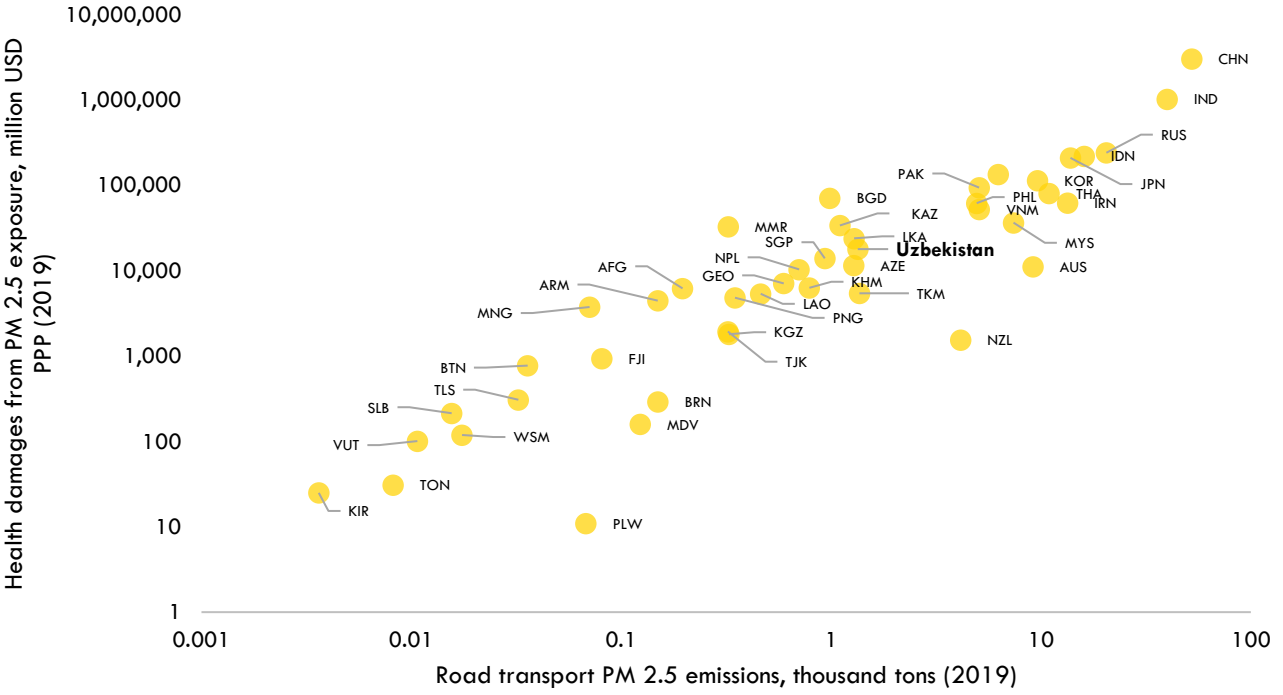

Figure 34. Health damages from PM 2.5 exposure (2019)
ATO analysis and visualization based on: (World Bank, 2022a)

Summary

Uzbekistan stands at a critical juncture, a landlocked nation of 36 million, striving for upper-middle-income status by the decade's end. Its ambition: to become Central Asia's central transit hub, bridging East and West. This report, a data-driven assessment, benchmarks transport performance against regional and global standards, revealing both significant progress and persistent vulnerabilities. This baseline is vital as the UN Decade of Sustainable Transport commences in November 2025.

Key findings across the transport sector include:

- Infrastructure and Connectivity:
  - Uzbekistan's road network, at 175,000 km in 2023, has 95% paved roads with 83% in good condition, aligning with the Asian average but falling short of OECD standards.
  - Primary road density, crucial for intercity transport, is significantly lower than developed economies.
  - The 2035 strategy targets construction and repair of 43,693 km of roads, with road infrastructure capacity needing to increase by 486% by 2030 and 1,365% by 2050 to meet freight demands.
  - Railways span nearly 4,718 km, with 54% electrified. While network coverage is denser than most other CAREC countries, 90% of the current rolling stock requires renewal in the next decade.
  - Urban rapid transit, primarily the Tashkent Metro, grew to 70 km by 2024, but availability (4 km per million urban inhabitants) is below Asian and OECD averages.
  - Uzbekistan's international air connectivity has significantly improved since 2014, with Europe being the leading market. However, its role as a transit point for international onward air travel remains nascent.
  - Transport investments were 2.1% of GDP in 2021, with 75% allocated to roads and 24% to railways. Official Development Assistance (ODA) for transport increased from $246 million (2010-2015) to $325.6 million (2016-2022), predominantly for roads (60%) and rail (39%).
  - The country has substantial Public-Private Partnership (PPP) commitments ($31 billion by late 2024), mostly in energy, but the transport sector is expected to attract the largest share of new PPP projects from 2025-2030.
- Access and Mobility:
  - The Rural Access Index (RAI) is 62%, meaning 38% of the rural population (6.3 million people) lives beyond 2 km of an all-season road.
  - Urban public transport access varies, with Tashkent averaging 15% (depending on survey methodology), lower than Asian and OECD averages.
  - The “Rural Road Strategy 2035" aims for 85% of rural settlements to have reliable year-round road access, requiring significant investment in repairing and upgrading 36,000 km of core rural roads.
  - Policies emphasize inclusive and eco-friendly mobility, including improved pedestrian infrastructure for persons with disabilities and promoting cycling in urban areas.
- Equity and Prosperity:
  - The transport sector contributes nearly 8% of GDP and employs about 1 million people (9% of total employment).
  - Transport accounts for approximately 14% of total household consumption expenditure, higher than many Asian and OECD countries, suggesting a reliance on personal vehicles or costly public transport.
  - The vehicle fleet doubled since 2010 to 3.8 million in 2021, with motorization outpacing population and road expansion.
  - Road transport dominates passenger activity (97% in 2023) and has seen a significant increase in freight mode share (from 29% in 2010 to 45%).
  - A recent policy shift in February 2024 abolished labor code regulations prohibiting women from operating heavy vehicles and large buses, aiming to foster gender equality and attract women into these roles.

- Energy Consumption and Carbon Emissions:
  - Transport energy consumption reached 273,125 terajoules in 2022, approximately 21% of total energy consumption, with a 12% annual growth rate since 2010, primarily driven by road transport (97%).
  - Natural gas' share in transport energy increased from 2.7% in 2010 to about 57% in 2021, while oil products declined.
  - Transport CO2 emissions were 16 million tons in 2023 (12% of total economy-wide emissions), with road transport contributing 98%.
  - Uzbekistan aims for a 35% reduction in GHG emissions per unit of GDP by 2030 (from 2010 levels), encompassing the transport sector. Targets include alternative fuels reaching 18.7% of total vehicle fuel consumption by 2035 and 20% of the vehicle fleet being hybrid, electric, or alternative fuel vehicles by 2035.
  - Rail electrification aims for 60%, with targets to reduce CO2 emissions per ton-km of freight transport by 15% for railways by 2025 and 24% by 2035.
  - Electric vehicle sales are growing, with BEV sales reaching 24,095 and PHEV sales 17,480 in 2024. The EV share of total car sales was 5% in 2024. Local production is being pursued through partnerships with BYD Auto and Chery International.
  - However, a significant increase in utilization fees for imported EVs (quadrupling for vehicles under three years old) took effect in May 2025, potentially shifting focus to local production.
- Climate Resilience and Disaster Preparedness:
  - Uzbekistan's transport network faces vulnerabilities due to deferred maintenance and increasing future demands.
  - Climate change could reduce Uzbekistan's economy by 10% by 2050.
  - Transport infrastructure damages are projected at $8 million annually, with roads accounting for 70% and rail for 27%.
  - Uzbekistan ranks 148th out of 208 countries in the national road vulnerability index.
  - Policies are integrating climate resilience, including attracting PPPs for resilient infrastructure and introducing new design and technological solutions for roads.
- Health and Environmental Impacts:
  - Road crashes remain a significant concern, accounting for 74% of external transport costs and approximately 1.9% of all deaths in the country.
  - In 2021, road crash fatalities were around 2,426, with pedestrians consistently bearing the highest burden. The financial cost of road crashes was estimated at $2 billion in 2021 (3% of GDP).
  - Policies include enhancing public transport to reduce reliance on private vehicles, implementing vehicle fleet renewal programs, and strengthening fuel efficiency and emissions standards.
  - Surface transport contributed about 5% of ambient PM2.5 pollution in Uzbekistan in 2019.
  - The transport sector's share of NOx emissions increased from 26% in 2015 to 38% in 2022. Other pollutants — PM2.5, NOx, SOx, and black carbon emissions—from road transport increased between 2015 and 2022, indicating a decoupling challenge between economic growth and transport-related air pollution.
  - Total attributable deaths due to PM2.5 and ozone air pollution from the transport sector slightly rose from 1,342 in 2017 to 1,367 in 2019, with non-road sources contributing the majority (91%).
  - Proposed policies aim to ban the sale and use of motor fuels below "Euro-4" standards by the end of 2025 and prohibit AI-80 gasoline production by January 1, 2026, to reduce emissions.

To build for tomorrow is to acknowledge the lessons of yesterday. Uzbekistan's future as a true crossroads depends not only on building more, but on building better – connecting people, goods, and opportunities with efficiency, while keeping a keen eye on the environmental compass.

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Annex 1. Selected Key Projects Relevant to Transport

Project Name	Sector	Total Amount (million USD)	Length (km)	Date (Proposed/ Approved)	Date (Proposed/ Approved)
Termez Multimodal Logistics Center	Other Infrastructure, Port, Road			Proposed	2019
Central Asia Regional Economic Cooperation Corridor 2 Karakalpakstan Road (A380 Kungrad to Daut-Ata Section) Project	Highway, Other Infrastructure, Road	383.4		Active	01/09/2020
Road Subsector Development Strategy and Action Plan	Road	3.4		Active	02/06/2020
Preparing Railway Modernization Projects	Railway	1.2		Active	02/09/2019
Second Inclusive and Resilient Market Economy Development Policy Operation	Other Infrastructure			Active	03/10/2024
Rural Roads Resilience Sector Project	Other Infrastructure, Road	298.75		Active	11/12/2023
Preparing Road Modernization Projects	Highway, Other Infrastructure, Road, Road Infrastructure	4.15		Active	13/10/2021
Uzbekistan: Bukhara Road Network Improvement Project (Phase 1)	Road			Approved	2020
Uzbekistan: Bukhara-Miskin-Urgench-Khiva Railway Electrification Project	Railway			Approved	2022
Uzbekistan: UzPSB Energy and Water Efficiency, and Renewables Bond Investment	Energy			Approved	2023
Uzbekistan: Asakabank Energy Efficiency and Renewables Facility	Energy			Approved	2024
Central Asia Regional Economic Cooperation Corridor 2 (Pap-Namangan-Andijan) Railway Electrification Project	Railway	341.45		Active	21/04/2017
National Road Development Project	Road	337.08		Active	22/02/2022
Central Asia Regional Economic Cooperation Corridor 2 (Bukhara-Miskin-Urgench-Khiva) Railway Electrification Project	Energy, HSR, Railway	445.65		Active	26/01/2022
Central Asia Regional Economic Cooperation Road Corridor 2 Resilience and Modernization Project	Highway, Road	0		Proposed	27/08/2025
Tashkent–Samarkand–Bukhara Toll Highway	Highway	3200	733	Active	
Tashkent - Samarkand High-Speed Line	Railway		300	Feasibility Study	
Tashkent–Andijan Toll Highway (via Kamchik Pass)	Highway	4280	314	Active	

Annex 2. Economy ISO Codes

ISO CODE	ECONOMY NAME	REGION	INCOME GROUP
AFG	Afghanistan	Asia	Low income
ARM	Armenia	Asia	Upper middle income
AUS	Australia	Oceania	High income
AZE	Azerbaijan	Asia	Upper middle income
BGD	Bangladesh	Asia	Lower middle income
BTN	Bhutan	Asia	Lower middle income
BRN	Brunei Darussalam	Asia	High income
KHM	Cambodia	Asia	Lower middle income
CHN	People's Republic of China	Asia	Upper middle income
COK	Cook Islands	Oceania	Upper middle income
FJI	Fiji	Oceania	Upper middle income
GEO	Georgia	Asia	Upper middle income
IND	India	Asia	Lower middle income
IDN	Indonesia	Asia	Upper middle income
JPN	Japan	Asia	High income
KAZ	Kazakhstan	Asia	Upper middle income
KIR	Kiribati	Oceania	Lower middle income
KGZ	Kyrgyz Republic	Asia	Lower middle income
LAO	Lao People's Democratic Republic	Asia	Lower middle income
MYS	Malaysia	Asia	Upper middle income
MDV	Maldives	Asia	Upper middle income
MHL	Marshall Islands	Oceania	Upper middle income
FSM	Micronesia (Federated States of)	Oceania	Lower middle income
MNG	Mongolia	Asia	Upper middle income
MMR	Myanmar	Asia	Lower middle income
NIU	Niue	Oceania	Upper middle income
NRU	Nauru	Oceania	High income
NPL	Nepal	Asia	Lower middle income
NZL	New Zealand	Oceania	High income
PAK	Pakistan	Asia	Lower middle income
PLW	Palau	Oceania	High income
PNG	Papua New Guinea	Oceania	Lower middle income
PHL	Philippines	Asia	Lower middle income
KOR	Republic of Korea	Asia	High income
WSM	Samoa	Oceania	Lower middle income
SGP	Singapore	Asia	High income
SLB	Solomon Islands	Oceania	Lower middle income
LKA	Sri Lanka	Asia	Lower middle income
TJK	Tajikistan	Asia	Lower middle income
THA	Thailand	Asia	Upper middle income
TLS	Timor-Leste	Asia	Lower middle income
TON	Tonga	Oceania	Upper middle income
TKM	Turkmenistan	Asia	Upper middle income
TUV	Tuvalu	Oceania	Upper middle income
UZB	Uzbekistan	Asia	Lower middle income
VUT	Vanuatu	Oceania	Lower middle income
VNM	Viet Nam	Asia	Lower middle income
HKG	Hong Kong, China	Asia	High income
TWN	Taipei,China	Asia	High income
IRN	Iran (Islamic Republic of)	Asia	Upper middle income
RUS	Russian Federation	Asia	High income
TUR	Türkiye	Asia	Upper middle income

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