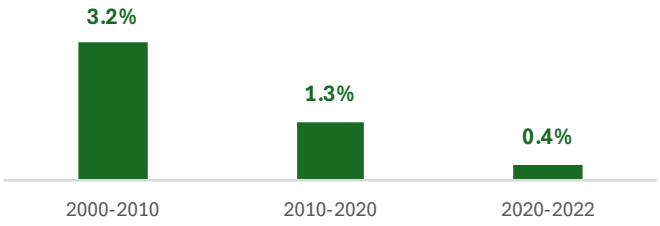
Indonesia

Green Roads Profile

General

Road length (2022)
1,246,286 kilometers (1)

Average annual growth rate of road length (1)



Indonesia's road network is comprised of 5.2% motorways, highways, and primary roads and 94.8% secondary roads, local roads, and other roads

Subregion
South East Asia

Income class
Low and lower middle income

Population (2024)
279.8 million

Land area
1,893 thousand sqkm (2,3)

Urban population
59%

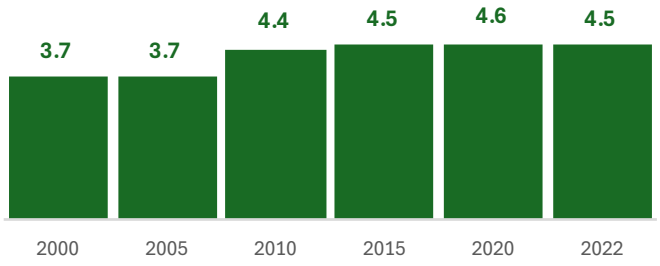
Rural population
41% (2)

Gross domestic product (GDP PPP, 2022)
4.04 trillion USD

GDP per capita (PPP, 2022)
14,658 USD (2,3) (3)

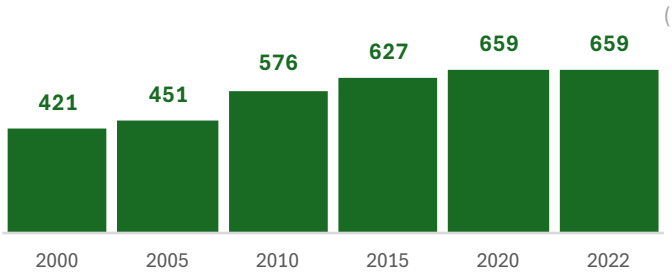
Road infrastructure availability (2022)
4.5 kilometers per thousand population (1,2)

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

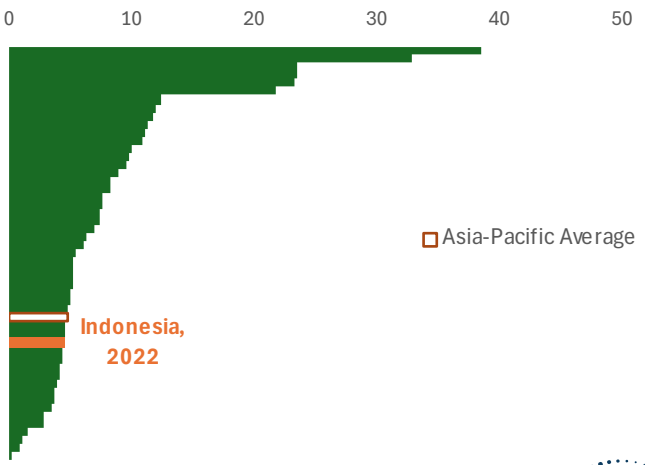


Road infrastructure density (2022)
659 meters per square kilometer (1,3)

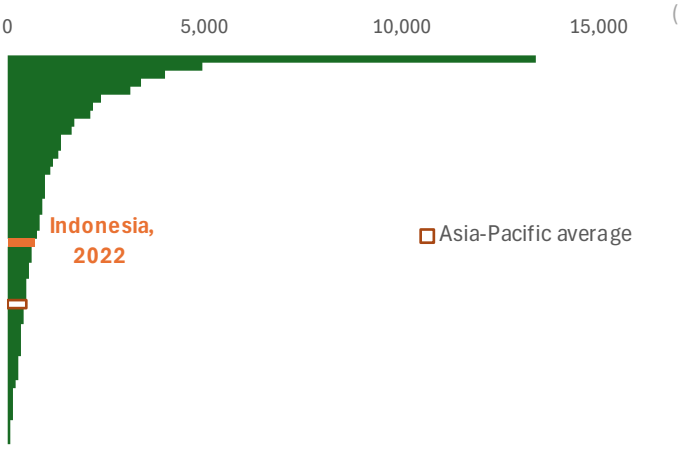
Road infrastructure density trend, meters per thousand population (1,3)



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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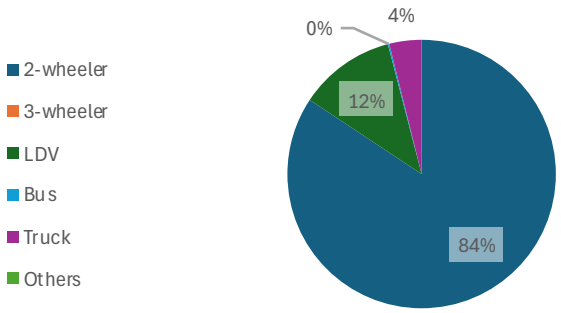
Road vehicles (2023)
157.08 million vehicles (1)

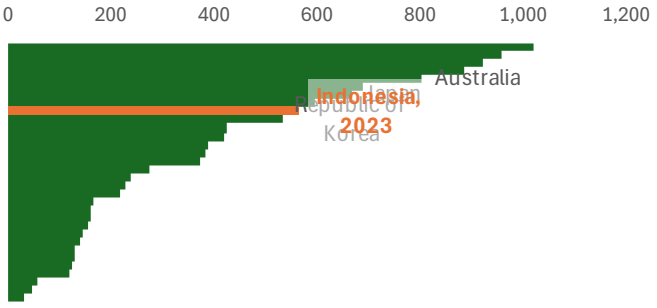
Share of vehicles by type (1)



Motorization rate (2023)
566 vehicles per thousand population (1,2)

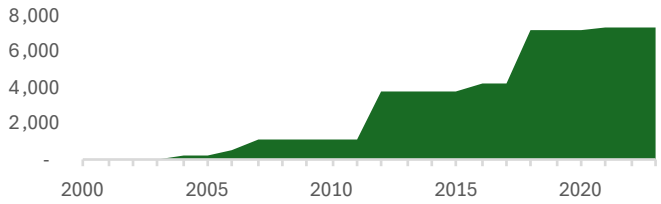
In 2000, Indonesia had 89 vehicles per thousand population. By 2023, this has increased to 566 compared with Asia-Pacific average of 577 in 2022.

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

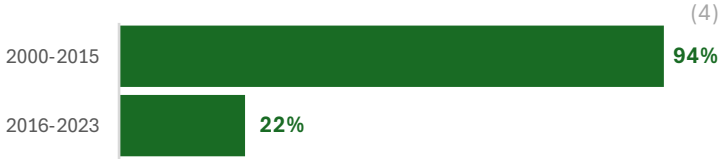


Road vehicles include 2- and 3-wheelers, LDVs, buses and other informal public transport, trucks, and other unclassified types

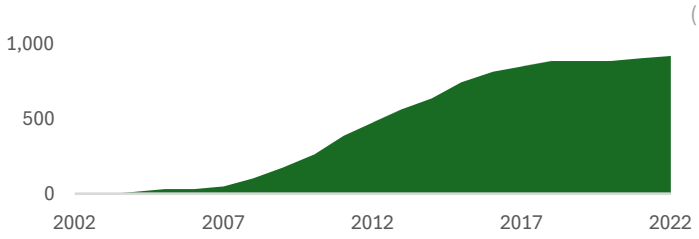
Public-private partnership investments in road sector, cumulative million USD (4)



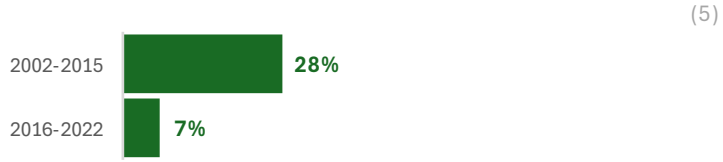
Share of road in total public-private partnership investments (4)



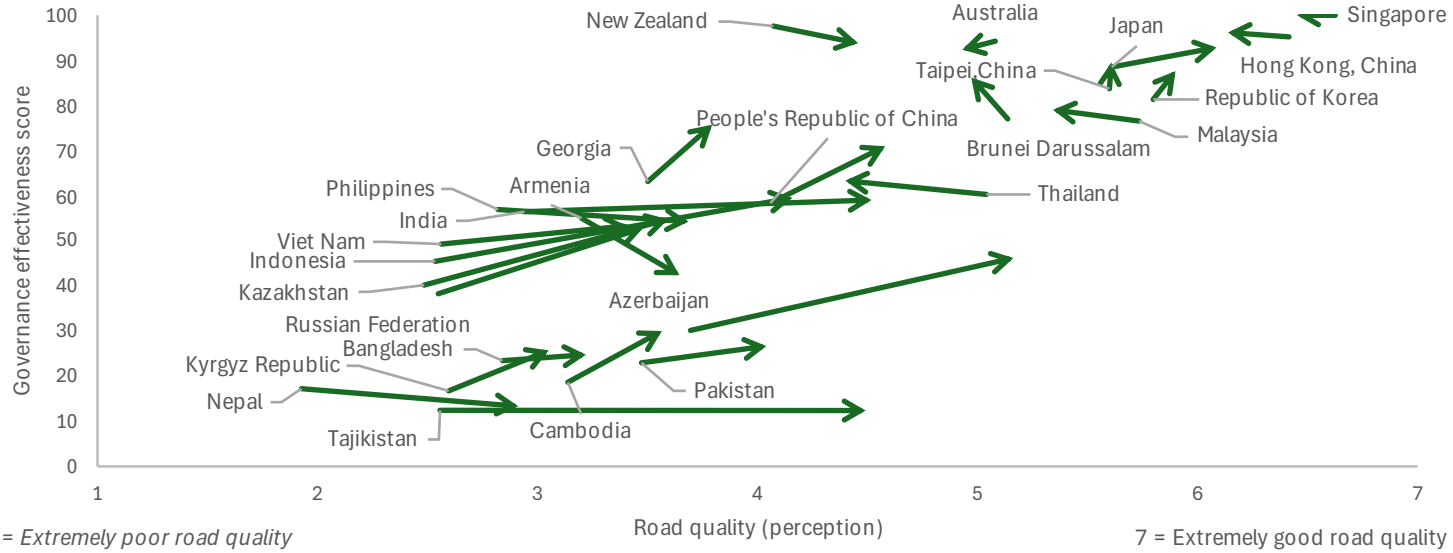
Official development assistance in road sector, cumulative million USD (5)



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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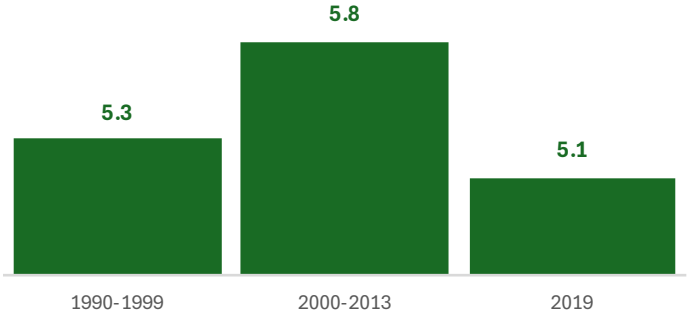
Quality of Life and Fostering Inclusive Growth

Rural access index (2023)
73% (6)

Based on 2015 estimates, only 75% of the population could reach the nearest city in 30 minutes, another 8% could reach in 1 hour, and another 9% could reach only after 3 hours.

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

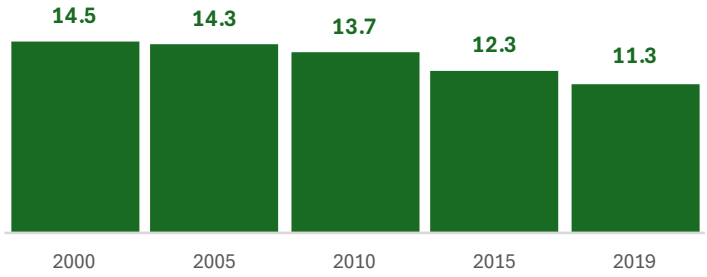
National street network disconnectedness index (7)



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

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

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



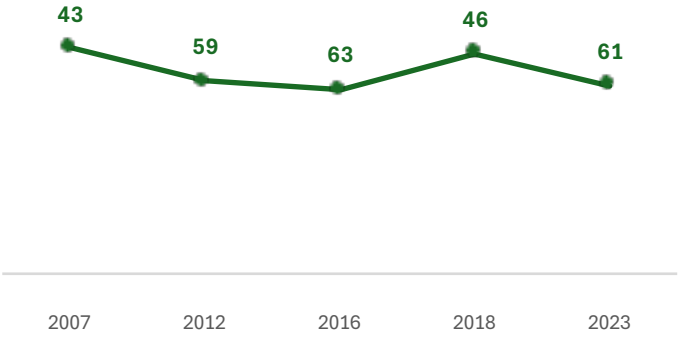
Asia-Pacific average is 15.7 fatalities per 100 thousand population

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

Logistics performance index score (2023)
3/5 (10)

| Infrastructure score
2.9/5 (10)

Logistics performance index ranking trend (10)

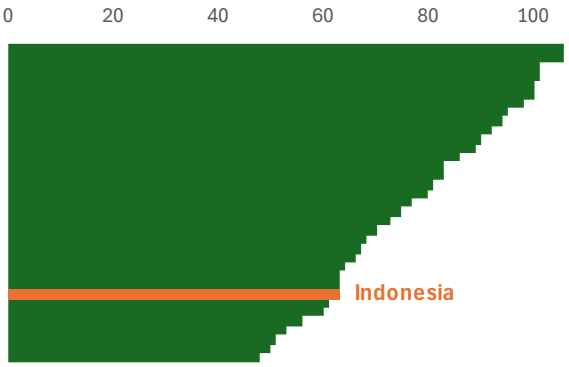


Percent of firms choosing transportation as their biggest obstacle - Manufacturing (2015)
3.2% (11)

Percent of respondents answering high/very high - Level of Fees and Charges on Road transport (2018)
83.0% (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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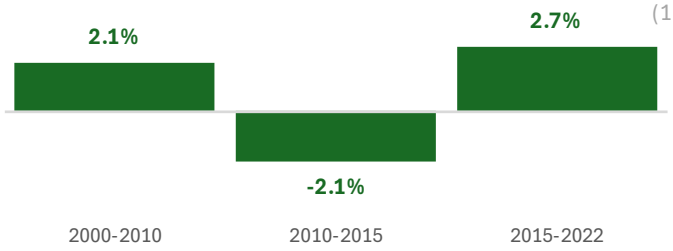
Employment in transport sector (2022)
6.42 million employees (12)

Share of transport sector in total employment (2022)
4.8% (12)

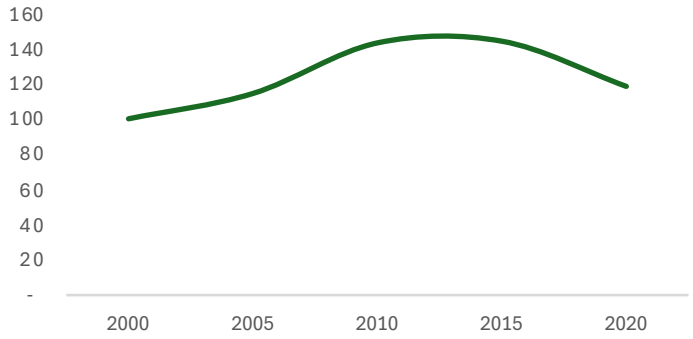
Average annual growth rate of transport sector employment (12)



Share of females in total transport sector employment (2022)
7.0% (12)

Decarbonization

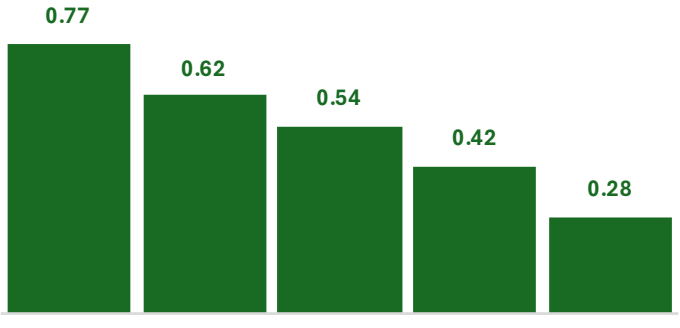
Road transport energy consumption trend
Assuming 2000 value as base (100) (13)



Between 2000-2010, Indonesia's road transport energy consumption grew 3.6% annually. Between 2010-2020, road transport energy consumption contracted -1.9% annually.

88% of Indonesia's transport energy consumption is in the road sector.

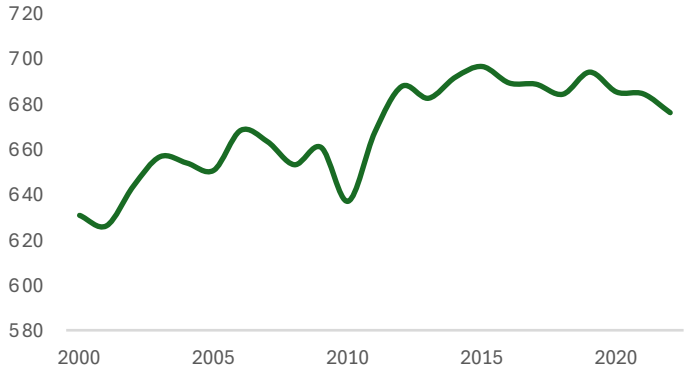
Road transport energy intensity with GDP, TJ per USD (PPP) (3,13)



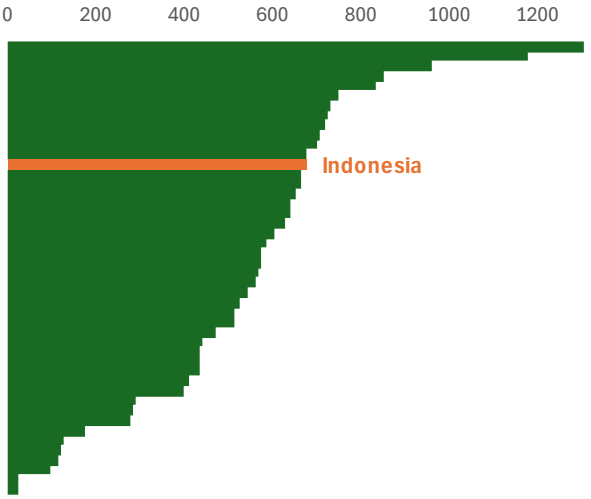
Asia-Pacific average is 0.4 MJ per USD in 2020

Grid emission factor (2022)
675.9 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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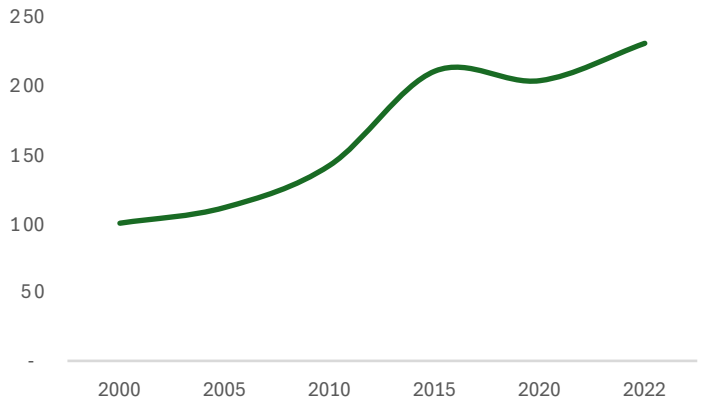
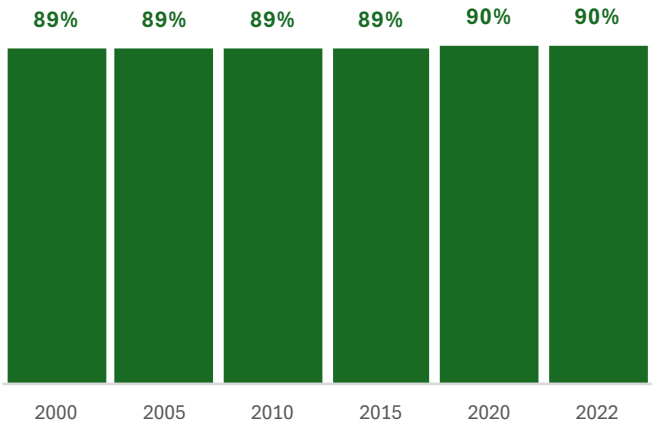
Road transport CO2 emissions trend

Assuming 2000 value as base (100) (15)

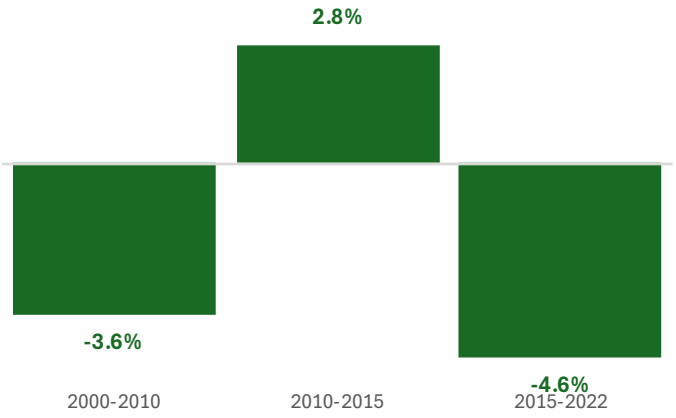


Share of road transport in total transport CO2 emissions (15)



Between 2010-2019, Indonesia's road transport fossil CO2 emissions was growing 5.8% annually. After the COVID-19 pandemic, road transport CO2 emissions was growing 6.5% annually.

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

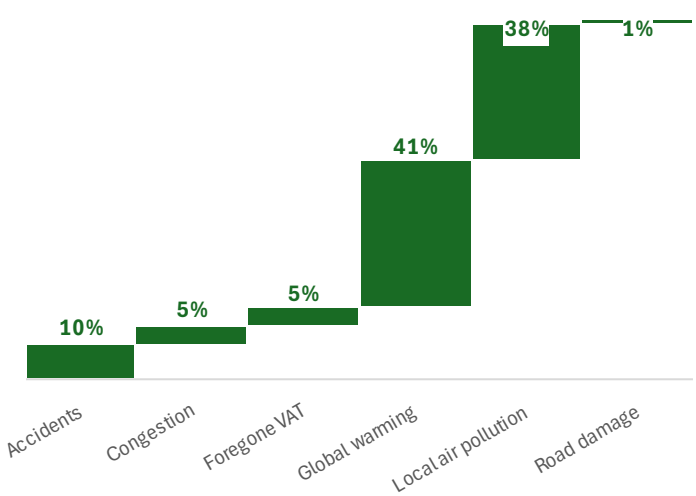


Transport fossil fuel subsidies, cumulative from 2010 to 2022

201.13 billion USD (16)

32.3% of Asia-Pacific total

Implicit fossil fuel subsidies due to externalities (17)



Data includes all sectors and all fuel types

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Green Roads Profile

Climate Resilience and Disaster Preparedness

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

Share of road in total transport infrastructure in multihazard average annual loss to transport infrastructure (2023)
95.3% (19)

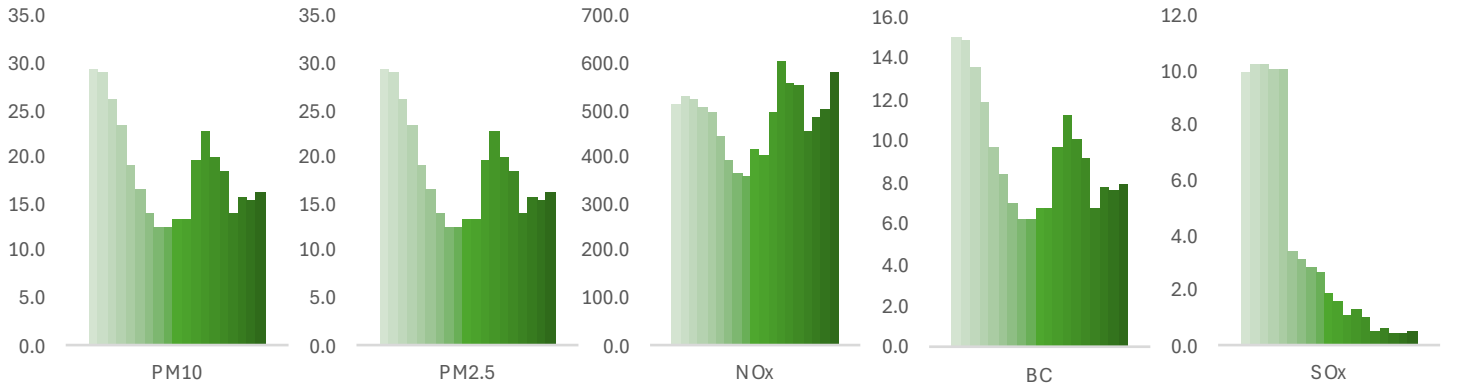
National road vulnerability index ranking (2023)
102nd out of 208 countries (20)

Share of population in low elevated coastal zones (2018)
7.4% (21)

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

Paved roads (2022)
58% (1)

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



In 2022, road transport contributed 20.6%, re-suspended dust contributed 20.0% in transport PM10 emissions. In total, road transport contributed about 5.5% in total PM10 emissions in Indonesia.

Deaths due to occupational exposure to diesel engine exhaust (22)

2000-2010	2011-2018
5,127 deaths	**6,356 deaths**

Share of biofuels in road transport energy consumption (2020)
26.0% (13)

Domestic consumption per capita, tonnes (2024) (23)

Indonesia	Asia-Pacific
8.2 tonnes	**13.8 tonnes**

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)
5.3% (3)
(% of total territorial area)

Terrestrial protected areas	Marine protected areas
12.2% (3)	**3.1%** (3)
(% of total land area)	*(% of territorial waters)*

Forest area (2021)
48.4% (3)
(% of land area)

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Policy Measures

Policy document	Year	Road-related measures
Mitigation Action Outline on Truck Fleet Modernization Scheme in Indonesia	2021	Road-side vehicle technical checks, Vehicle inspection and maintenance, Fuel tax, Road charging and tolls, Investment volume for transport, Reference to finance mechanisms within country, Road infrastructure expansion
National Railways Master Plan	2018	Technologies on transport asset management, General transport asset management, General transport finance, Investment required for specific projects, Reference to finance mechanisms within country
Indonesia Third Biennial Update Report	2021	General infrastructure improvements, Ecodriving
Global Status Report on Road Safety 2018	2018	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
Indonesia Blue Economy Roadmap	2023	Transport infrastructure resilience, General economic instruments, Disaster monitoring and risk assessment for transport infrastructure
Government Policy on Future Automotive Development	2019	Vehicle taxes
Government Regulation No. 79/2014 of 2014 Concerning the National Energy Policy	2014	Road charging and tolls
Intended Nationally Determined Contribution - IDN	2016	Disaster notification/ early warning system, Transport infrastructure resilience, Development of transport adaptation/ emergency/ disaster plan/ policy, General adaptation measures
Updated Nationally Determined Contribution - IDN	2021	Disaster notification/ early warning system, Transport infrastructure resilience, Fossil fuel subsidy elimination, Development of transport adaptation/ emergency/ disaster plan/ policy
Strategic Plan for the Railway Sector 2020-2024	2020	General infrastructure improvements, Transport infrastructure resilience, General transport finance
National Vision of Non-Motorized Transport Infrastructure	2020	Design standards for sidewalks and bicycle paths
Indonesia's Adaptation Communication	2022	General infrastructure improvements, Disaster notification/ early warning system, Development of transport adaptation/ emergency/ disaster plan/ policy
National Medium Term Development Plan 2020-2024	2020	General infrastructure improvements, Disaster notification/ early warning system, Transport asset condition assessment, Transport infrastructure resilience, General transport asset management, Reference to finance mechanisms within country, Road infrastructure expansion, Development of transport adaptation/ emergency/ disaster plan/ policy, National road safety strategy
International Energy Charter	2015	General infrastructure improvements
Visi Indonesia 2045	2017	General infrastructure improvements, Reduction of transport/ logistics costs, Road infrastructure expansion
Development of National Logistics System Framework	2013	Reduction of transport/ logistics costs
Voluntary National Review 2021 - IDN	2021	General infrastructure improvements, Investment required for specific projects, Road infrastructure expansion
Long-Term National Development Plan of 2005-2025	2007	Road infrastructure expansion
Road Safety Opportunities and Challenges: Low- and Middle-Income Country Profiles	2020	Vehicle inspection and maintenance, Implementation of vertical deflections on roads

Policy Targets

Policy document	Target year	Road-related targets
National Medium Term Development Plan 2020-2024	2024	Number of cities with multi-level transport systems = 6 (Baseline 2019 = 3)
Strategic Plan for the Railway Sector 2020-2024	2024	Increased public satisfaction index with public services in the transportation sector by 88.5 On Time Performance (OTP) achievement for transportation services is 82.08%
Visi Indonesia 2045	2045	Infrastructure stock increases to 70 percent of GDP by 2045.
National Railways Master Plan	2030	"fulfillment of strong railway funding supported by private investment with an investment target estimated to reach USD 65,063.00 million with funding contributions from the Government and investment from Business Entities
Development of National Logistics System Framework	2025	National Logistics Costs of the 2025 GDP declines by 5% from that of 2020
Visi Indonesia 2045	2045	Logistics costs in 2045 will fall to 8 percent of GDP.
National Medium Term Development Plan 2020-2024	2024	Length of newly built and/or operational toll roads (in km) = 2500 (Baseline 2019 = 1461) Length of newly built roads (in km) = 3000 (Baseline 2019 = 3387)
National Medium Term Development Plan 2020-2024	2024	Percentage of roads in good condition at the national/provincial/regency/city level (%) = 97/75/65 (Baseline 2019 = 92/68/57) Railroad conditions according to the Track Quality Index (TQI) categories 1 and 2 (%) = 94 (Baseline 2019 = 81.5)

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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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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