



Decarbonizing Transport – Focus on Asia and the Pacific

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EJN Business and Climate Media Initiative
Virtual Training for Journalists Reporting on Business and Climate Change
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asiantransportobservatory.org

Asian Transport Observatory

Strengthening the knowledge base of transport in Asia-Pacific

A leading platform that gathers and shares comprehensive datasets, generate unique policy insights, and delivers novel knowledge products rooted in groundbreaking analysis.

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ATO National Database

Explore over 450 transport indicators from 51 economies divided across nine categories



ATO National Transport Policy Documents Database

Explore close to 1100 transport policy documents in Asia and the Pacific



ATO Urban Database

Explore more than 260 urban level transport indicators across nine categories



ATO Cost Database

Explore more than 1,300 transport-related projects and benchmark their costs within subregions or income groups in Asia and the Pacific



ATO Analytical Outputs

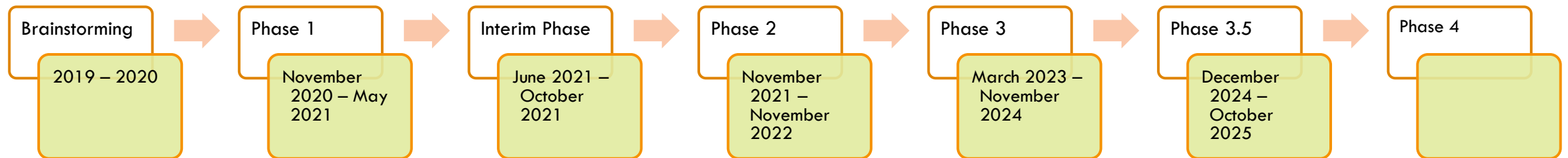
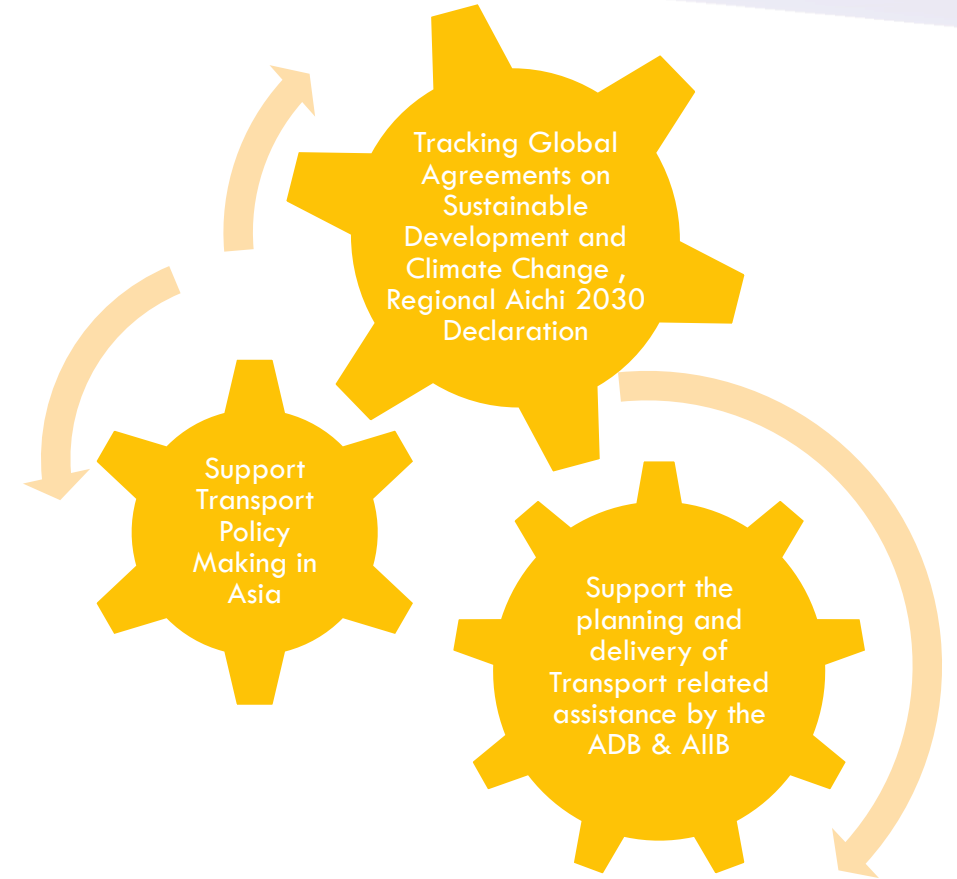
Read about analysis made using ATO transport data and policy information

Asian Transport Observatory (ATO)

A Catalyst for Sustainable Transport in Asia



- 52** Economies (ADB Members + Russia and Iran)
- 460** Urban Centers (412 Asia-Pacific, 48 International)
- 51** Urban Centers with a detailed review



ATO National Database

9 Main Categories - 459 Indicators 



459 available indicators

~200 unique sources

ATO Urban Database



Socio-economic

11 Indicators



Transport Activity and Services

77 Indicators



Air Pollution and Health

30 Indicators



Urban Form and Structure + Land use

25 Indicators



Access and Connectivity

18 Indicators



Climate Change

45 Indicators



Infrastructure

39 Indicators



Road Safety

7 Indicators



Miscellaneous

8 Indicators

233 available indicators

450 unique sources

80% of indicators have multi-year data

40% of indicators have more than 1 source

(Nov 2024)

ATO Insights: Interactive visualisations



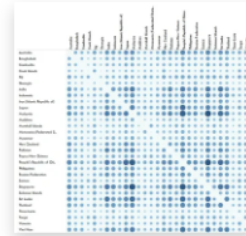
Climate Financing: Transport Sector in Asia - Visualization

2024-11-26

The dashboard presents a detailed overview of climate finance flows specific to regional trends, funding distribution, and sources of investment.

[Interactive](#) [Visualization](#)

Tags: Climate, Climate finance



Liner Connectivity Index - Visualization

2024-11-08

The Liner Shipping Bilateral Connectivity Index (LSBCI) provides a comprehensive measure between pairs of countries, capturing their level of integration into global liner shipping.

[Interactive](#) [Visualization](#)

Tags: connectivity, Sustainable Transport, Maritime Transport, Global Trade, Supply chain



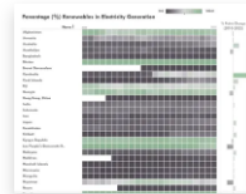
Transport CO2 Emissions Visualization Tool

2024-11-18

ATO has created a visualization / animation tool using the data from IEA-EDG. Data from 1990 onwards is represented in the visualization tool which aims at magnitude, direction, and speed of change in transport-sector emissions, ...

[Interactive](#) [Visualization](#)

Tags: emissions



Renewable Energy Share in Electricity Generation - Visualization

2024-10-30

The renewable energy (RE) share in electricity generation (%) refers to the proportion of renewable sources such as wind, solar, hydro, and geothermal.

[Interactive](#) [Visualization](#)

Tags: energy, e-mobility, electrification



Urban Access to Public Transport - Visualization

2024-10-24

Access to public transport plays a critical role in creating inclusive cities. Access to Public Transport—focuses on how well urban residents have access to public transport, social equity, environmental sustainability, and economic opportunities.

[Interactive](#) [Visualization](#)

Tags: urban access, cities, public transport, urban centers

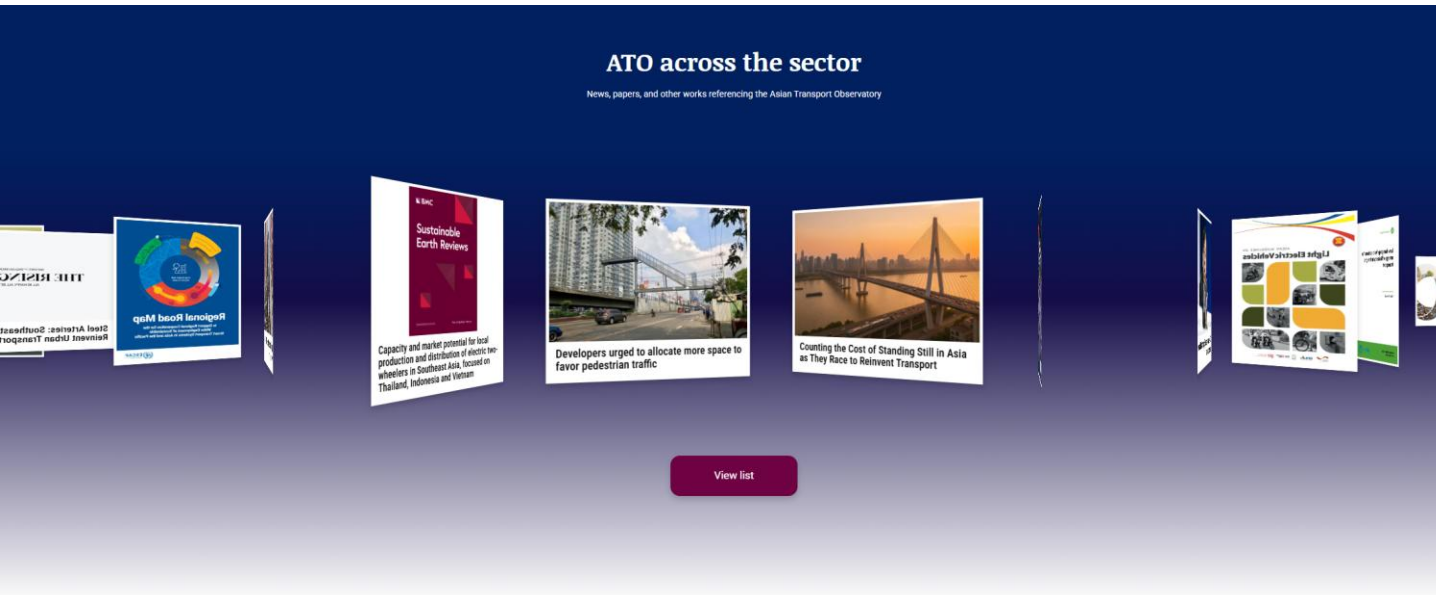


Transport CO2 Intensity of the Economy

2024-10-15

[Interactive](#) [Visualization](#)

Tags:



2024-10-18

Update

Asian Development Bank (ADB) has Won the 2024 IRF Award for Environmental Stewardship for Asian Transport Outlook!

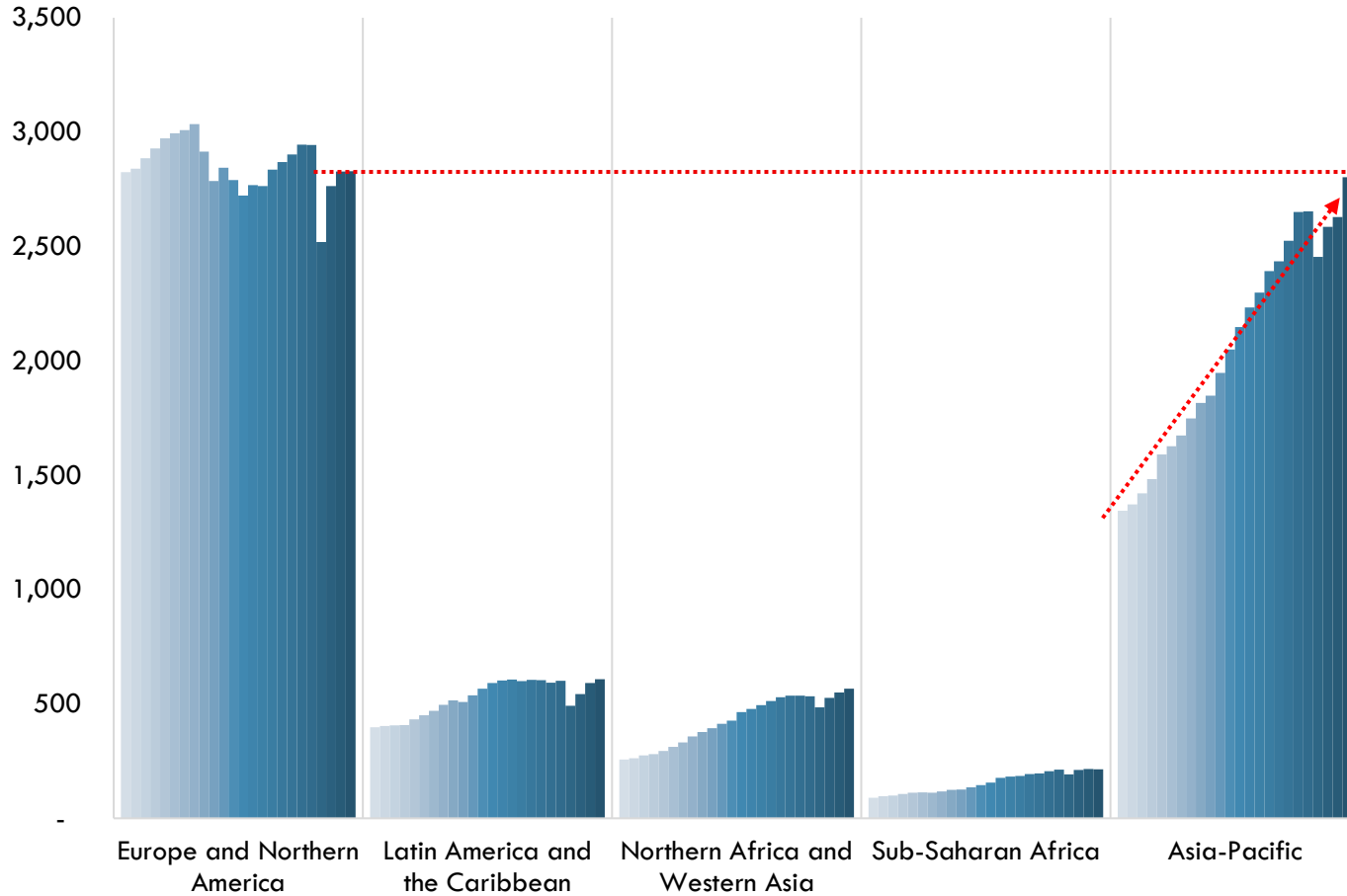
The Asian Development Bank (ADB) has won the prestigious IRF Awards 2024 - Environmental Stewardship category for the ADB-initiated Asian Transport Outlook (ATO)! The IRF Awards recognizes outstanding projects and initiatives that foster innovation, safety, and sustainability in the road transport sector.



Context

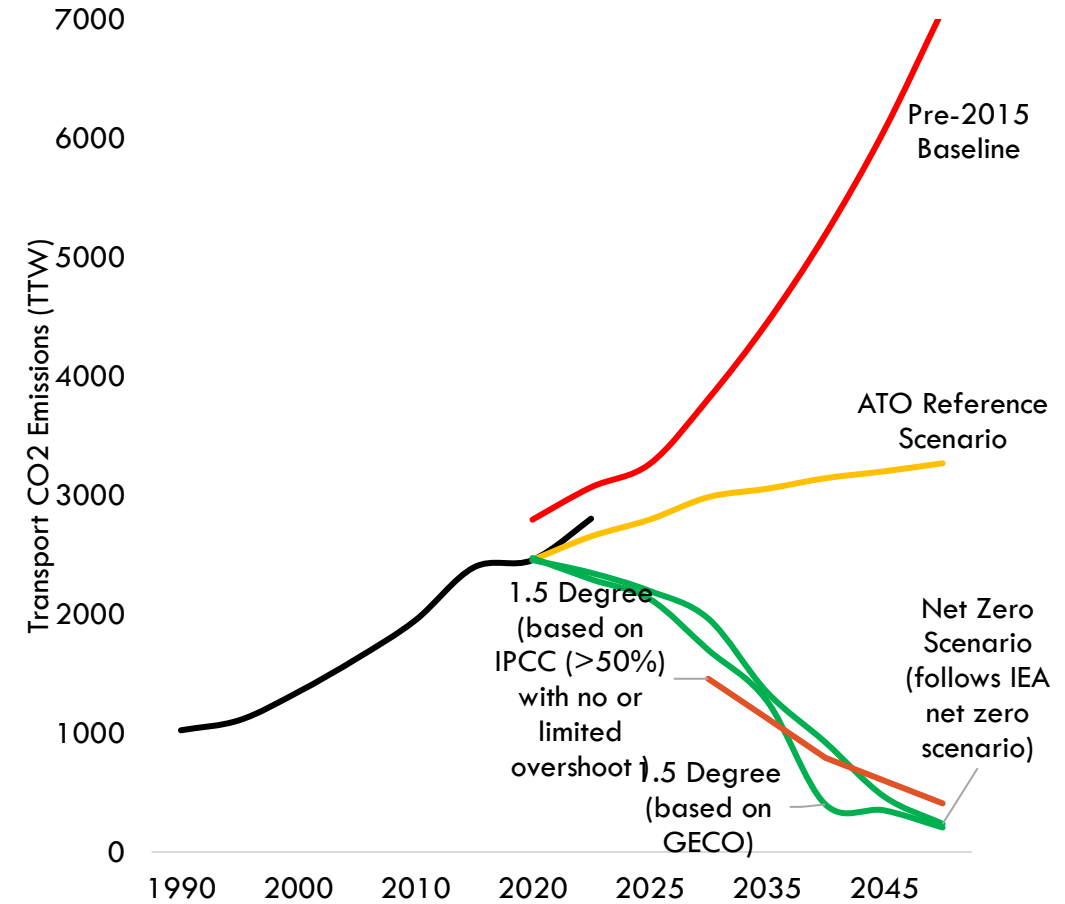
Why Transport Matters for Climate?

Domestic Transport CO2 Emissions, 2000-2023, Million Tonnes of CO2 Emissions



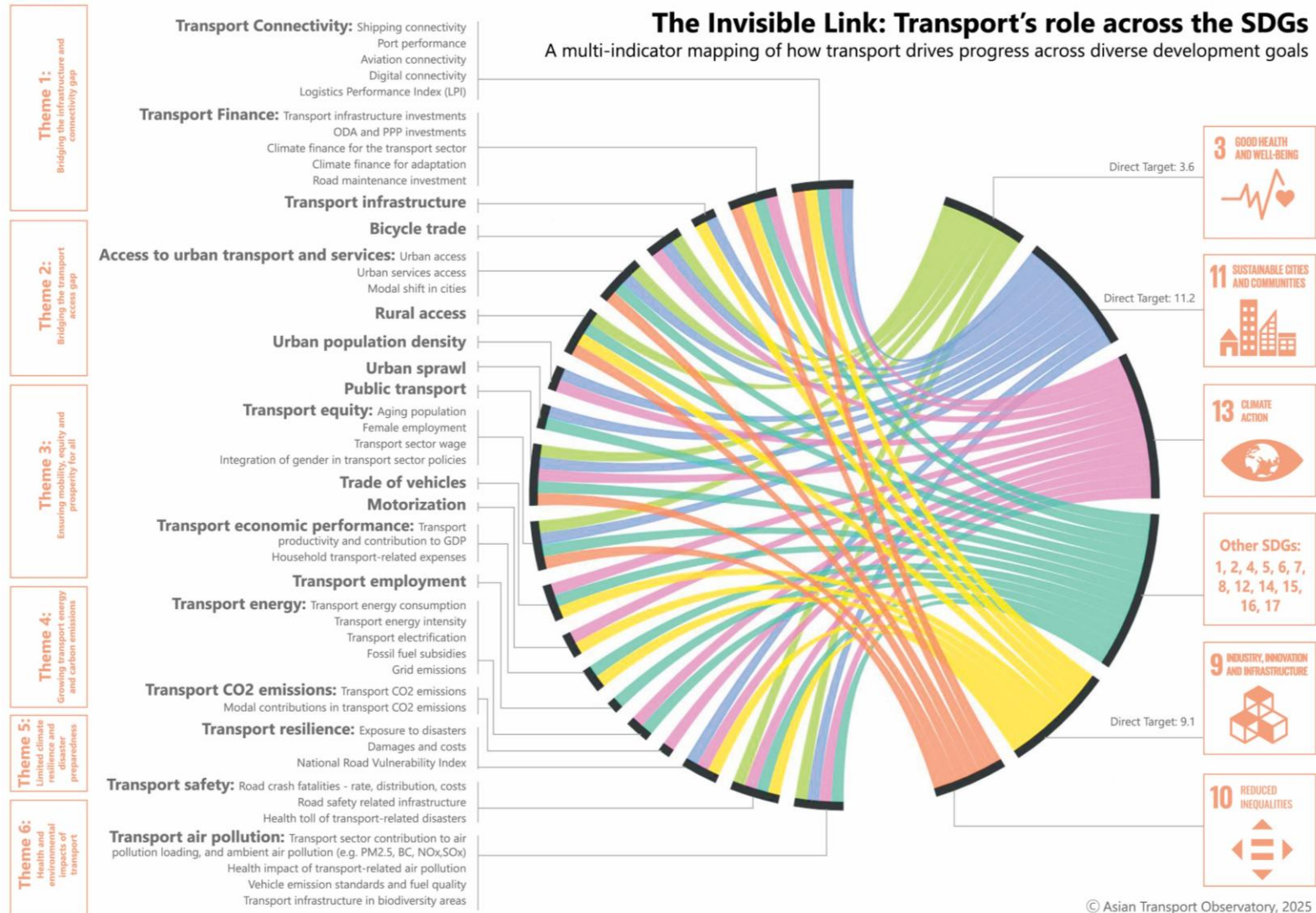
Analysis based on JRC and IEA data

Transport CO2 Emissions in Asia



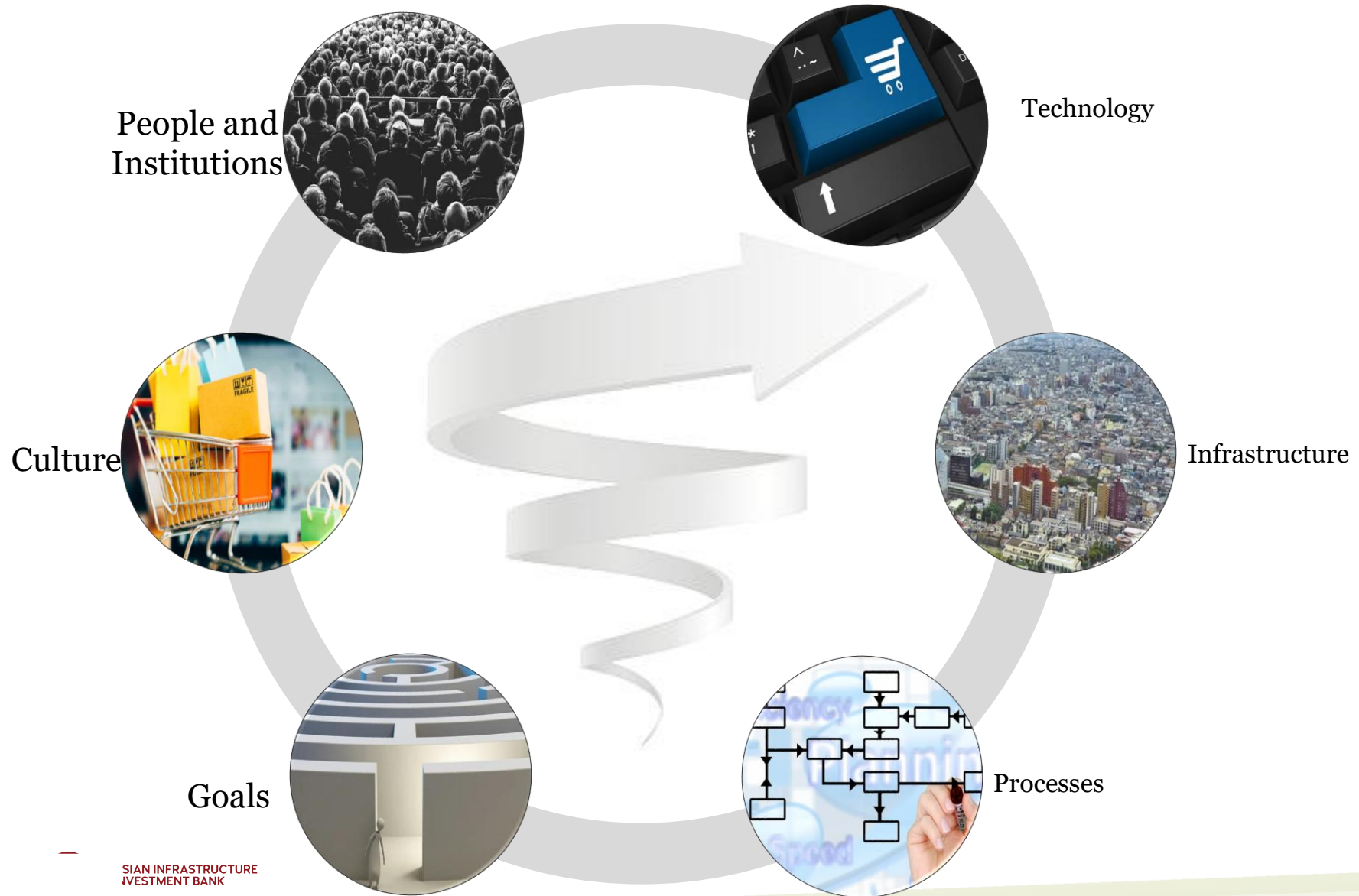
Sources: ATO, IEA, IPCC data

More importantly...

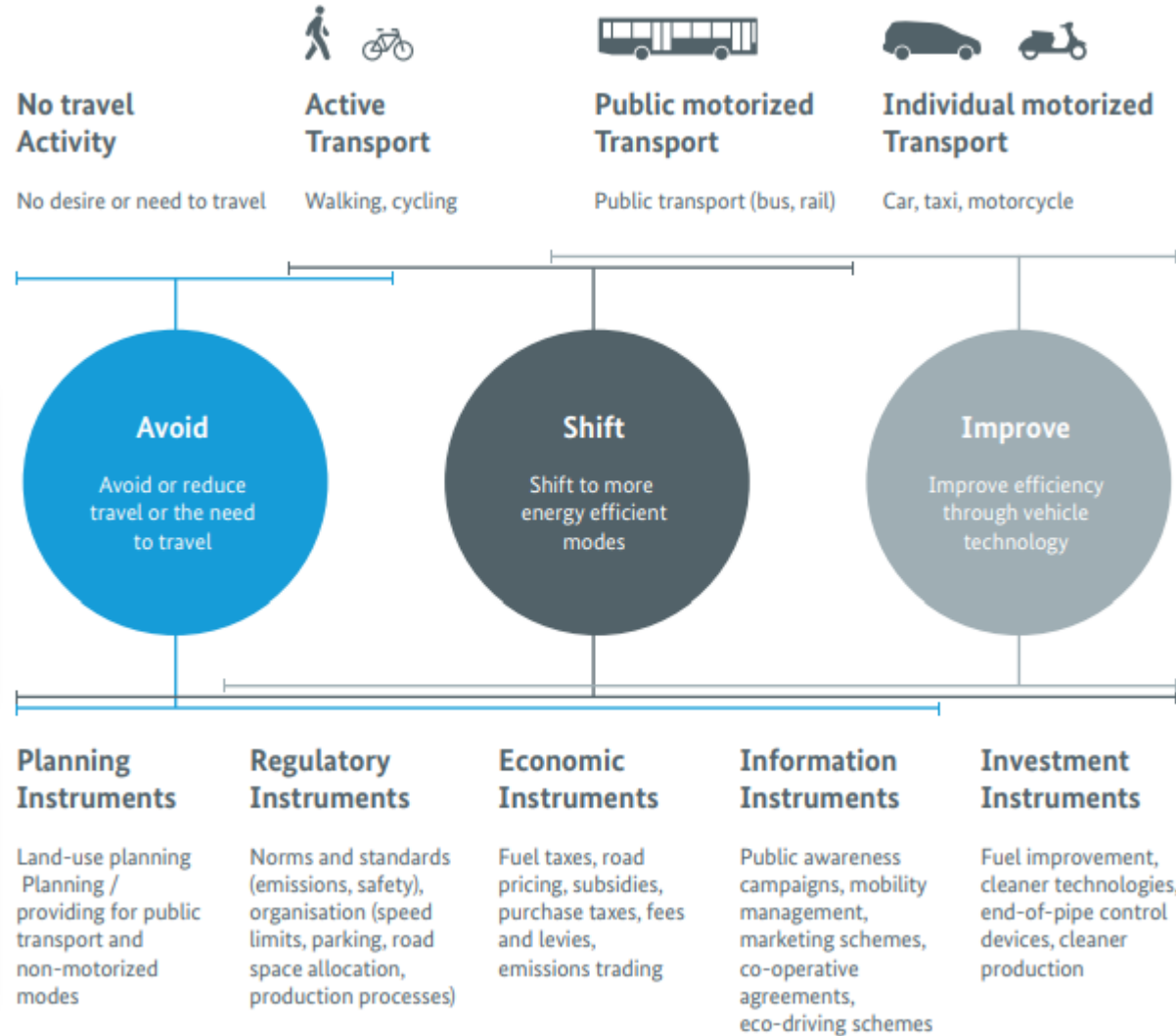


© Asian Transport Observatory, 2025

Socio-technical System



Menu of Solutions



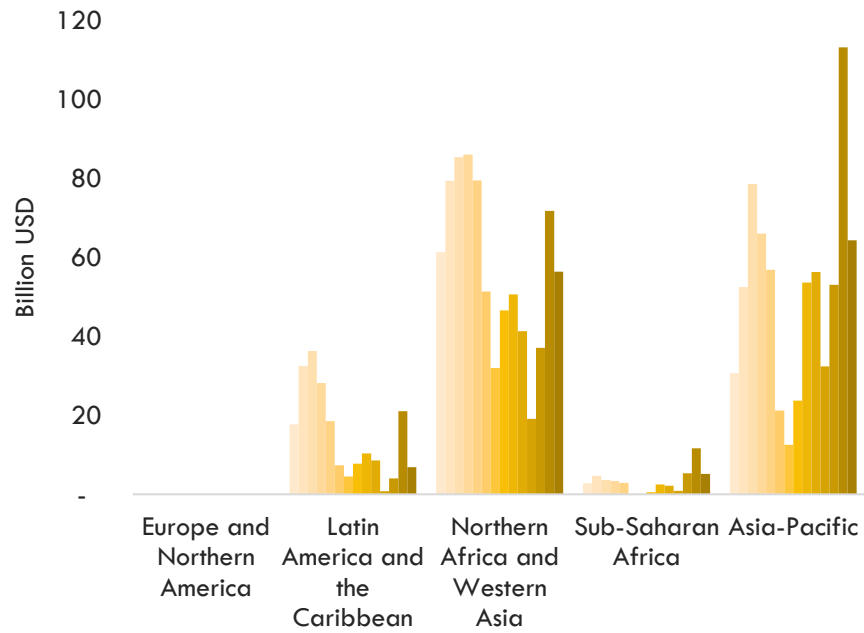
Avoid unnecessary motorized travel

Zoom in on this image

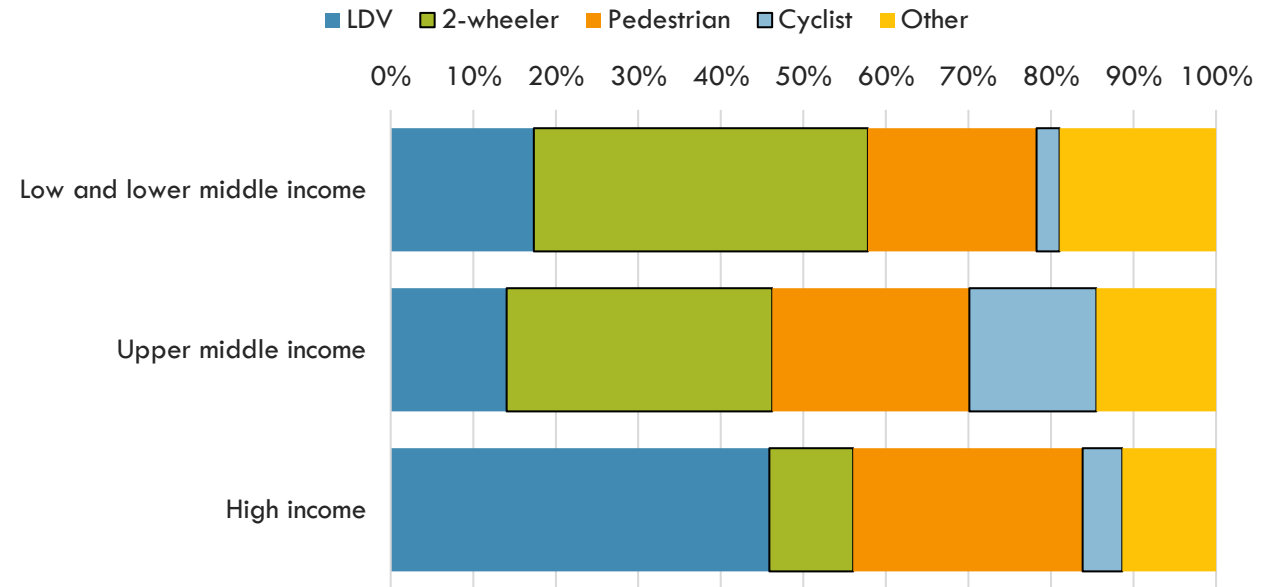


Avoiding Unnecessary Travel

Fossil Fuel Subsidies



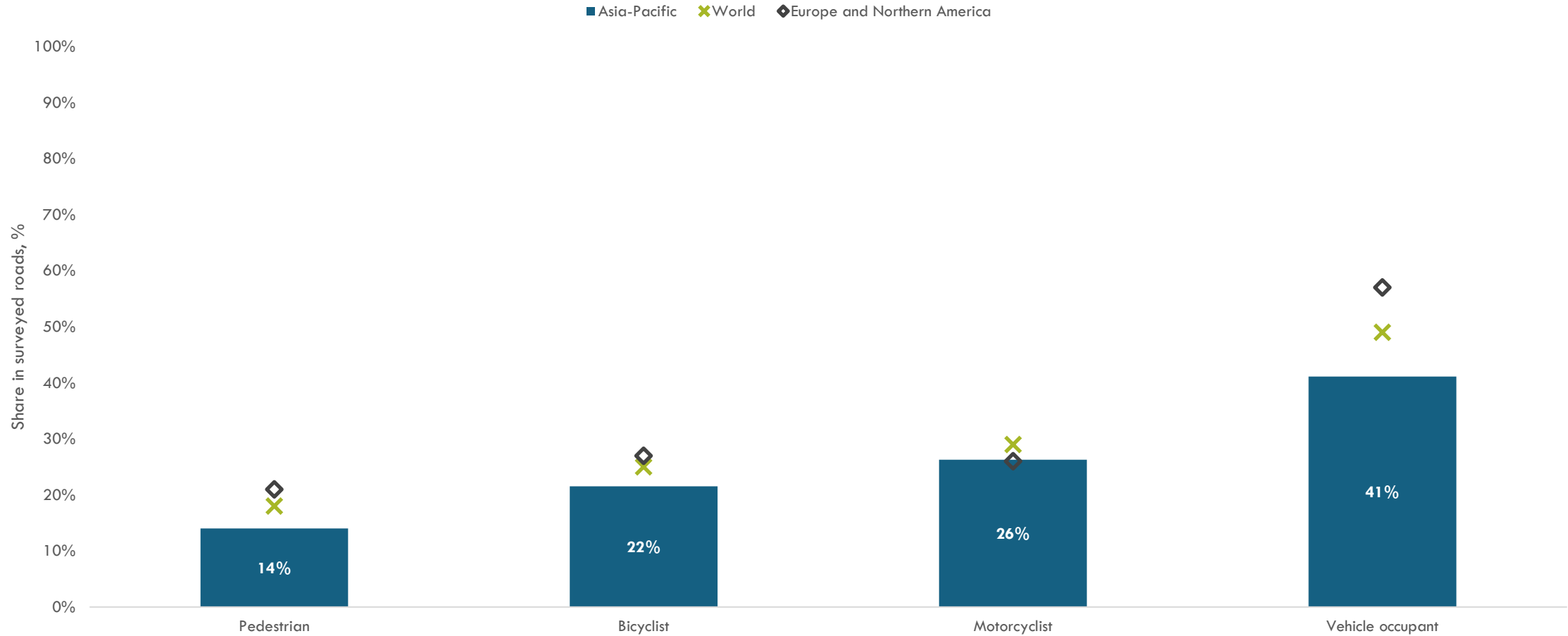
Road Crash Fatalities



Source: Own analysis and visualization based on data from WHO (2023)

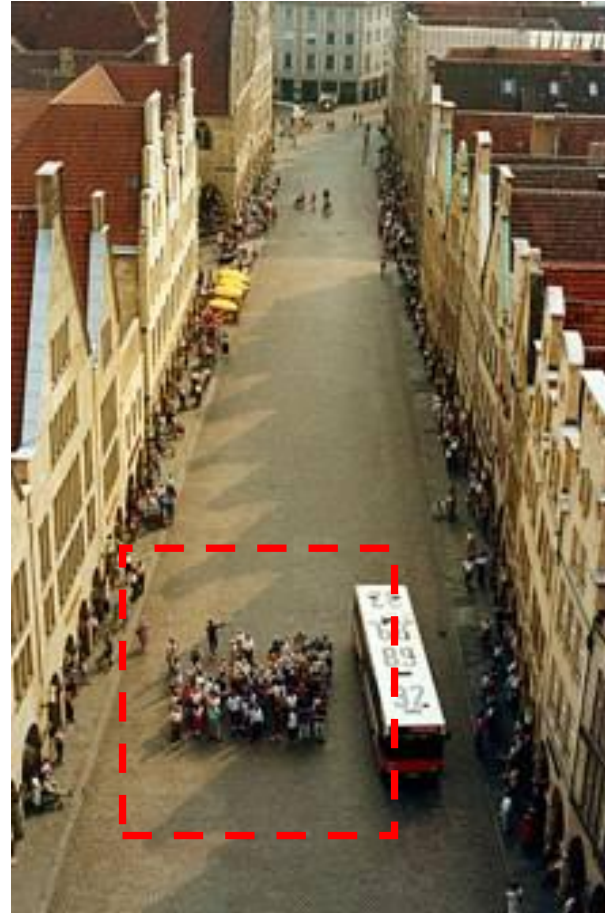
Infrastructure Ratings

Share of road infrastructure in Asia-Pacific with 3-star or better IRAP rating, per road user





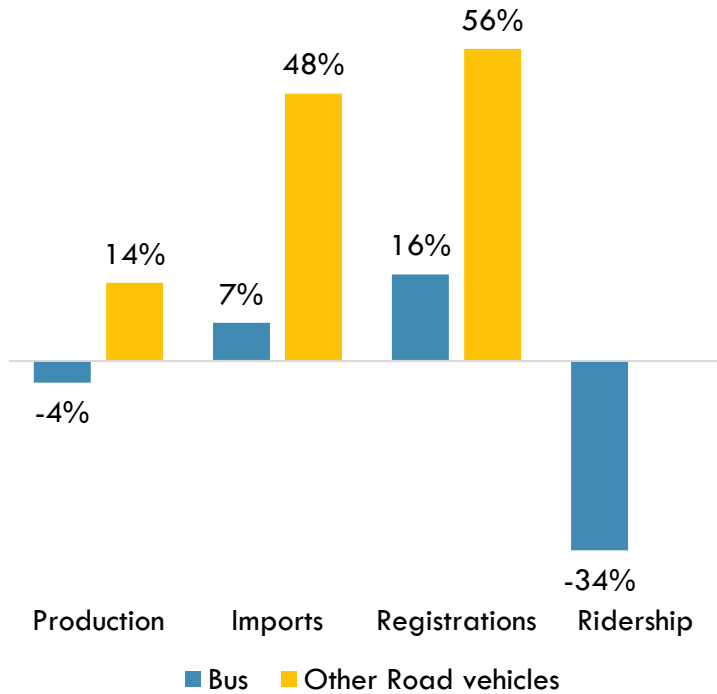
Shift
travel to
more
efficient
modes



- Source: City of MünsterMu

Shifting to More Sustainable Modes – Public Transport

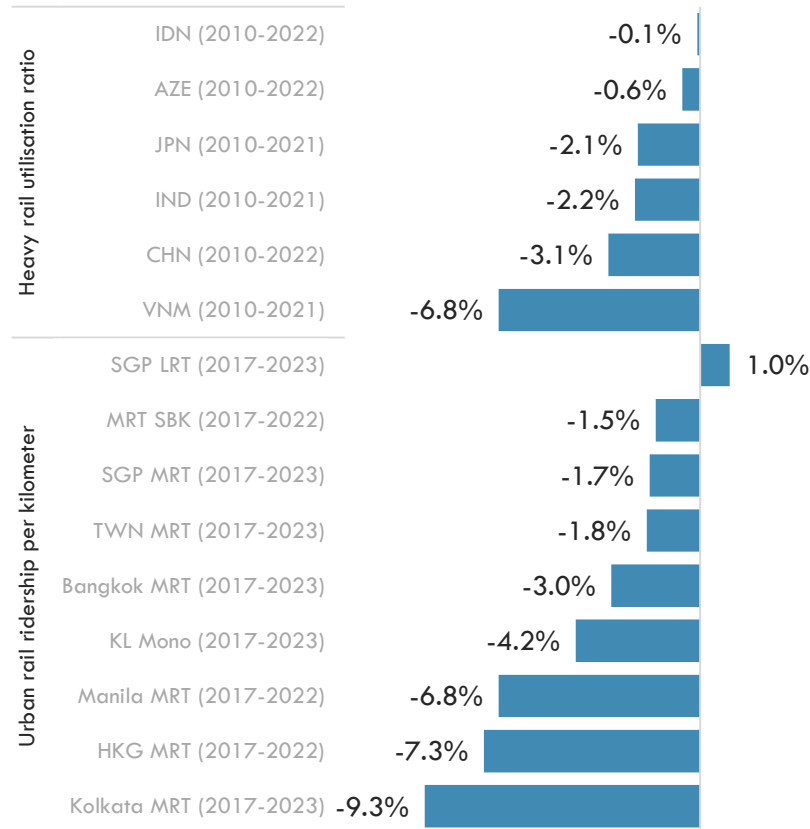
Bus vs. Other road vehicle – trends, 2015-2023



Ridership includes other informal modes of transport
Registration and Ridership data is for 2015 to 2022

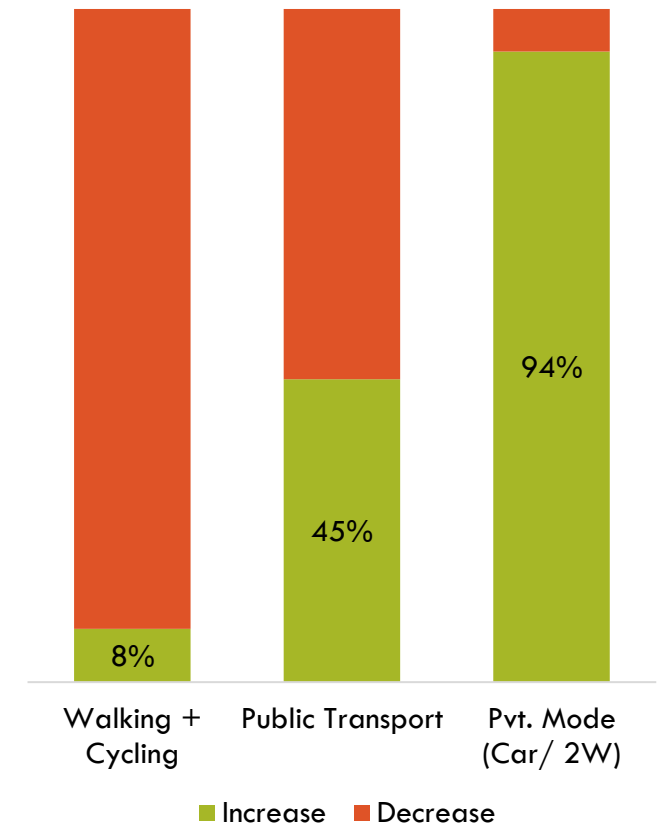
Source: OICA, Trademap, Country official statistics

Decreasing rail activity per kilometer



* combined passenger-km and tonne-km per kilometer of infrastructure

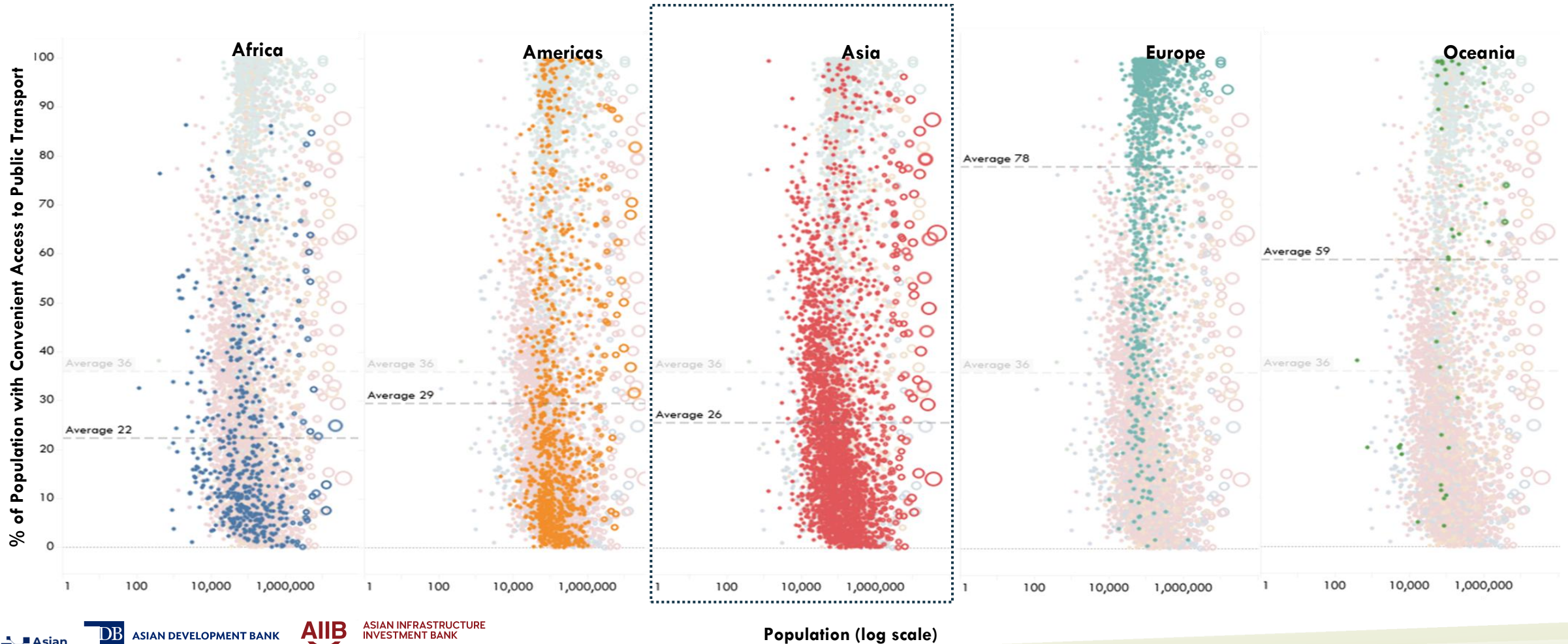
Mode share trend in 80 cities, 2018-2023



Source: Google Environmental Insights Explorer

Recognizing the Access to Public Transport Issue

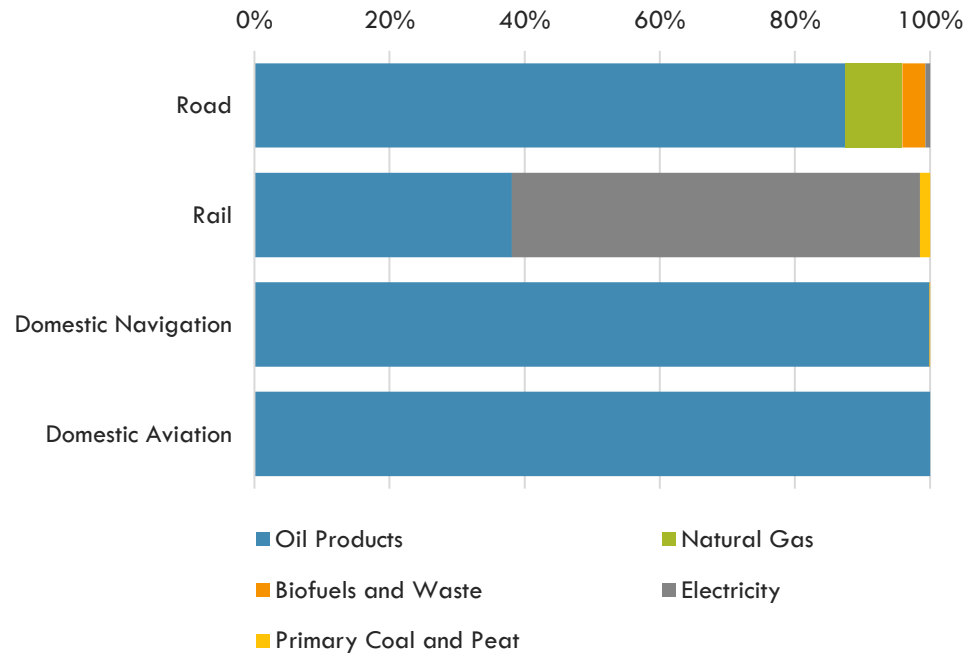
On average, only 36% of the urban population globally have convenient access to public transport. 26% only in Asia



Improve the system elements

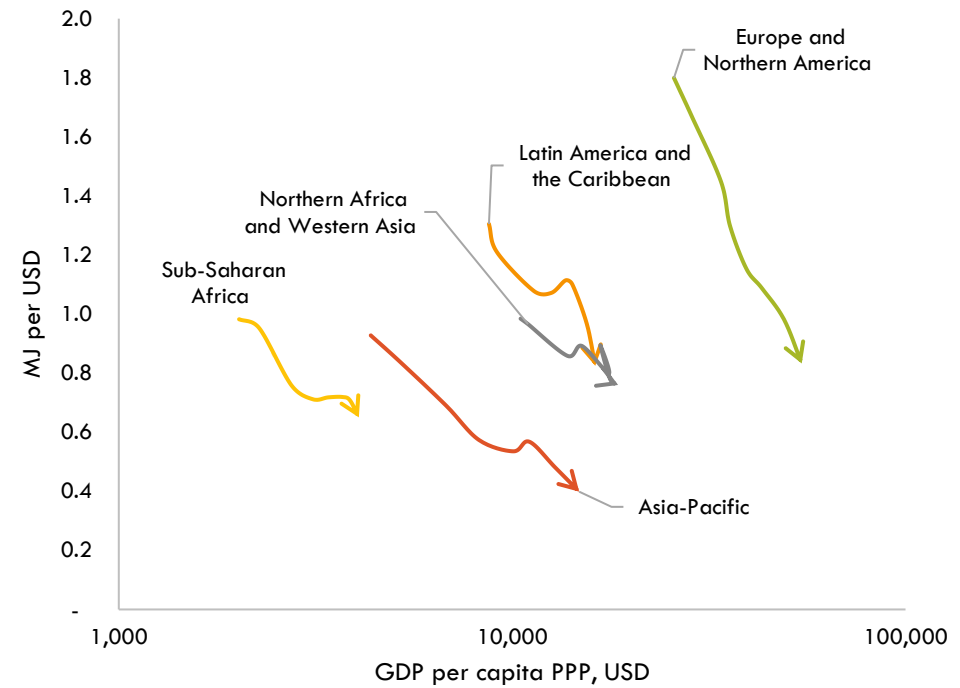


Improving – Fuels and Vehicles



Energy consumption by mode and source, 2021

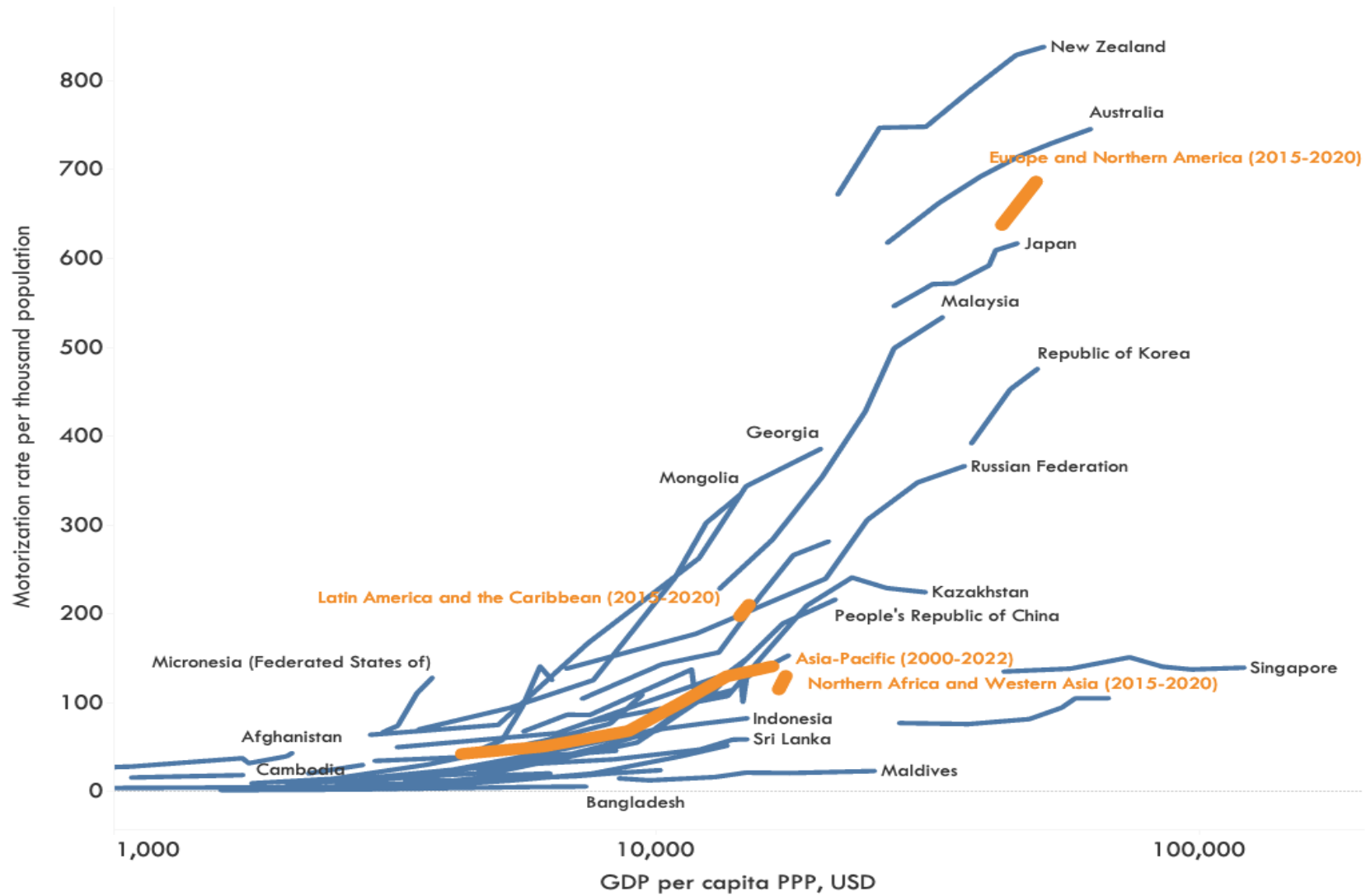
Source: Own visualization based on data from United Nations Statistics Division (2024)

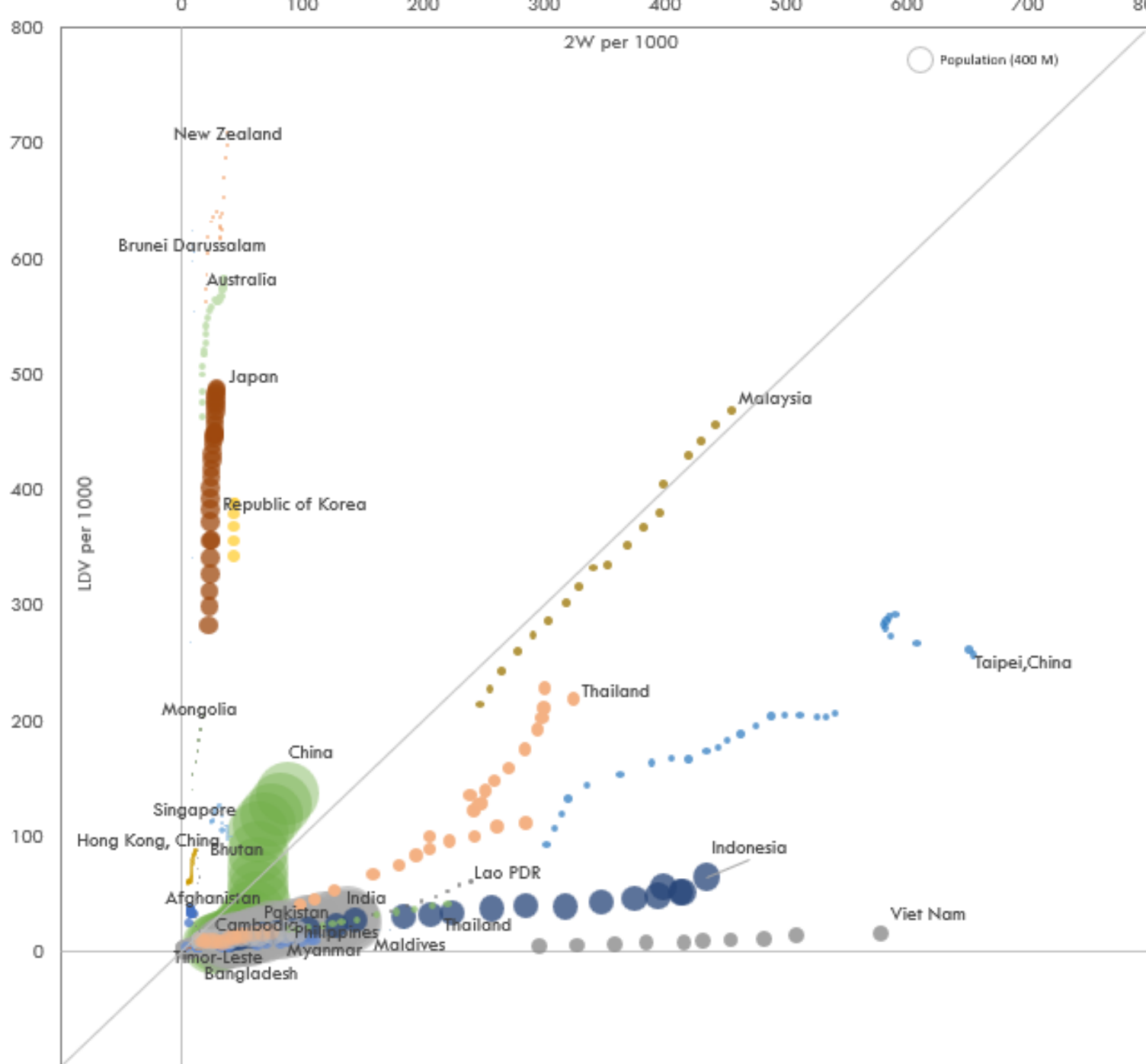


Transport energy consumption intensity with GDP, 2000-2021

Source: Own visualization based on data from United Nations Statistics Division (2024) and World Bank (2023a)

Diverging Pathways - Motorization





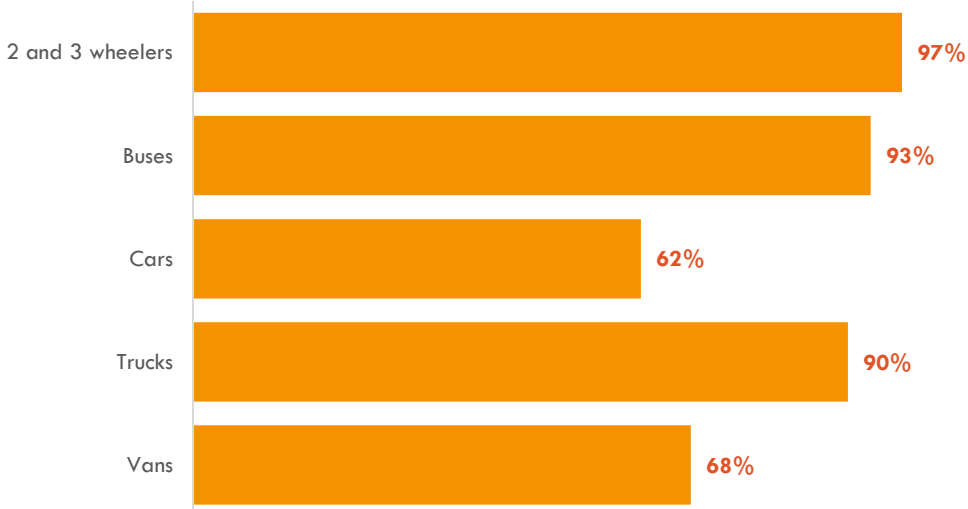
Improve Measure – Emobility

In **2024**, the Asia-Pacific region achieved a milestone of

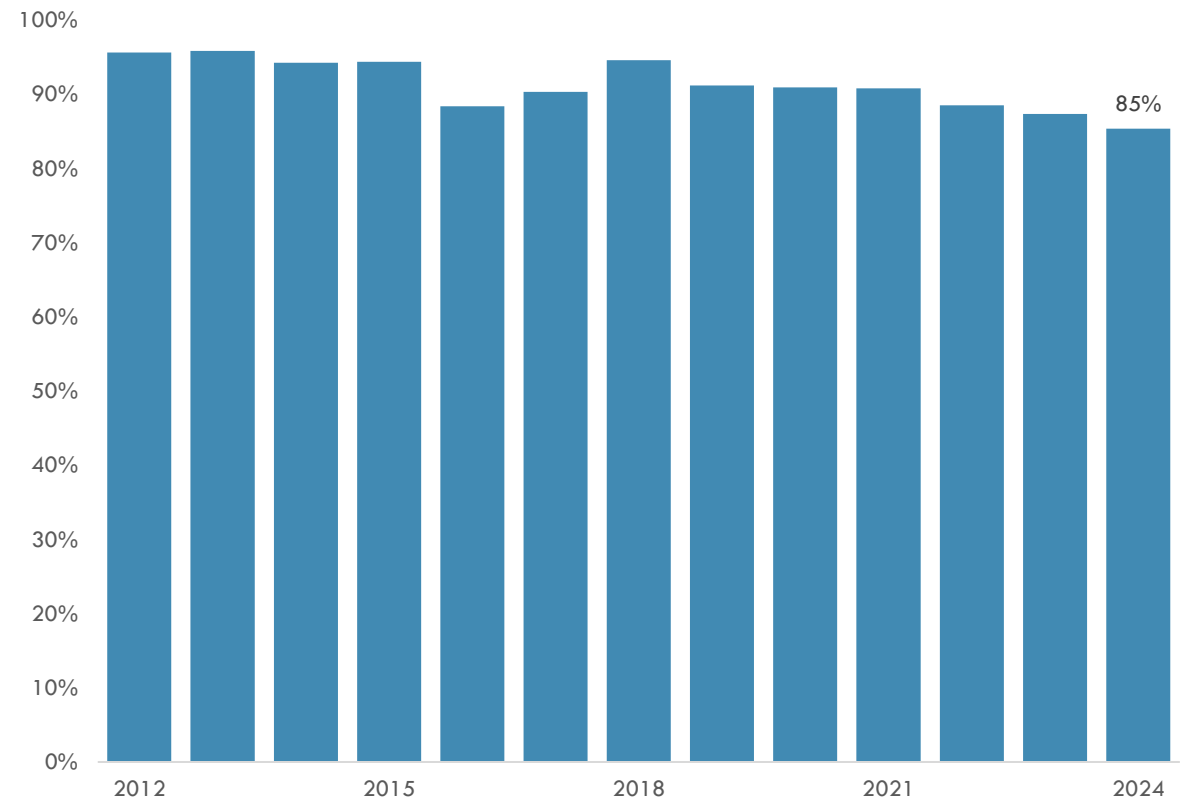
100 million electric vehicles

By 2024, Asia has 85% of the world's electric vehicle, dominating in 2 and 3-wheelers (97% of global), buses (93%), and trucks (90%)

Share of Asia in global electric vehicles, by mode (2024)



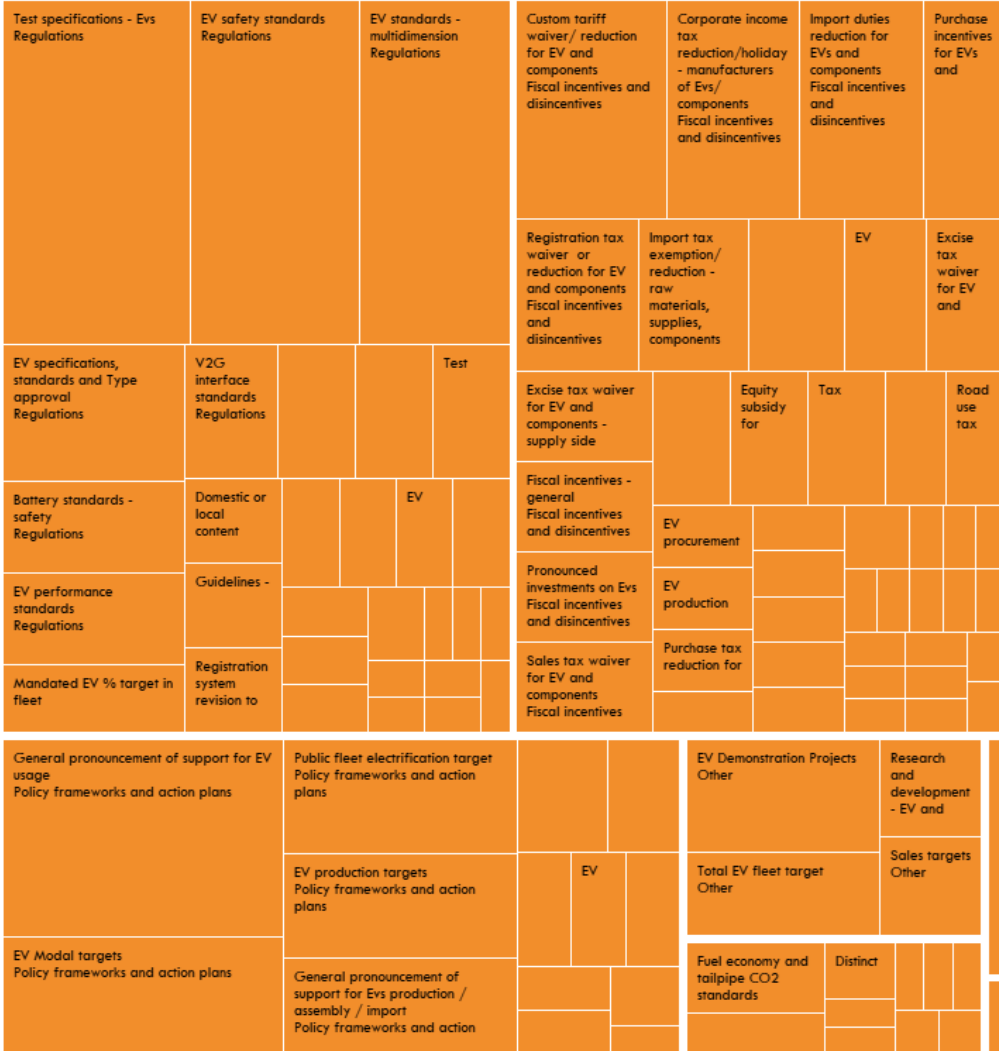
Share of Asia in global electric vehicles (all types)



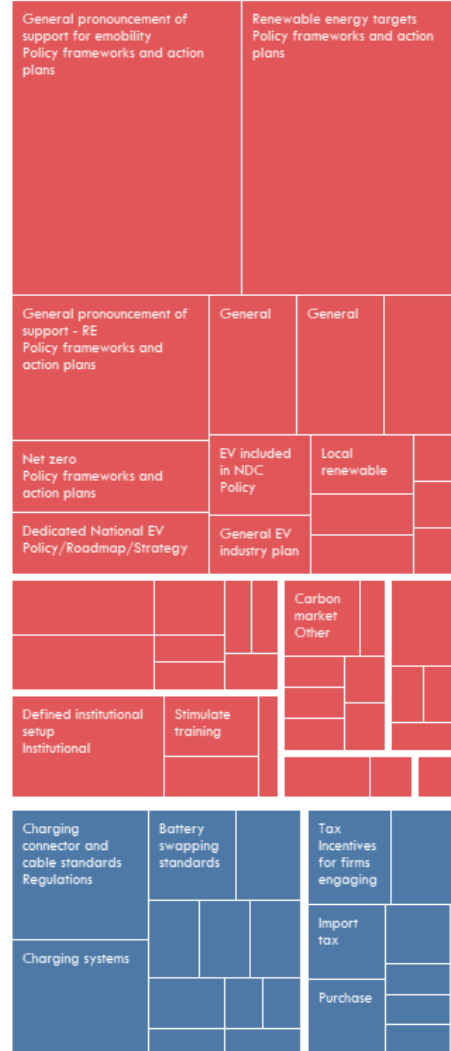
Other regions are trying to close the gap!

E-mobility Policy Landscape

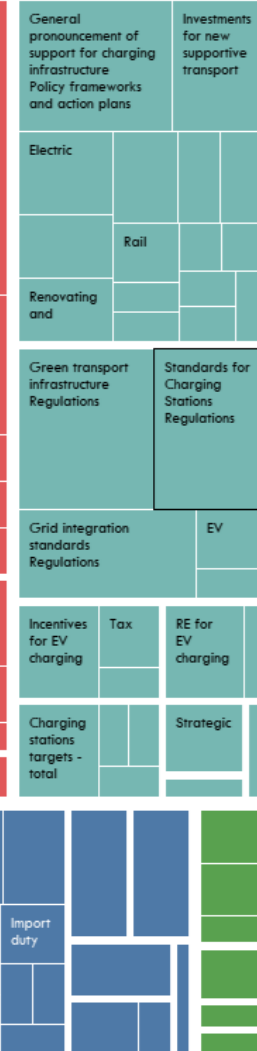
EVs and EV components



General



Infrastructure

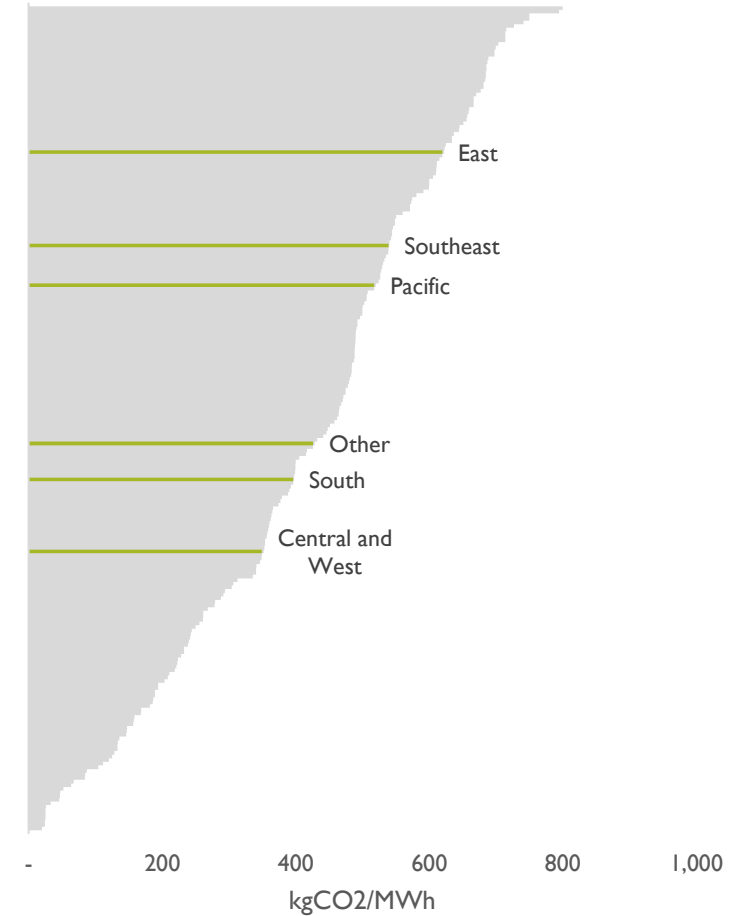
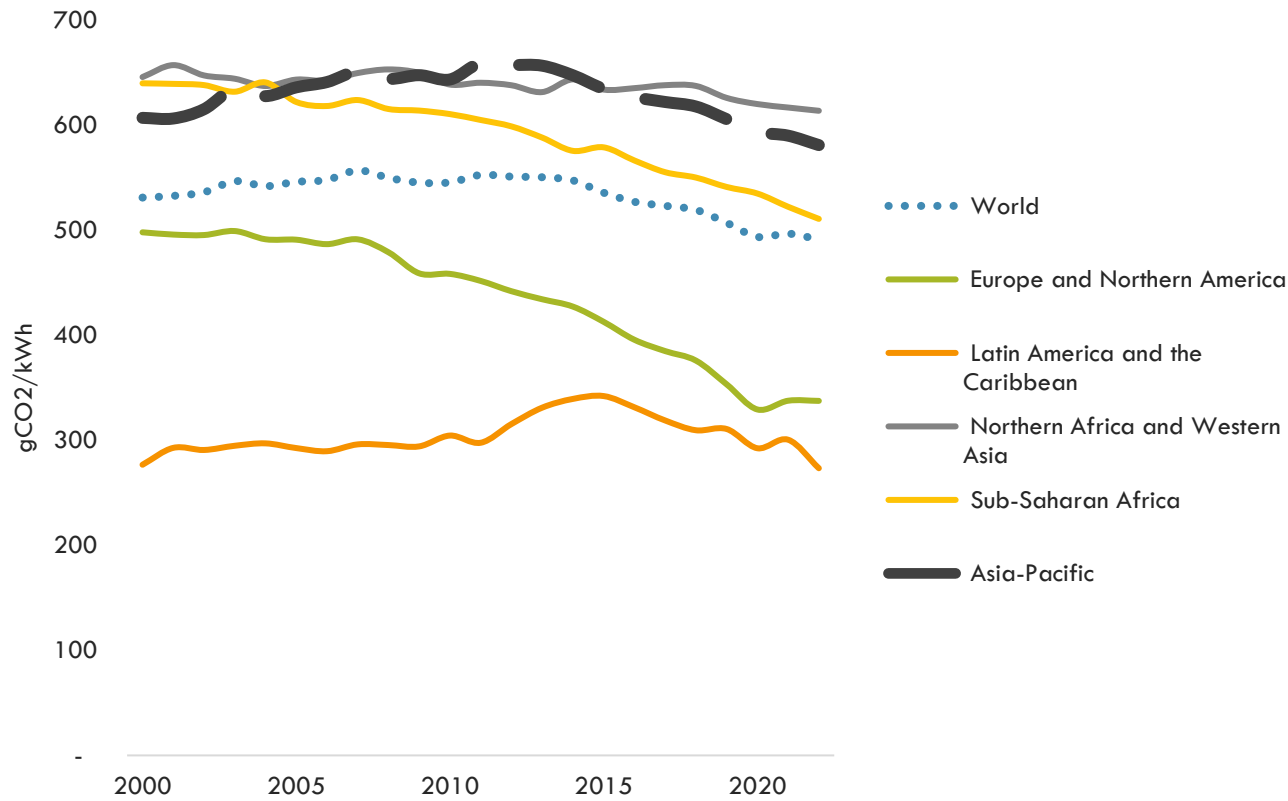


We cannot simply electrify congestion.

Services

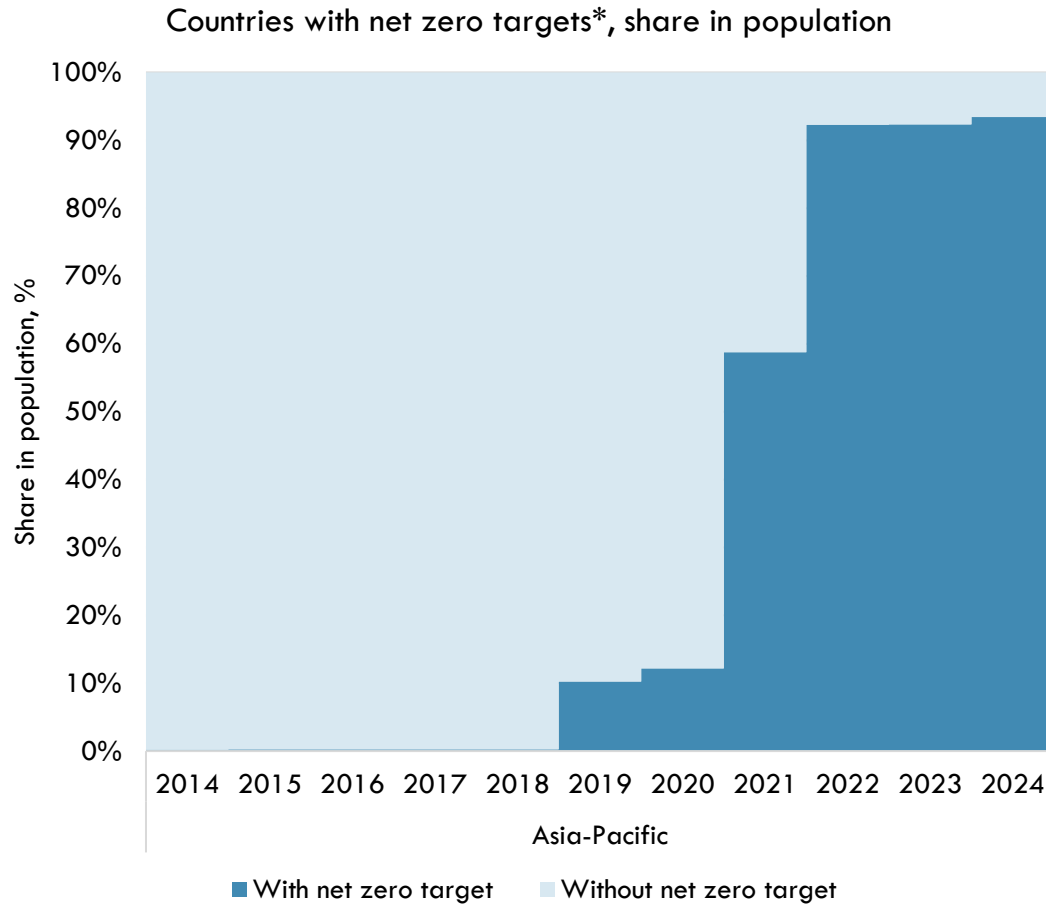
Charging Equipment & components

Are we really solving the GHG issues?



Ambitions

“Current NDCs and transport policies often need more ambitious long-term targets for emissions reduction in the transport sector.”



Country	Net zero and Carbon neutrality	NDC			Other Transport Policy Documents
		Economy-wide emissions	Transport GHG emission	Indirect transport targets	Transport GHG emission
Azerbaijan		2030			
Bangladesh		2030	2030	Modal shift, transport energy consumption	
Bhutan	2050		2030	Vehicle restrictions (import, age, access, sale, taxation)	
Cambodia	2050	2030	2030		2030
Indonesia	2060 or sooner	2030			
Kazakhstan	2060	2030			
Kyrgyz Republic		2025, 2030, 2050			
Lao PDR		2030		Biofuels, E-mobility	2030
Malaysia	2050	2030			2030
Maldives	2030	2030			
Marshall Islands	2050			2025, 2030, 2035	2025, 2030
Mongolia		2030	2030	E-mobility	
Myanmar		2030			
Nepal	2045			E-mobility, public transport, railway electrification	
Pakistan		2030		E-mobility	
Papua New Guinea	2030, 2050				
Philippines		2030			2028
Solomon Islands	2050	2025, 2030, 2050			2030, 2050
Sri Lanka	2050	2030	2030	Vehicles scrappage scheme	
Tajikistan		2030			
Thailand	2030, 2050, 2065	2030	2030		2027, 2030
Timor-Leste					
Uzbekistan		2030		E-mobility, LPG/ CNG/ LNG	2025, 2035
Vanuatu	2050	2030		Biofuels, E-mobility, Ship efficiency improvements, Vehicle efficiency standards	2050
Viet Nam	2050	2030			

Measures and Solutions towards Tackling Climate

Published between 2000-2015

General e-mobility
 Intermodality measures Target - Economy-wide emissions
 General data repositories and data collection
 Define roles and accountabilities across agencies
 Vehicle inspection and maintenance General land use
 Road infrastructure expansion Rail infrastructure expansion
 General transport institutional reform General alternative fuels
 Involvement of subnational government for transport activities
 Logistics hub Reference to finance mechanisms within country
 Biofuels General infrastructure improvements
 General shipping improvement General rail improvement
 General transport asset management LPG/ CNG/ LNG
 Vehicle air pollution emission standards Fuel quality
 General public transport Transport law
 General aviation improvements Air traffic management
 Financial instruments to support decarbonisation
 Road-side vehicle technical checks
 Vehicle efficiency standards

Measures and Solutions towards Tackling Climate

Published between 2016-2023

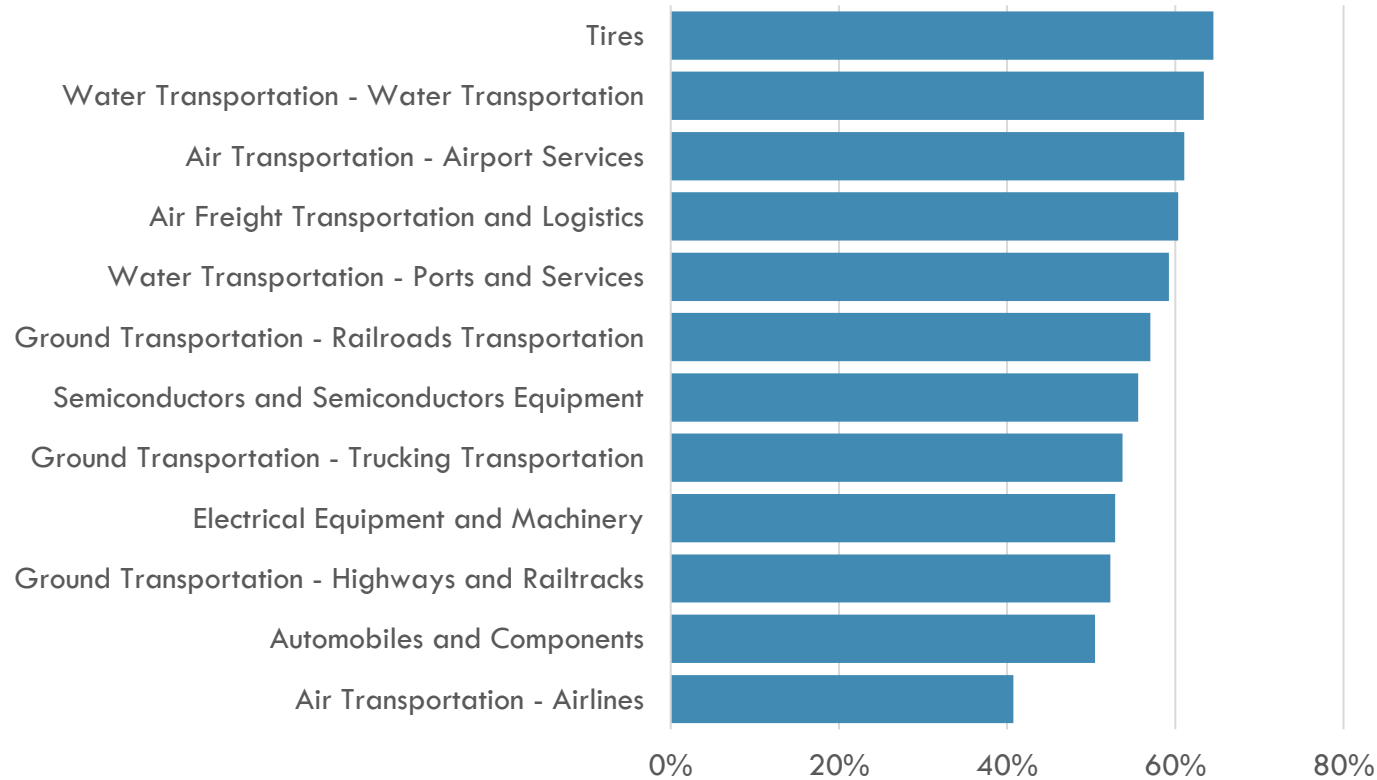
Aircraft fleet renovation
 Development of national development plan/ policy
 Involvement of subnational government for transport activities
 Local production, services, contracting etc.
 General alternative fuels
 Training of enforcement authorities
 Traffic management
 General rail improvement
 Vehicle taxes
 Fuel quality
 Technology and knowledge transfer
 Agreement concerning the Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts which can be fitted and / or be used on Wheeled Vehicles 1998
 Agreement concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations 1958
 General public transport
 Define roles and accountabilities across agencies^{BRT}
 Logistics hub
 General active mobility
 General international conventions
 National speed law
 Stakeholder involvement
 Road-side checks on overloading
 General inland waterways (IWT) improvement
 Target - Transport GHG emission
 Intermodality measures
 Vehicle import inspections
 Express lanes/ public transport priority
 Energy efficient vehicle purchase incentives
 General parking measures
 Development of automotive plan/ policy
 Investment required for specific projects
 General education and behavior change
 General innovations and digitalization
 Automated enforcement of speed limits
 Speed limits on urban roads <= 30 kph
 Request for financial support to develop transport
 Urban passenger rail infrastructure improvement
 Design standards for sidewalks and bicycle paths
 Technical standards for road infrastructure
 General aviation improvements
 Intelligent transport systems (ITS)
 Vehicle restrictions (import, age, access, sale, taxation)
 Vehicle scrappage scheme
 Vehicle air pollution emission standards
 General transport asset management
 General land use
 General freight and logistics improvements
 Passenger and freight load limits
 Technical standards for general transport infrastructure
 Target - Transport activity
 Renewable energy
 Vehicle inspection and maintenance
 Rail infrastructure expansion
 Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention) 1975
 Convention on Road Traffic 1968
 Road infrastructure improvements
 Railway electrification
 Bus fleet renewal
 Reporting, transparency, feedback mechanism
 Transport law
 General capacity building
 Vehicle efficiency standards
 General transport finance
 General data repositories and data collection
 Active transport infrastructure expansion
 General vehicle improvements
 EV manufacturing
 Fiscal incentives for EVs and components
 Development of other transport-related plan/ policy
 Employment in transport, communication, and storage
 Speed limit on rural roads <= 70 kph
 Reference to finance mechanisms within country
 EV charging infrastructure
 General shipping improvement



Zooming in : Businesses

Emissions Reduction Targets

Company Targets - Emissions reduction target by transport subsector (vs



A fourth of the 1,400+ transport-related companies which have issued targets are from Asia

Less than 5% of the Asian companies have net zero targets

The Business Case for Transport Decarbonisation

- Costs are shifting
- Risks are shifting
- Opportunities are huge



What companies are doing (examples)

- **Road & logistics**
 - Fleet electrification at scale
 - Smart logistics: AI routing, load pooling, idle reduction, network redesign.
 - Green depots/ports: on-site solar + storage; shore power; electric ground equipment.
- **Aviation**
 - SAF offtake deals; efficiency retrofits; contrail-avoidance trials; cargo load-factor analytics.
- **Shipping**
 - Green corridors; first green-methanol/ammonia vessels; slow steaming + hull/prop upgrades; port calls optimization.
- **Urban transit & rail**
 - Bus electrification via leasing/BaaS; depot megachargers; demand-responsive shuttles feeding rail; regen braking and 100% RE traction power.
- **Cross-cutting**
 - Supplier coverage requirements (Scope 3 emissions).
 - Internal carbon pricing.
 - Data transparency: well-to-wake accounting, non-CO₂ impact reporting.

Challenges for Businesses

- Financing & risk
- Policy fragmentation
- Equity/just transition
- Supply chains
- Credibility



Mechanisms for Encouraging Private Sector Participation in Decarbonizing the Transport Sector

- Corporate Targets and disclosure
- Green finance and carbon markets
- Technology and innovation development
- Supply chain engagement
- Sectoral and private-public partnerships
- Internal carbon pricing and climate risk management



More can be done...

- Create demand: Sign long-term deals for green fuels; team up with peers
- Make fleets affordable: Leasing and battery-swap models; shared charging hubs
- Work with suppliers: Set clear climate targets and share playbooks/tools
- Find smart money: Use green loans, guarantees, and shared risk models
- Run smarter: Better routes, less idling, regular maintenance saves fuel
- Support workers: Lease-to-own EVs, training, and fair transition measures
- Procurement: Prefer rail or EV delivery; reward lower-emission services
- Be transparent: Show full fuel impacts, report regularly, and use audits

Underreported Topics for Exploration

- Equity & livelihoods
- Hidden subsidies
- Non-CO₂ aviation impacts
- Scope 3 logistics
- Financing structures
- E-Mobility impacts

Summary

- Transport is a key pillar in decarbonization.
- Decarbonizing transport entails addressing various other developmental goals
- Unlocking decarbonization pathways in the transport sector depends on solutions that take into account various socio-technical elements
- Synergistic and context-specific avoid, shift, improve measures are needed
- Progress and uptake in terms of measures vary widely
- Various stakeholders need to take action, including the private sector

ATO Resources

Check out the ATO Profiles!



Transport Sector Profiles



Transport and Climate Profiles



E-mobility Profiles



Urban transport Profiles



Green Roads Profiles



Rail sector Profiles

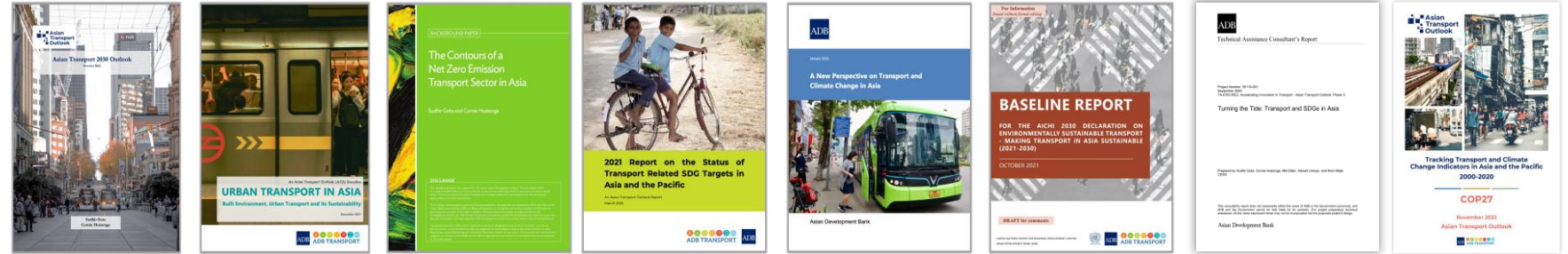


Road Safety Profiles



Gender in mobility Profiles

ATO Knowledge Products



SDG Profiles (39 countries)

Transport Climate Profiles (24 countries)

Road Safety Profiles (24 countries)

E-mobility Profiles (10 countries)

Green Roads Profiles (23 countries)

Gender Profiles Rail Profiles (4 countries)

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road infrastructure



ATO National Database

Access over 450 transport indicators divided over eight main categories



National Transport Policy Documents

Browse through content on how to use the ATO databases



ATO Urban Database

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ATO Cost Database

Access over 450 transport indicators divided over eight main categories



ATO Analytical Outputs

Get all the relevant information on transport through factsheets, reports and storylines

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“ATO translates data into insights, policies, and investments”

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