

Bangladesh

Green Roads Profile

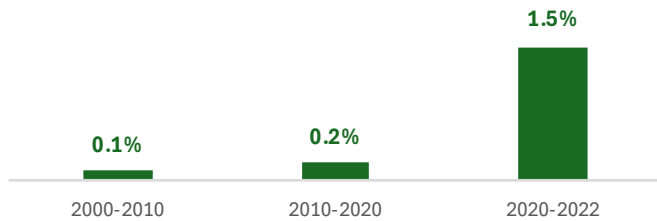
General

Road length (2022)
149,879 kilometers

Subregion
(1) **South Asia**

Income class
Low and lower middle income

Average annual growth rate of road length



Population (2024)
(1) **174.7 million**

Land area
130 thousand sqkm (2,3)

Urban population
41%

Rural population
59% (2)

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

GDP per capita (PPP, 2022)
7,398 USD (2,3)

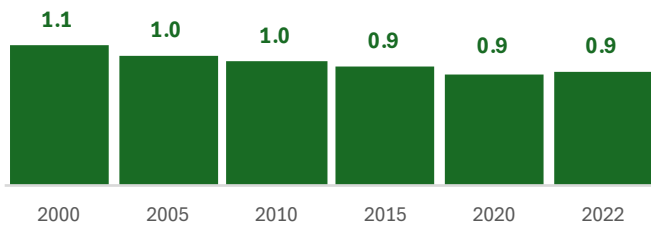
Bangladesh's road network is comprised of 5.3% motorways, highways, and primary roads and 94.7% secondary roads, local roads, and other roads

Further information on road length, pavement, and quality by road class is available in Appendix A

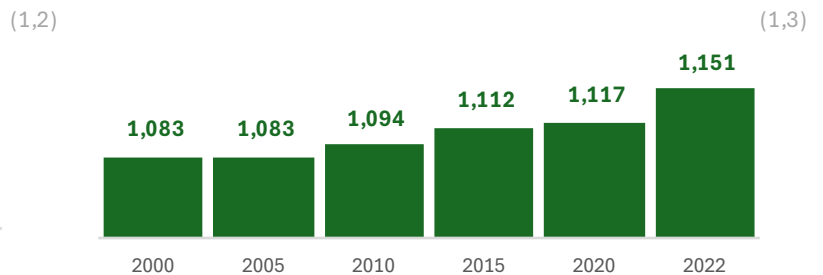
Road infrastructure availability (2022)
0.9 kilometers per thousand population

Road infrastructure density (2022)
(1,2) **1,151 meters per square kilometer** (1,3)

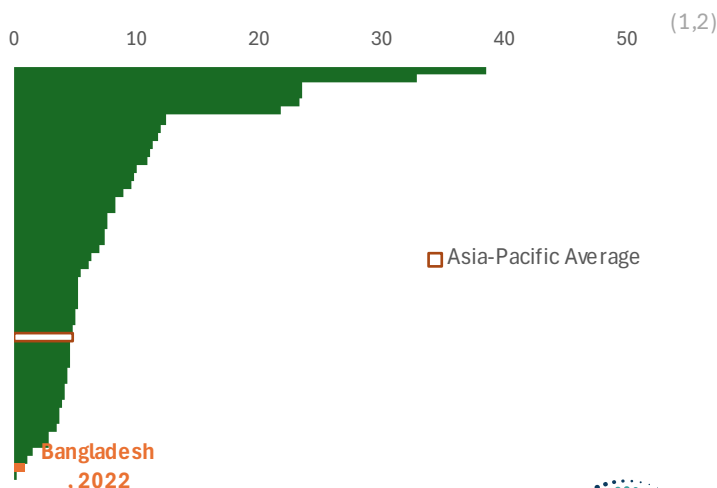
Road infrastructure availability trend, kilometers per thousand population



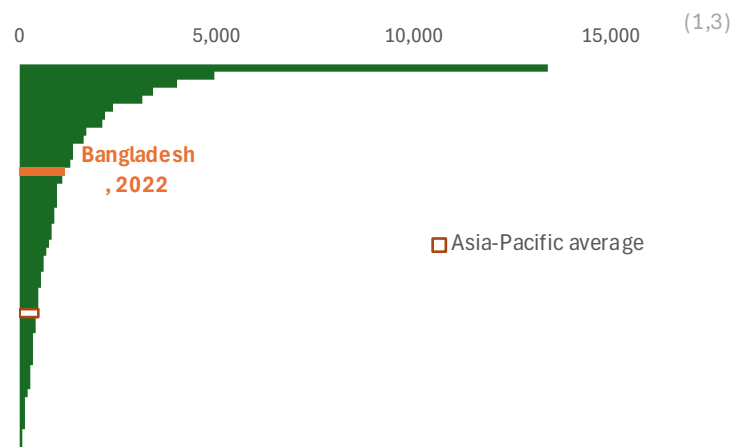
Road infrastructure density trend, meters per thousand population



Road infrastructure availability in Asia-Pacific, kilometers per thousand population

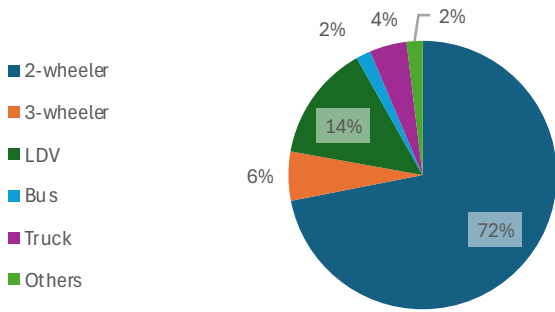


Road infrastructure density in Asia-Pacific, meters per square kilometer



Road vehicles (2022)
5.46 million vehicles

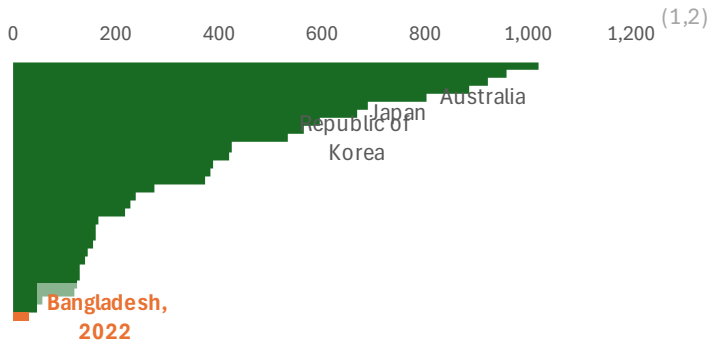
Share of vehicles by type



Motorization rate (2022)
32 vehicles per thousand population

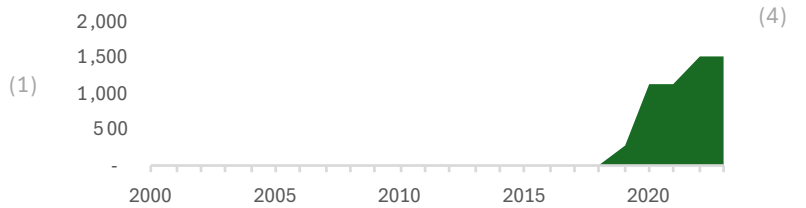
In 2000, Bangladesh had 5 vehicles per thousand population. By 2022, this has increased to 32 compared with Asia-Pacific average of 577 in 2022.

Motorization rate in Asia-Pacific, vehicles per thousand population



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

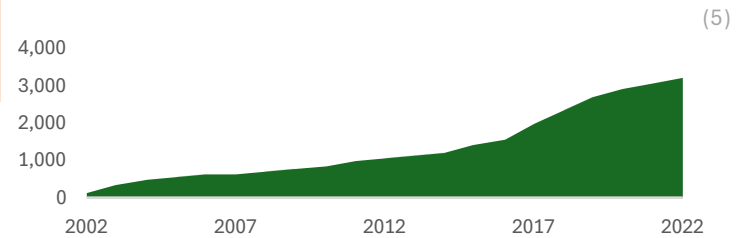
Public-private partnership investments in road sector, cumulative million USD



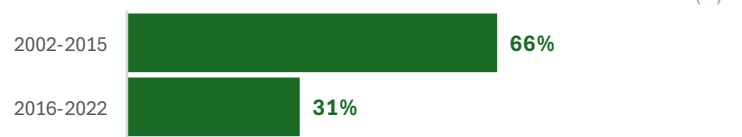
Share of road in total public-private partnership investments



Official development assistance in road sector, cumulative million USD

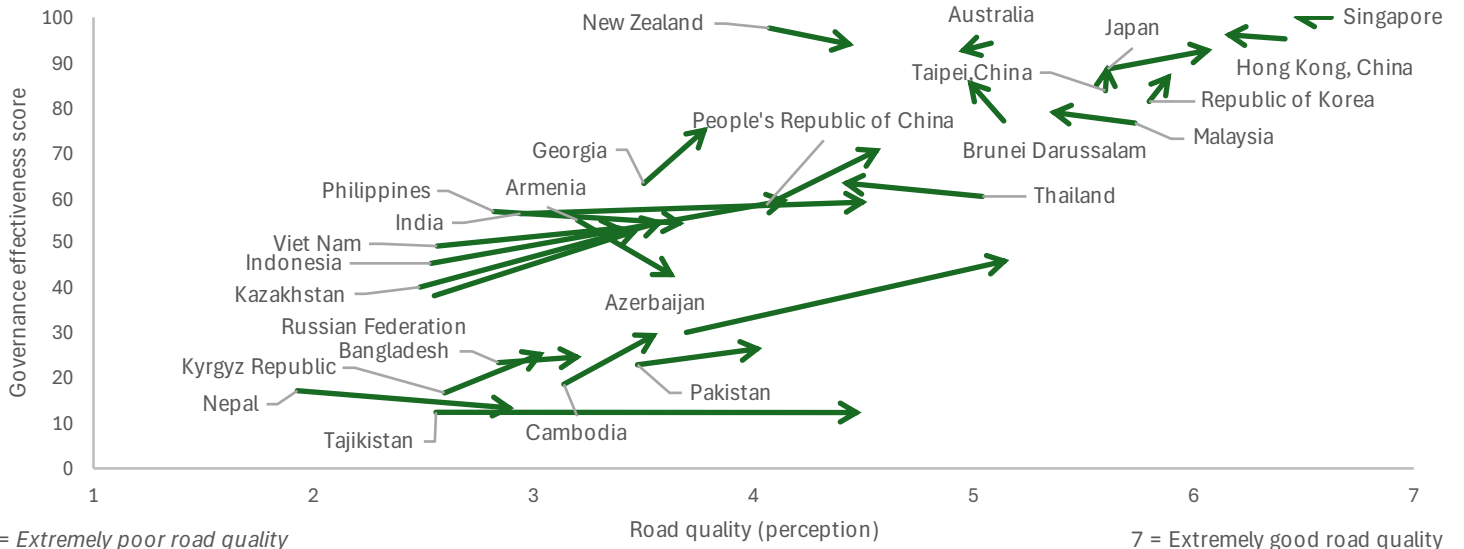


Share of road in total official development assistance



Road maintenance budget and deficit is available in Appendix B. Road user charging revenue information is available in Appendix C

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



1 = Extremely poor road quality

7 = Extremely good road quality

Developed with the support of:



Quality of Life and Fostering Inclusive Growth

Rural access index (2023)
84%

(6)

Based on 2015 estimates, only 90% of the population could reach the nearest city in 30 minutes, another 8% could reach in 1 hour, and another 2% could reach only after 3 hours.

Rural population without access to all-season roads (2023)
17.01 million

(2,6)

Logistics performance index score (2023)

2.6/5

(10)

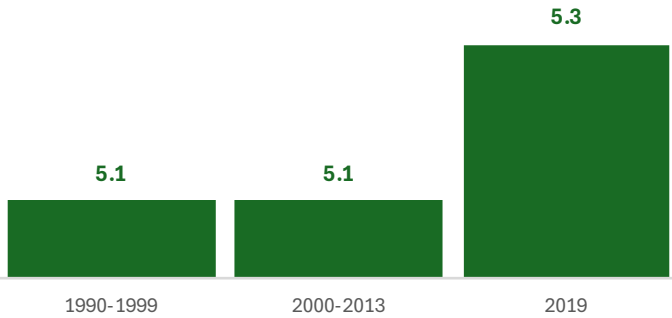
National street network disconnectedness index

(7)

| Infrastructure score

2.3/5

(10)



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

Logistics performance index ranking trend

(10)



Road crash fatalities (2019)
25 thousand deaths

(8)

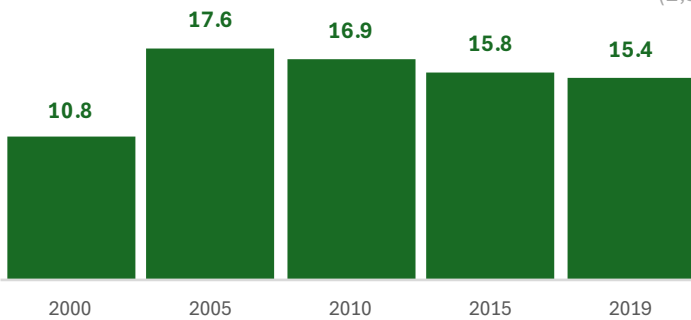
Road crash fatality rate per 100 thousand population

(2,8)

Percent of firms choosing transportation as their biggest obstacle - Manufacturing (2007)

0.1%

(11)



Asia-Pacific average is 15.7 fatalities per 100 thousand population

Percent of respondents answering high/very high - Level of Fees and Charges on Road transport (2014)

57.9%

(11)

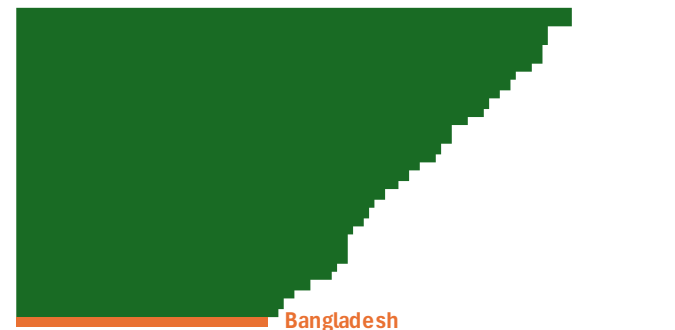
Level of fees and charges for less than full truck loads are considered

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

(9)

Mean speed (2022)
48 kilometers per hour

(9)



Employment in transport sector (2022)

6.71 million employees

Share of transport sector in total employment (2022)

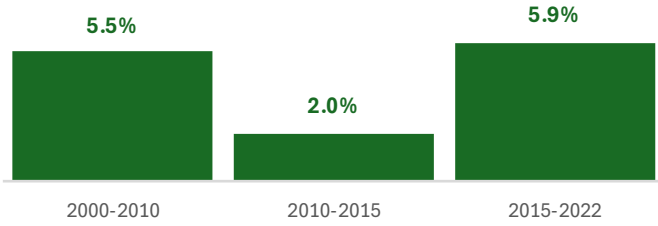
(12) **9.5%**

(12)

Average annual growth rate of transport sector employment

(12) **4.8%**

(12)



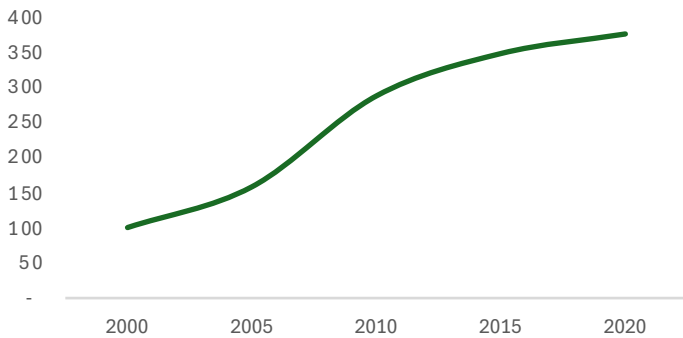
Decarbonization

Road transport energy consumption trend

Assuming 2000 value as base (100)

(13)

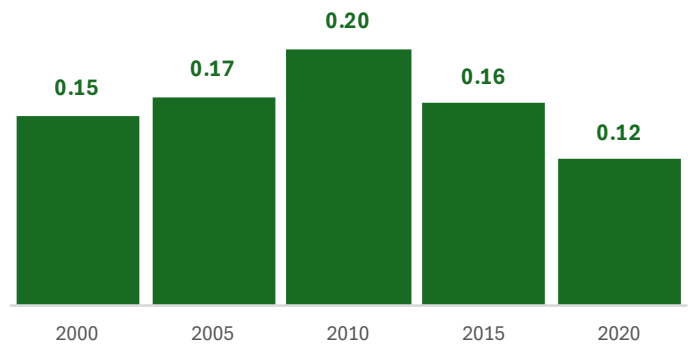
77% of Bangladesh's transport energy consumption is in the road sector.



Between 2000-2010, Bangladesh's road transport energy consumption grew 11.1% annually. Between 2010-2020, road transport energy consumption grew 2.7% annually.

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)

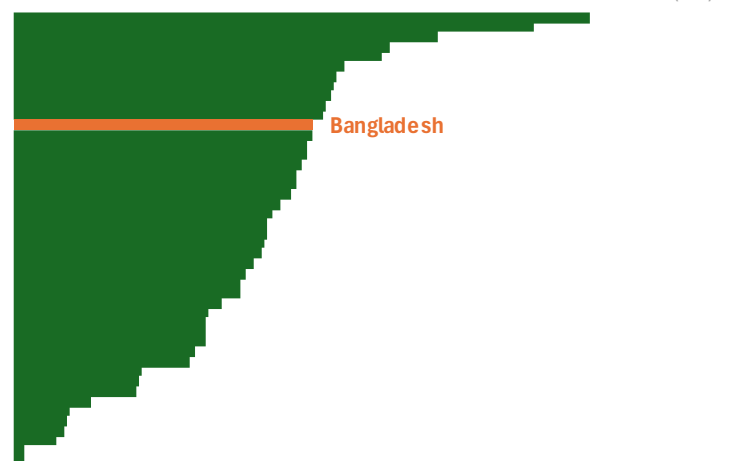
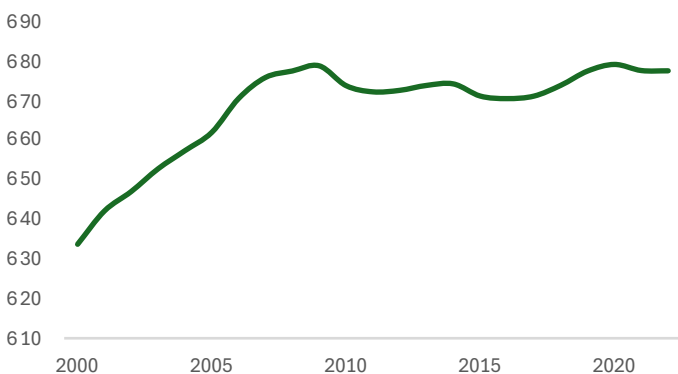
677.4 gCO₂ per kWh

Grid emission factors in Asia-Pacific, gCO₂ per kWh

(14)

(14)

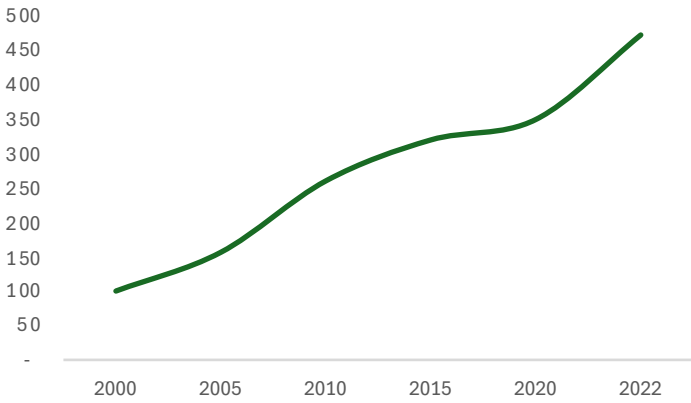
Grid emission factor trend, gCO₂ per kWh



Road transport CO2 emissions trend

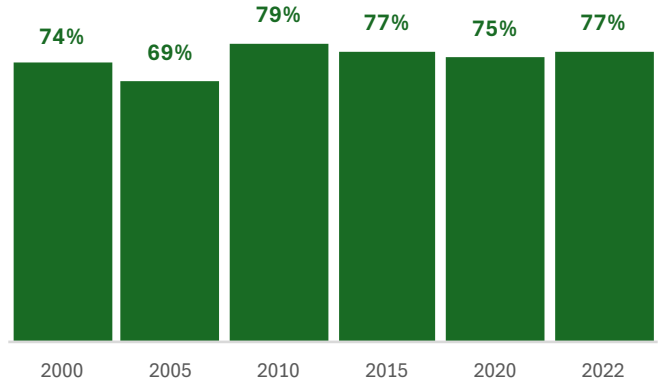
Assuming 2000 value as base (100)

(15)



Share of road transport in total transport CO2 emissions

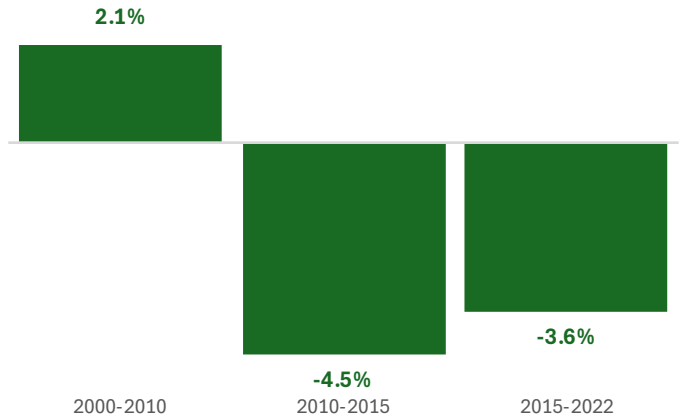
(15)



Between 2010-2019, Bangladesh's road transport fossil CO2 emissions was growing 4.7% annually. After the COVID-19 pandemic, road transport CO2 emissions was growing 16.3% annually.

Road transport CO2 emissions intensity with GDP trend

(3,15)



Transport fossil fuel subsidies, cumulative from 2010 to 2022

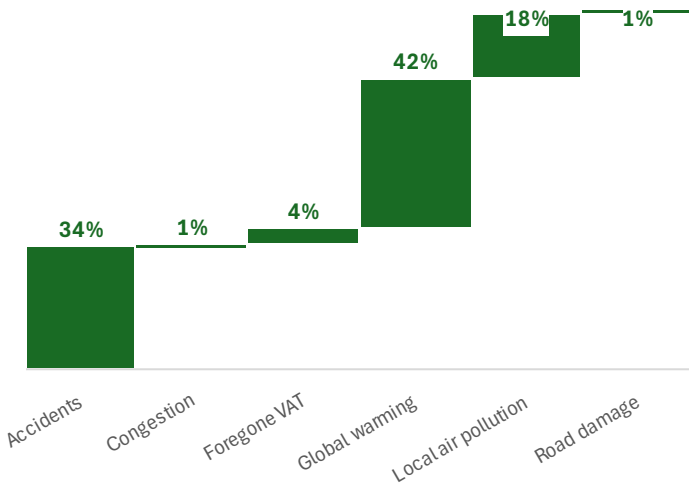
2.68 billion USD

(16)

0.4% of Asia-Pacific total

Implicit fossil fuel subsidies due to externalities

(17)



Data includes all sectors and all fuel types

Climate Resilience and Disaster Preparedness

Expected annual damages to road and rail infrastructure due to hazards (2019)

90.42 million USD

(18)

National road vulnerability index ranking (2023)

191st out of 208 countries

(20)

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

79.0%

(19)

Share of population in low elevated coastal zones (2018)

8.9%

(21)

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

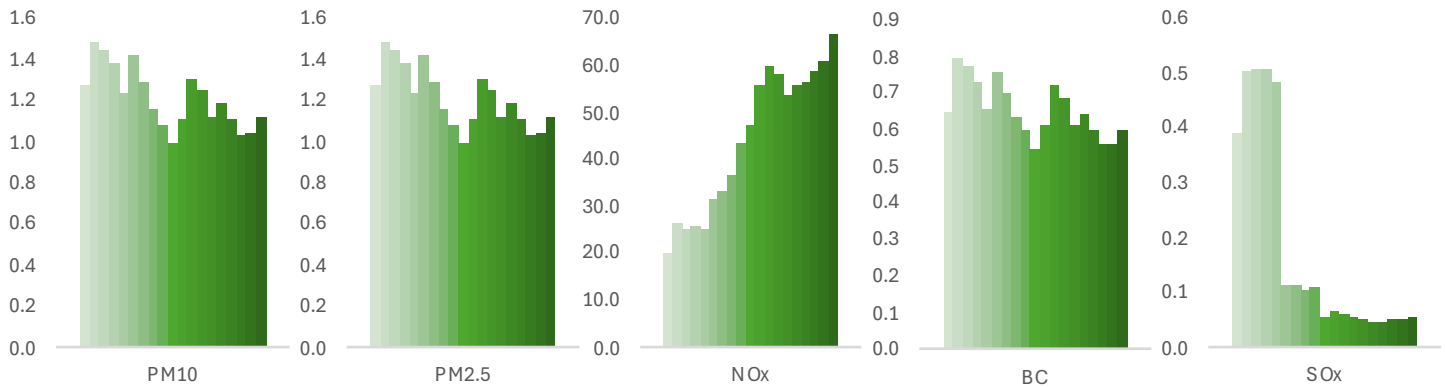
Paved roads (2017)

37%

(1)

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

(15)



In 2022, road transport contributed 6.3%, re-suspended dust contributed 6.9% in transport PM10 emissions. In total, road transport contributed about 2.5% in total PM10 emissions in Bangladesh.

Deaths due to occupational exposure to diesel engine exhaust | 2000-2010

916 deaths

| 2011-2018

1,118 deaths

(22)

Terrestrial and marine protected areas (2022)

4.9%

(3)

(% of total territorial area)

Terrestrial protected areas

4.6%

(13)

(% of total land area)

Marine protected areas

5.4%

(3)

(% of territorial waters)

Share of biofuels in road transport energy consumption (2020)

n.d.

Domestic consumption per capita, tonnes (2024)

| Bangladesh

3.8 tonnes

| Asia-Pacific

13.8 tonnes

(23)

Forest area (2021)

14.5%

(3)

(% of land area)

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

Policy Measures

Policy document	Year	Road-related measures
National Integrated Multi-modal Transport Policy	2013	Active transport infrastructure expansion, General infrastructure improvements, Vehicle inspection and maintenance, Technical standards for road infrastructure, Transport asset condition assessment, General transport asset management, Road charging and tolls, General economic instruments, General transport finance, Reference to finance mechanisms within country, Implementation of horizontal deflections on roads, Implementation of vertical deflections on roads, Measures to improve rural-urban connectivity, Road infrastructure expansion, Development of road plan/ policy, Development of transport plan/ policy, National road safety strategy, National speed law, 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
National Sustainable Development Strategy 2010-2021	2010	General transport asset management, Measures to improve rural-urban connectivity, Road infrastructure expansion
National Road Safety Strategic Action Plan	2014	Active transport infrastructure expansion, General infrastructure improvements, Road-side vehicle technical checks, Technical standards for road infrastructure, General transport asset management, Request for financial support to develop transport, Implementation of vertical deflections on roads, Upgrading high risk locations for road safety, National road safety strategy, Audits/ star rating for existing roads for road safety, Audits/ star rating required for new road infrastructure for road safety
Road Transport Act 2018	2018	Vehicle inspection and maintenance, National speed law, Passenger and freight load limits, Road-side checks on overloading
First Nationally Determined Contributions (Updated)	2021	Active transport infrastructure expansion, Road charging and tolls, Investment required for specific projects, Reference to finance mechanisms within country, Road infrastructure expansion, Development of transport adaptation/ emergency/ disaster plan/ policy, Development of transport plan/ policy, Adaptation transport laws, regulations and programmes
Mujib Climate Prosperity Plan	2021	Active transport infrastructure expansion, Reduction of transport/ logistics costs, Transport infrastructure resilience, General transport asset management, Fossil fuel subsidy elimination, General transport finance, Investment required for specific projects, Road infrastructure expansion, Development of transport plan/ policy
National Land Transport Policy	2004	Active transport infrastructure expansion, General infrastructure improvements, Vehicle inspection and maintenance, Technical standards for road infrastructure, Routine transport asset maintenance, General transport asset management, Road charging and tolls, Vehicle taxes, General economic instruments, General transport finance, Investment volume for transport, Reference to finance mechanisms within country, Request for financial support to develop transport, Measures to improve rural-urban connectivity, Road infrastructure expansion, Development of road plan/ policy, Passenger and freight load limits, Road-side checks on overloading
Perspective Plan of Bangladesh 2021-2041	2012	Active transport infrastructure expansion, General infrastructure improvements, Technical standards for road infrastructure, Target - Transport activity, Asphalt mix resurfacing, General transport asset management, Fuel tax, Road charging and tolls, General transport finance, Reference to finance mechanisms within country, Measures to improve rural-urban connectivity, Road infrastructure expansion, Passenger and freight load limits
Roadmap and Action Plan for Implementing Bangladesh NDC	2018	Active transport infrastructure expansion, General infrastructure improvements, Vehicle inspection and maintenance, Technical standards for road infrastructure, General transport asset management, Reference to finance mechanisms within country, Measures to improve rural-urban connectivity, Road infrastructure expansion, 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

Policy Measures

Policy document	Year	Road-related measures
Eighth Five Year Plan	2020	General infrastructure improvements, Vehicle inspection and maintenance, Target - Transport activity, Technologies on transport asset management, General transport asset management, Fuel tax, Road charging and tolls, Reference to finance mechanisms within country, Request for financial support to develop transport, Measures to improve rural-urban connectivity, Road infrastructure expansion, Development of road plan/ policy, Passenger and freight load limits
First Nationally Determined Contributions (Interim Updated)	2020	Road infrastructure expansion
Voluntary National Reviews (VNRs) 2020	2020	General infrastructure improvements, Reference to finance mechanisms within country, Development of transport adaptation/ emergency/ disaster plan/ policy, National road safety strategy
Automobile Industry Development Policy 2021	2021	Vehicle inspection and maintenance, General transport finance
National Shipping Policy 2000	2000	General economic instruments, General transport finance, Development of transport adaptation/ emergency/ disaster plan/ policy
Road Master Plan 2009	2009	General infrastructure improvements, Technical standards for road infrastructure, Performance-based transport maintenance contracts, Routine transport asset maintenance, General transport asset management, Reference to finance mechanisms within country, Passenger and freight load limits, Road-side checks on overloading
Bangladesh. National Communication (NC). NC 3	2018	Disaster notification/ early warning system, Investment required for specific projects
Final Report on Updating Railway Master Plan	2017	General transport asset management
Bangladesh Delta Plan 2100 Vol. 3.a	2018	Development of road plan/ policy
Intended Nationally Determined Contributions	2015	Investment required for specific projects, Reference to finance mechanisms within country, Road infrastructure expansion, Ecodriving
Air pollution Reduction Strategy for Bangladesh	2012	Vehicle inspection and maintenance, Routine transport asset maintenance, Vehicle taxes, General economic instruments
Road Safety Opportunities and Challenges: Low- and Middle-Income Country Profiles	2020	Vehicle inspection and maintenance, Implementation of vertical deflections on roads
Vehicle Axle Load Control Station Operation Policy 2012	2012	Passenger and freight load limits

Policy Targets

Policy document	Target year	Road-related targets
Perspective Plan of Bangladesh 2021-2041	2041	All village roads would be converted to asphalt standard with at least one lane to facilitate rural mobility of passengers and products.
Perspective Plan of Bangladesh 2021-2041	2041	Infrastructure quality: Country ranking = 40 (Baseline, 2018 = 120) Score = 5.0 (Baseline, 2018 = 2.8) Targets 2025: ☑ Rehabilitate/ Upgrade 846 km existing rail line. Target 2025: Transport Infrastructure quality Country ranking = 80 Score = 47
Eighth Five Year Plan	2025	Baseline 2019: Transport Infrastructure quality Country ranking = 100 Score = 42 share of Fair to Good road surfaces will be increased from 81% to 90% for overall RHD Road Network
Mujib Climate Prosperity Plan	2025	Reduce logistics cost by 25%
Mujib Climate Prosperity Plan	2030	Reduce logistics cost by 50%. Target 2025: Construction of 4/6/8 lane roads = 550 km Construction of new roads lane = 150 km Improvement/ Rehabilitation of National Highways = 1800 km Improvement/ Rehabilitation of Regional & Zila Highways = 12,700 km
Eighth Five Year Plan	2025	Construction of bridges/culverts = 37,500 meters Reconstruction of bridges/culverts = 4,100 meters Construction of Flyover/Overpass = 11,000 meters Construction of Rigid Pavement = 375 km Weigh Bridge/ Axle Load Control Station = 30 number

Policy Targets

Policy document	Target year	Road-related targets
Eighth Five Year Plan	2025	Target 2025: Passenger Traffic (billion passenger kilometres) Road = 246 Inland water = 23 Railways = 15 Total = 284
		Baseline 2019: Passenger Traffic (billion passenger kilometres) Road = 169 Inland water = 16 Railways = 10 Total = 195
		Target 2025: Freight Traffic (billion-tonnes kilometres) Road = 31 Inland water = 7 Railways = 3 Total = 41
		Baseline 2019: Freight Traffic (billion-tonnes kilometres) Road = 24 Inland water = 5 Railways = 2 Total = 31
		Target 2025: Air Traffic (million passengers / million tons) Passenger = 14.63 Freight = 0.50
		Baseline 2019: Air Traffic (million passengers / million tons) Passenger = 13.09

Policy Targets

Policy document	Target year	Road-related targets
Perspective Plan of Bangladesh 2021-2041	2041	Target 2041: Passenger Traffic (billion passenger kilometres) Road = 4215 Inland water = 843 Railways = 562 Total = 5620
		Baseline 2018: Passenger Traffic (billion passenger kilometres) Road = 169 Inland water = 16 Railways = 10 Total = 195
		Target 2041: Freight Traffic (billion tonne kilometres) Road = 177 Inland water = 74 Railways = 44 Total = 295
		Baseline 2018: Freight Traffic (billion tonne kilometres) Road = 24 Inland water = 5 Railways = 5 Total = 31
Mujib Climate Prosperity Plan	2030	Target 2041: Freight Traffic Air = 1.14 million tonne Sea Port Cargo = 48.2 million containers Sea Port Cargo = 1612 million ton
		Baseline 2018: Freight Traffic At least 50% of railway infrastructure made climate-resilient and energy efficient.

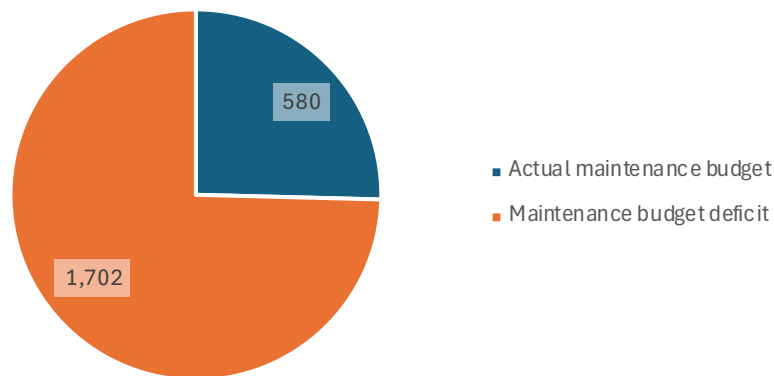
Appendix

A. Road length, pavement ratio, and quality by road class

Road class	Length	Paved	Quality			
			Good	Fair	Poor	Very Poor
National highways	3,991	93%	76%	17%	4%	3%
Regional highways	4,898	4%	81%	12%	4%	4%
Zila road	13,588	4%	75%	13%	7%	6%
Upazila road	36,712	93%				
Union road	41,880	78%				
Village road A	133,681	40%				
Village road B	160,482	23%				

Definitions and sources are available in "Asian Development Bank, 2024. The Future of Road User Charging in Developing Asia and the Pacific: Road Maintenance Financing and Cost Recovery Options"

B. Maintenance needs and budget, million USD



C. Road user charge revenues

Road user charge	Revenue (million USD)
Tax on sale of vehicle	1,200.0
Vehicle registration fee	94.0
Motor vehicle tax	115.0
Fuel tax	3,900.0
Road toll	101.0

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

Disclaimer

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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