Kazakhstan

Green Roads Profile

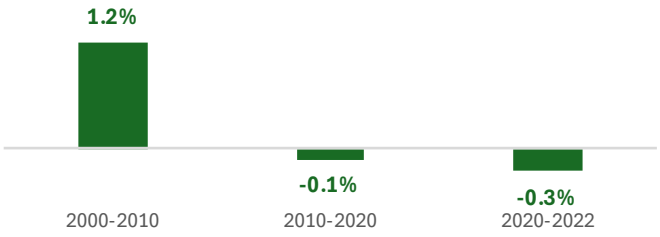
General

Road length (2022)
226,593 kilometers (1)

Subregion
Central and West Asia

Income class
Upper middle income

Average annual growth rate of road length (1)



Population (2024)
19.8 million

Land area
2,700 thousand sqkm (2,3)

Urban population
58%

Rural population
42% (2)

Gross domestic product (GDP PPP, 2022)
604.75 billion USD

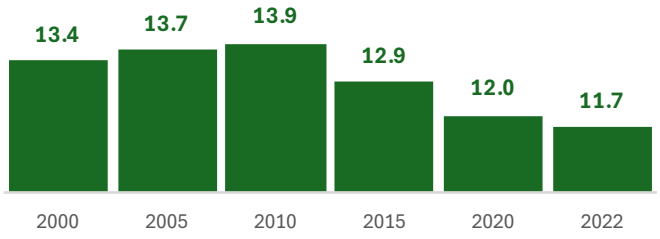
GDP per capita (PPP, 2022)
31,176 USD (2,3) (3)

Kazakhstan's road network is comprised of 11.2% motorways, highways, and primary roads and 88.8% secondary roads, local roads, and other roads

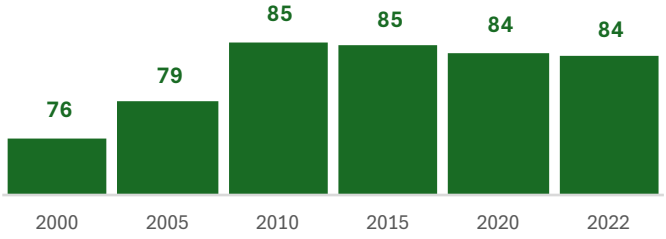
Road infrastructure availability (2022)
11.7 kilometers per thousand population (1,2)

Road infrastructure density (2022)
84 meters per square kilometer (1,3)

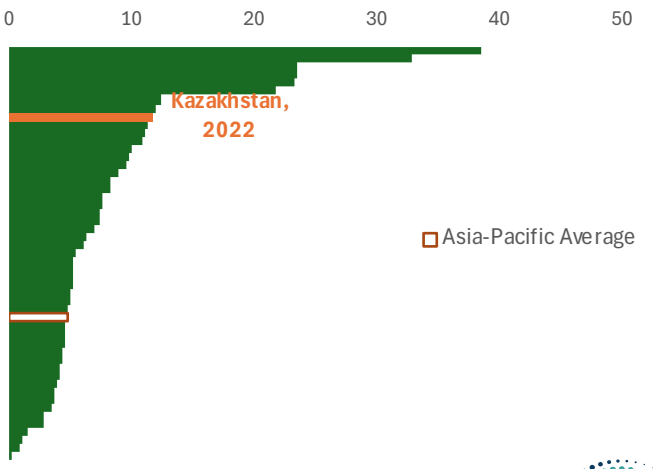
Road infrastructure availability trend, kilometers per thousand population (1,2)



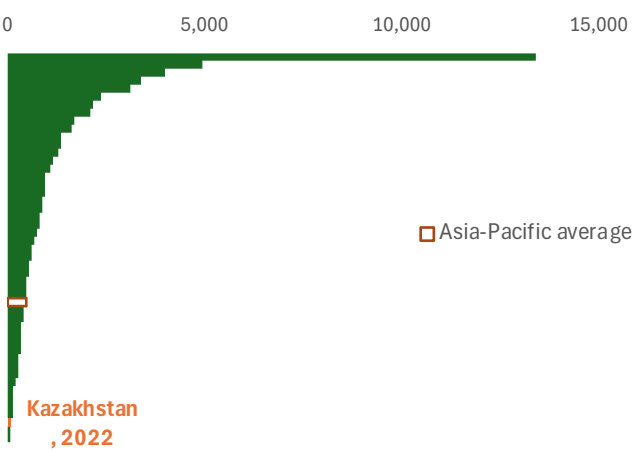
Road infrastructure density trend, meters per thousand population (1,3)



Road infrastructure availability in Asia-Pacific, kilometers per thousand population (1,2)



Road infrastructure density in Asia-Pacific, meters per square kilometer (1,3)



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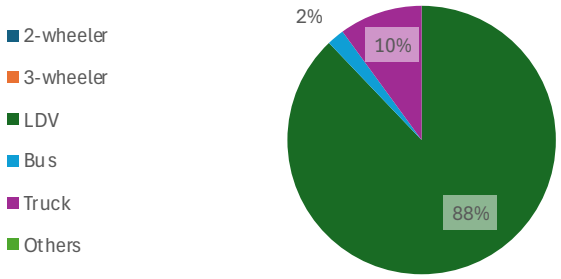
Road vehicles (2022)
4.45 million vehicles (1)

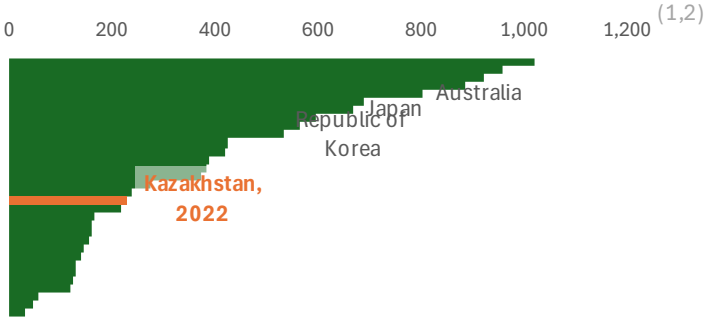
Share of vehicles by type (1)



Motorization rate (2022)
229 vehicles per thousand population (1,2)

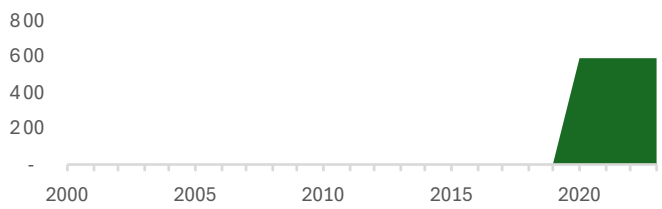
In 2000, Kazakhstan had 82 vehicles per thousand population. By 2022, this has increased to 229 compared with Asia-Pacific average of 577 in 2022.

Motorization rate in Asia-Pacific, vehicles per thousand population (1,2)



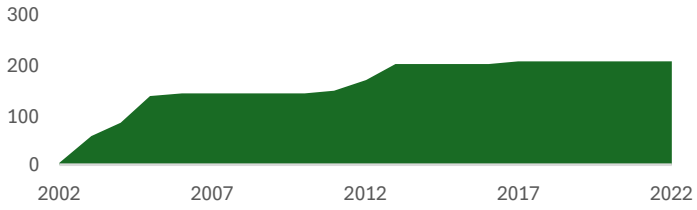
Road vehicles include 2- and 3-wheelers, LDVs, buses and other informal public transport, trucks, and other unclassified types

Public-private partnership investments in road sector, cumulative million USD (4)



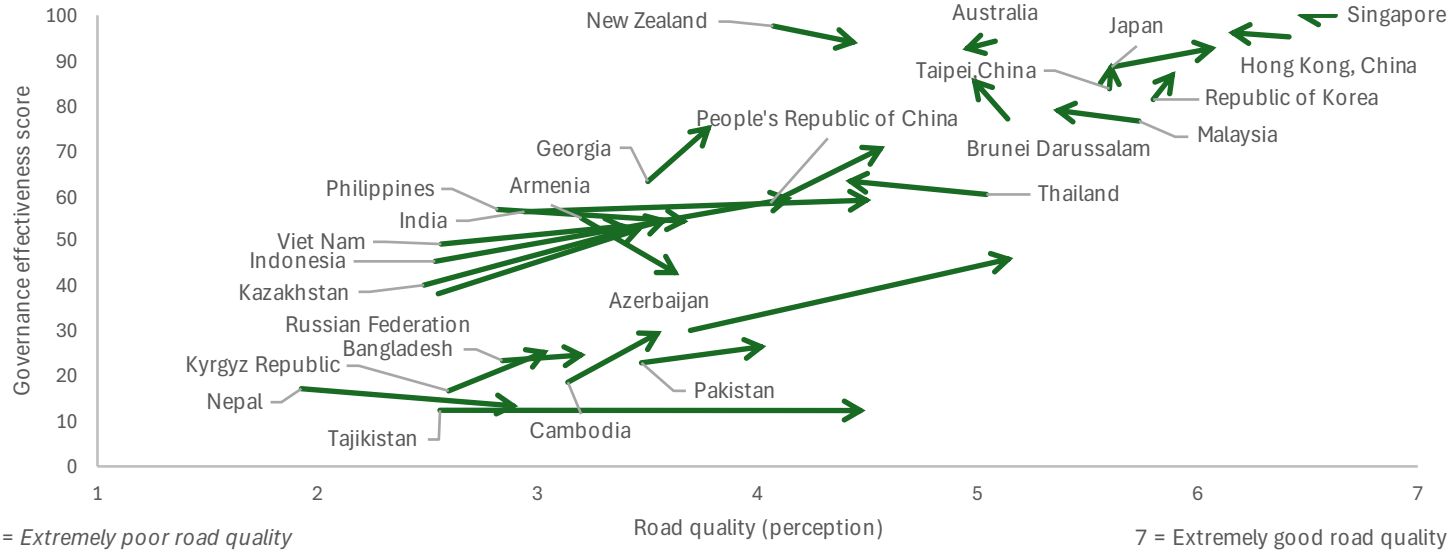
Share of road in total public-private partnership investments (4)

Official development assistance in road sector, cumulative million USD (5)



Share of road in total official development assistance (5)

Road quality (perception) vs. governance effectiveness score (2009-2019)



1 = Extremely poor road quality

7 = Extremely good road quality

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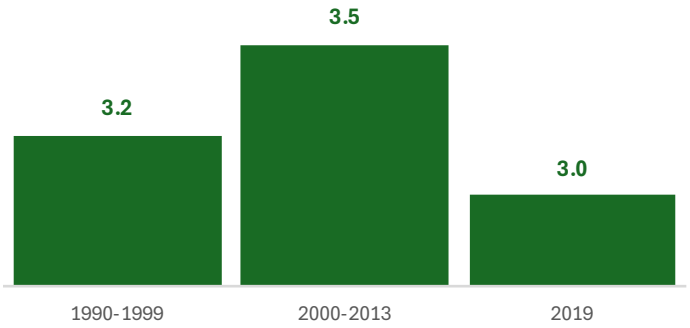
Quality of Life and Fostering Inclusive Growth

Rural access index (2023)
64% (6)

Based on 2015 estimates, only 23% of the population could reach the nearest city in 30 minutes, another 11% could reach in 1 hour, and another 30% could reach only after 3 hours.

Rural population without access to all-season roads (2023)
2.89 million (2,6)

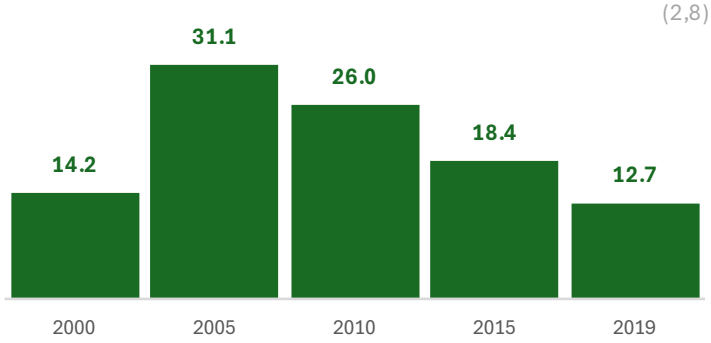
National street network disconnectedness index (7)



This indicator is a summary scalar measure for street-network sprawl describing connectivity of local street networks across the world

Road crash fatalities (2019)
2.4 thousand deaths (8)

Road crash fatality rate per 100 thousand population (2,8)



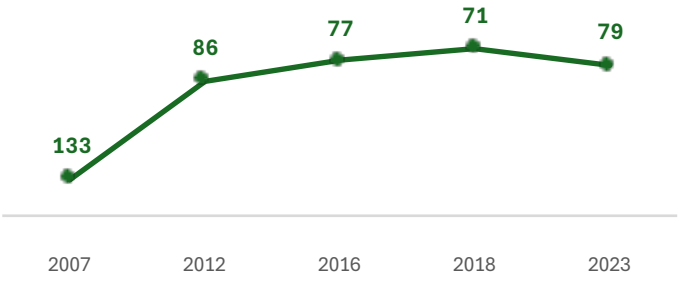
Asia-Pacific average is 15.7 fatalities per 100 thousand population

Mean speed (2022)
81 kilometers per hour (9)

Logistics performance index score (2023)
2.7/5 (10)

| Infrastructure score
2.5/5 (10)

Logistics performance index ranking trend (10)

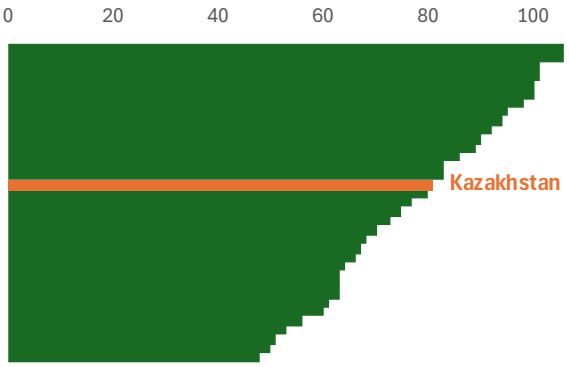


Percent of firms choosing transportation as their biggest obstacle - Manufacturing (2019)
4.4% (11)

Percent of respondents answering high/very high - Level of Fees and Charges on Road transport (2007)
50.0% (11)

Level of fees and charges for less than full truck loads are considered

Mean speed in Asia-Pacific, kilometers per hour (2022) (9)



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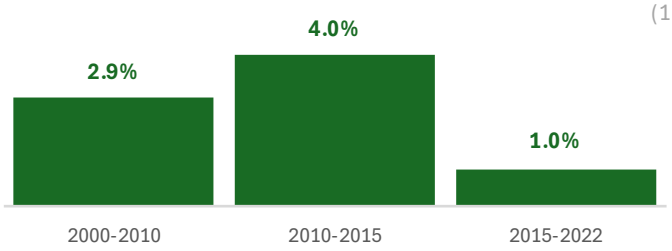
Employment in transport sector (2022)
834.2 thousand employees (12)

Share of transport sector in total employment (2022)
9.4% (12)

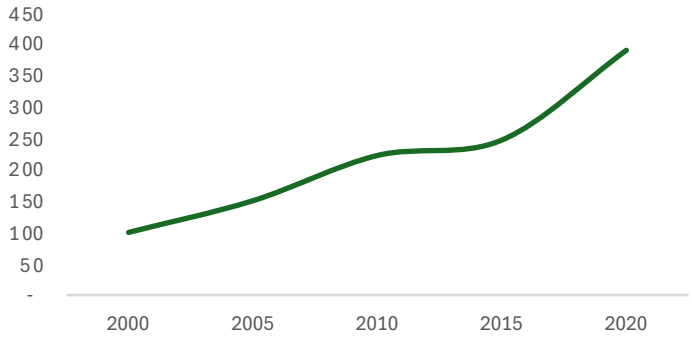
Average annual growth rate of transport sector employment (12)



Share of females in total transport sector employment (2022)
25.7% (12)

Decarbonization

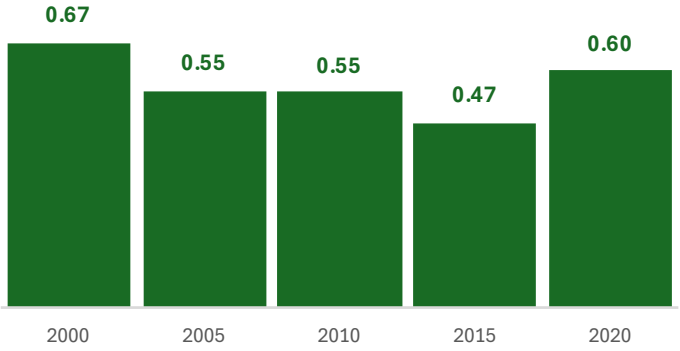
Road transport energy consumption trend
Assuming 2000 value as base (100) (13)



Between 2000-2010, Kazakhstan's road transport energy consumption grew 8.3% annually. Between 2010-2020, road transport energy consumption grew 5.8% annually.

95% of Kazakhstan's transport energy consumption is in the road sector.

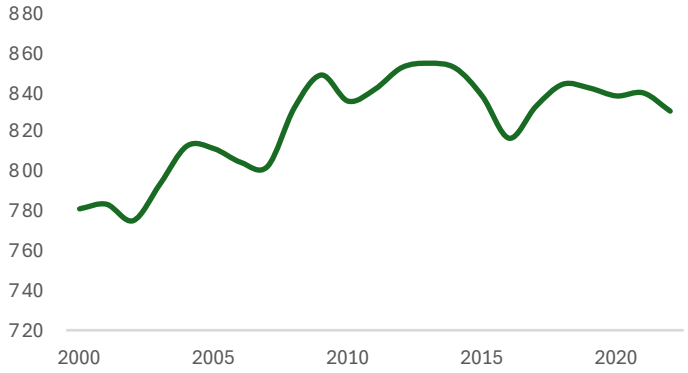
Road transport energy intensity with GDP, TJ per USD (PPP) (3,13)



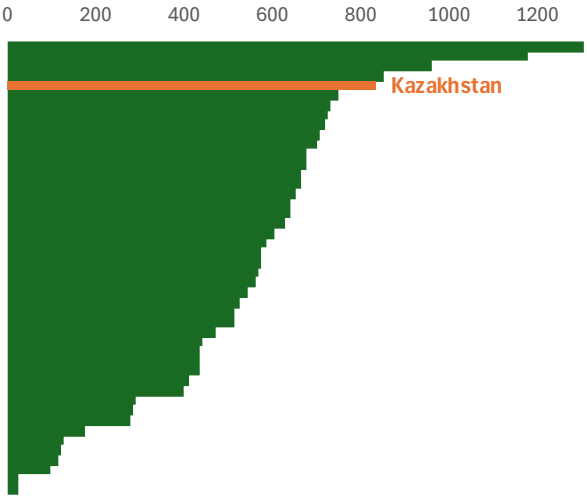
Asia-Pacific average is 0.4 MJ per USD in 2020

Grid emission factor (2022)
830.4 gCO2 per kWh (14)

Grid emission factor trend, gCO2 per kWh (14)



Grid emission factors in Asia-Pacific, gCO2 per kWh (14)



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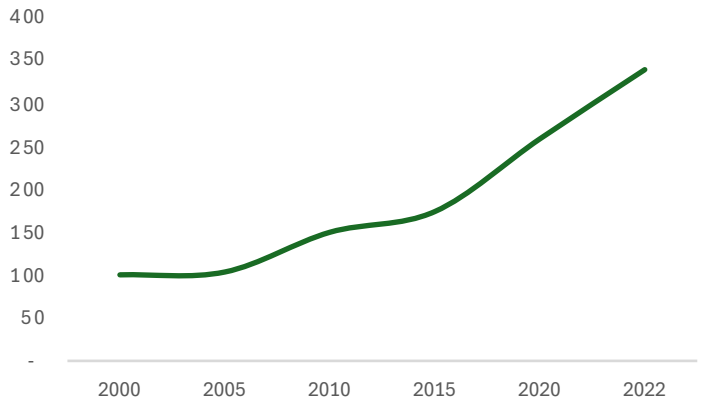
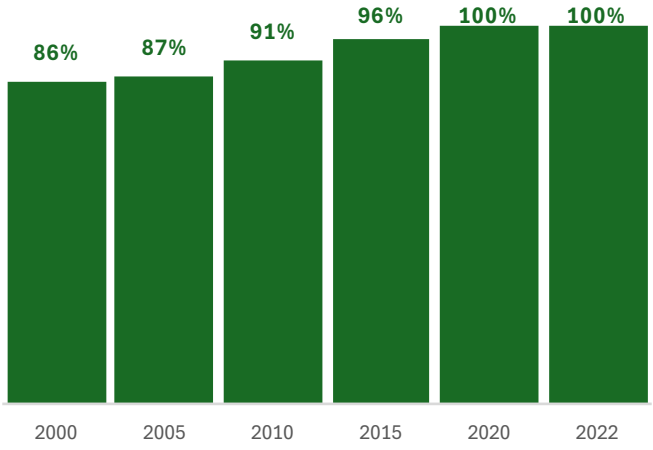
Road transport CO2 emissions trend

Assuming 2000 value as base (100) (15)



Share of road transport in total transport CO2 emissions (15)



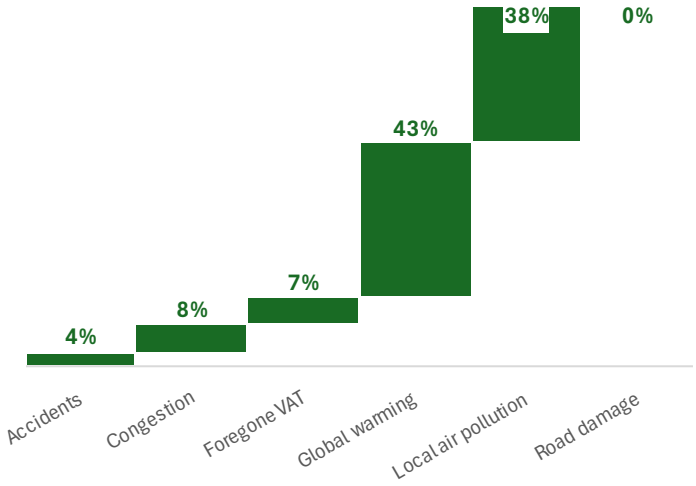
Between 2010-2019, Kazakhstan's road transport fossil CO2 emissions was growing 3.2% annually. After the COVID-19 pandemic, road transport CO2 emissions was growing 14.5% annually.

Transport fossil fuel subsidies, cumulative from 2010 to 2022 (16)

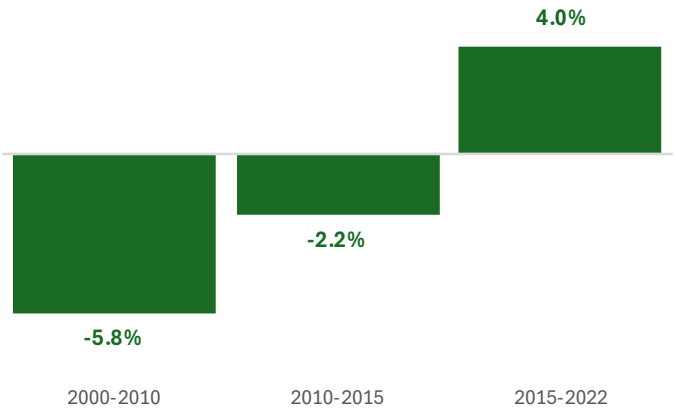
17.54 billion USD

2.8% of Asia-Pacific total

Implicit fossil fuel subsidies due to externalities (17)



Road transport CO2 emissions intensity with GDP trend (3,15)



Data includes all sectors and all fuel types

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Climate Resilience and Disaster Preparedness

Expected annual damages to road and rail infrastructure due to hazards (2019)
44.98 million USD (18)

Share of road in total transport infrastructure in multihazard average annual loss to transport infrastructure (2023)
35.2% (19)

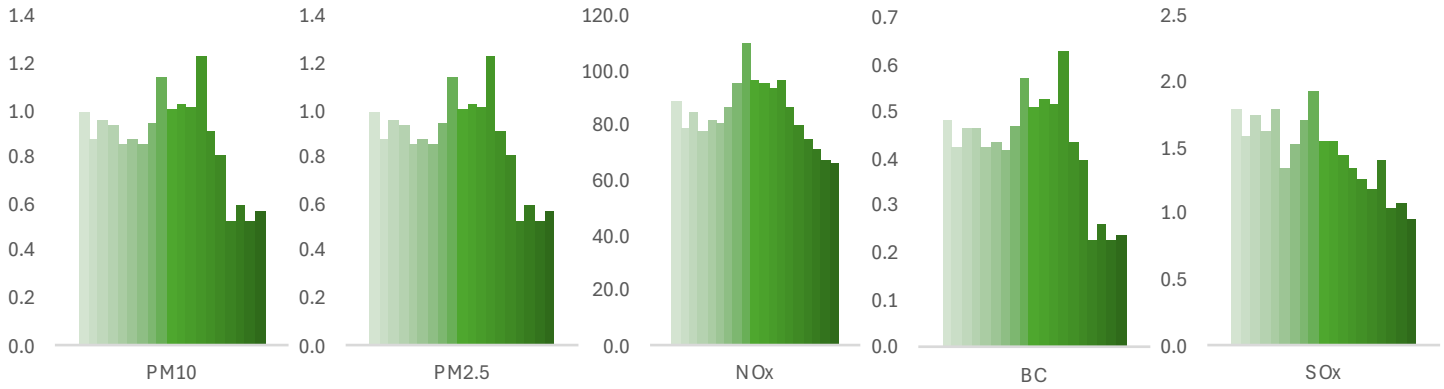
National road vulnerability index ranking (2023)
n.d. (20)

Share of population in low elevated coastal zones (2018)
0.0% (21)

Pollution, Water and Land Management, Preserving Biodiversity, and Sustainable Materials

Paved roads (2022)
91% (1)

Road transport air pollutant emissions, thousand tonnes (2000-2018) (15)



In 2022, road transport contributed 24.7%, re-suspended dust contributed 59.2% in transport PM10 emissions. In total, road transport contributed about 1.3% in total PM10 emissions in Kazakhstan.

Deaths due to occupational exposure to diesel engine exhaust

2000-2010	2011-2018
767 deaths	**585 deaths**

(22)

Share of biofuels in road transport energy consumption (2020)
n.d. (13)

Domestic consumption per capita, tonnes (2024)

Kazakhstan	Asia-Pacific
26.6 tonnes	**13.8 tonnes**

(23)

Domestic consumption is the total amount of materials directly used in the economy (used domestic extraction plus imports), minus the materials that are exported.

Terrestrial and marine protected areas (2022)
11.7% (3)
(% of total territorial area)

Terrestrial protected areas	Marine protected areas
10.0%	**50.7%**
(% of total land area)	*(% of territorial waters)*

(3)

Forest area (2021)
1.3% (3)
(% of land area)

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Policy Measures

Policy document	Year	Road-related measures
On the road traffic: The Law of the Republic of Kazakhstan of April 17, 2014 No. 194-V	2022	Active transport infrastructure expansion, Vehicle inspection and maintenance, General transport asset management, Road-side checks on overloading
Global Status Report on Road Safety 2018	2018	Automated enforcement of speed limits, Design standards for sidewalks and bicycle paths, Upgrading high risk locations for road safety, National road safety strategy, National speed law, Audits/ star rating for existing roads for road safety, Audits/ star rating required for new road infrastructure for road safety
Safely Connected: A Regional Road Safety Strategy for CAREC Countries, 2017–2030	2017	General infrastructure improvements, Vehicle inspection and maintenance, Technical standards for road infrastructure, Request for financial support to develop transport, National road safety strategy, Passenger and freight load limits, Audits/ star rating for existing roads for road safety, Audits/ star rating required for new road infrastructure for road safety
LAW OF THE REPUBLIC OF KAZAKHSTAN of July 4, 2003 No. 476-II About road transport	2003	Road-side vehicle technical checks
Concept for transition of the Republic of Kazakhstan to Green Economy	2013	General infrastructure improvements, Road-side vehicle technical checks
International Energy Charter	2015	General infrastructure improvements
State Program for Industrial and Innovative Development for 2015-2019	2015	Reduction of transport/ logistics costs
Strategic Development Plan until 2025	2018	General infrastructure improvements
Road Safety Opportunities and Challenges: Low- and Middle-Income Country Profiles	2020	Vehicle inspection and maintenance, Implementation of vertical deflections on roads
ORDER OF THE MINISTER OF INVESTMENTS AND DEVELOPMENT OF THE REPUBLIC OF KAZAKHSTAN of May 29, 2015 No. 671 About approval of regulations of the state service in the field of road transport	2015	Road-side checks on overloading

Notes

(*) Policy measures and targets were extracted from policy documents as listed in the ATO National Transport Policies Database

https://bit.ly/ATOpolicyrepository

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(17) Climate Change Dashboard (IMF, 2024), https://climatedata.imf.org/pages/access-data

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(23) Global Materials Flow Database (UNEP, 2023), https://www.resourcepanel.org/global-material-flows-database

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This profile was developed by Asian Transport Outlook in support of TA-6756 Improving Infrastructure Sustainability Through Better Asset Management – Developing a Green Roads Toolkit and Guidance for ADB Projects. The ATO is an initiative developed under TA-6763 REG: Accelerating Innovation in Transport - Asian Transport Outlook: Phase 3 (55119-001) of the Asian Development Bank (ADB) and is also being supported by the Asian Infrastructure Investment Bank (AIIB) through Purchase Order No. CW39446 AIIB Support: Asian Transport Outlook Phase 3.

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