



MALDIVES TRANSPORT SECTOR

STATE OF PLAY

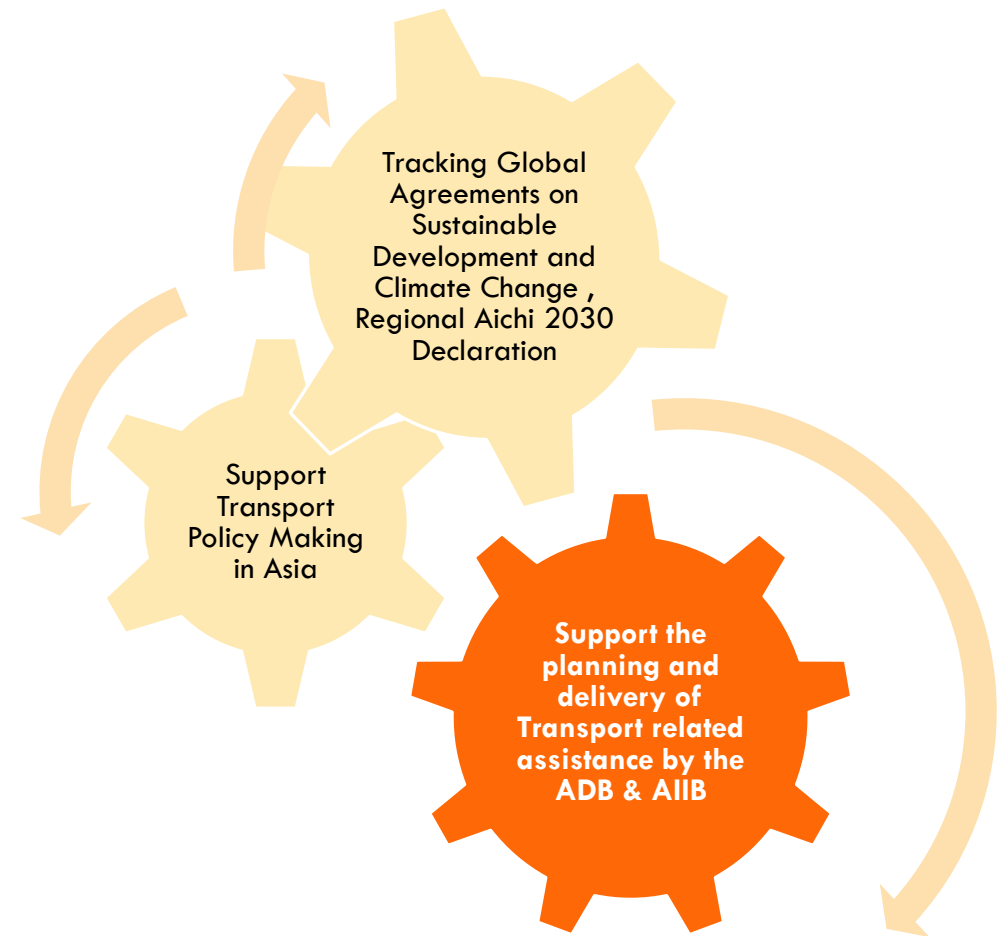
Asian Transport Outlook
Transport Observatory for the Asia-Pacific Region

2 Nov. 2023

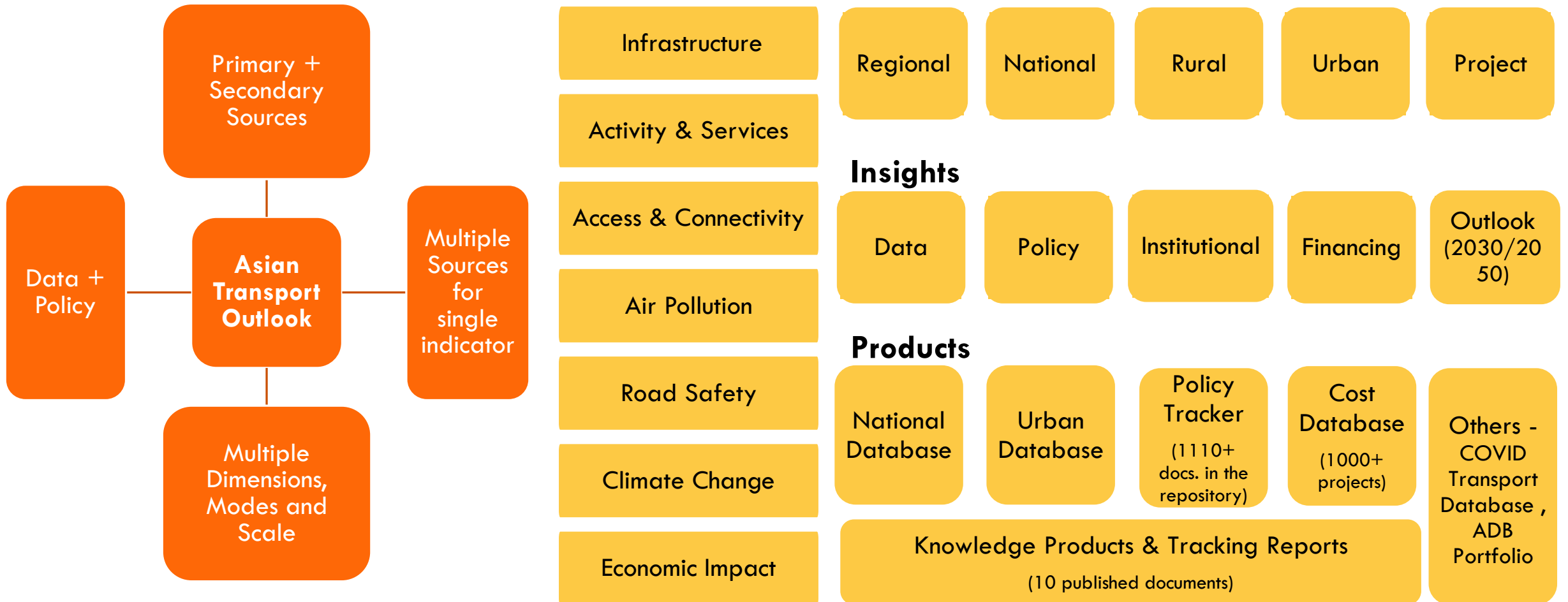
SECTION 1: INTRODUCTION TO THE ATO

ASIAN TRANSPORT OUTLOOK

www.asiantransportoutlook.com



ATO FRAMEWORK AND IMPLEMENTATION



ATO NATIONAL AND URBAN DATABASE INDICATORS



Infrastructure

49 national
37 urban



Transport Activity
and Services

61 national
68 urban



Access and
Connectivity

11 national
5 urban



Road Safety

23 national
7 urban



Air Pollution
and Health

39 national
15 urban



Climate Change

40 national
12 urban



Socio-economic

82 national
11 urban



Miscellaneous

28 national
7 urban



Urban Form
and Structure + Land
use

18 urban

51 Economies (ADB Members +
Russia and Iran)

460 Urban Centers (412 Asia-Pacific,
48 International)

46 Urban Centers with a detailed
review * To be increased to 50

373 national indicators,

53% have multi-year data, 10% have more than 2 sources,
20% have 2021 data

281 urban indicators,

~80% have multi-year data, ~70% have more than one source

ATO TEAM



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Andres Pizarro

SECTION 2: STATE OF PLAY

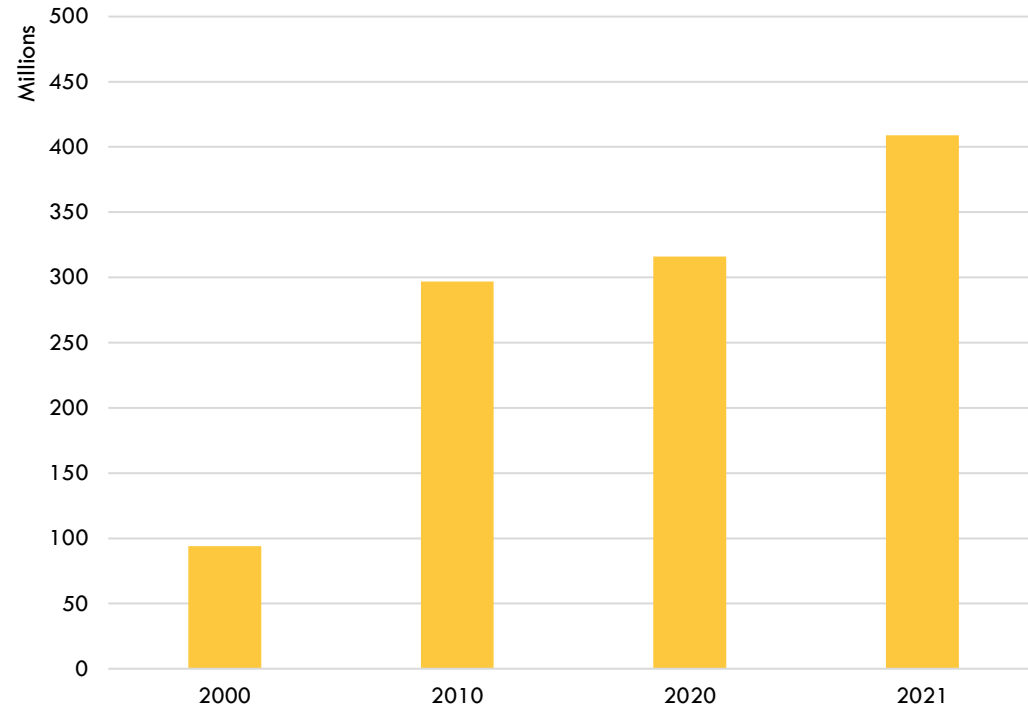
2023 Report on the Status of Transport Related SDG Targets in Asia and the Pacific Region

(Publication under progress)

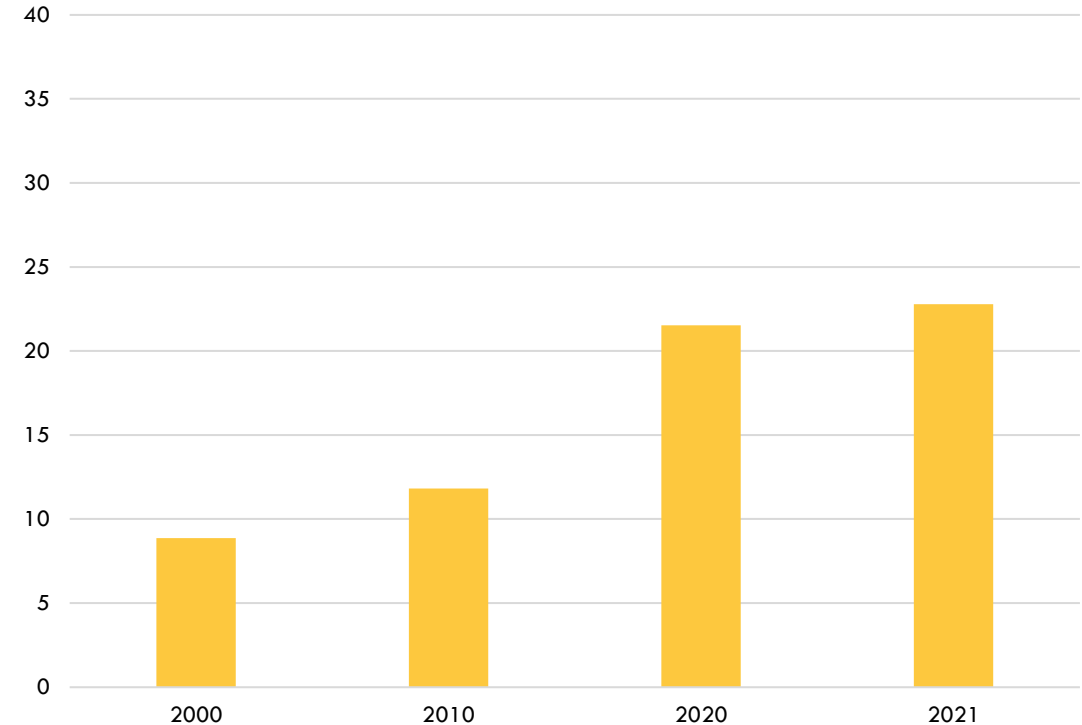


TRANSPORT AND SOCIO-ECONOMY

Gross value added by transport, storage, and communication



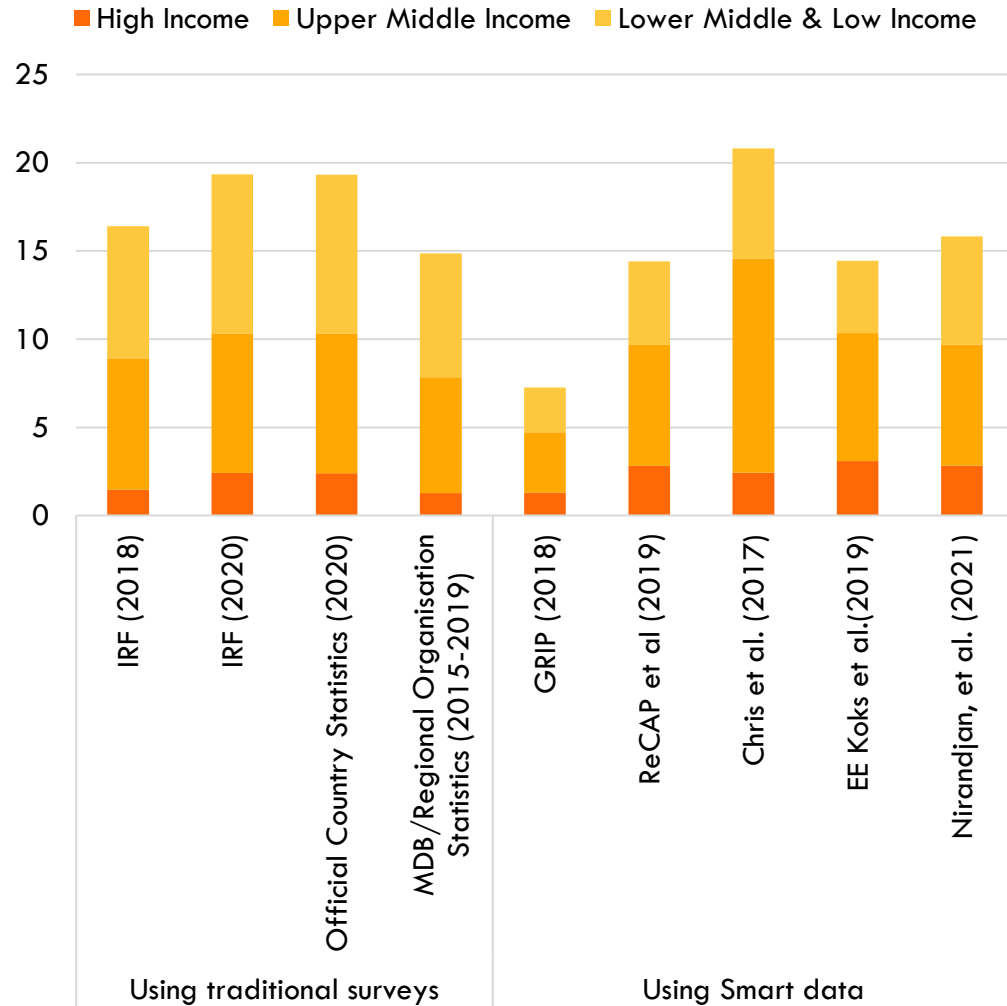
Employment in transport ('000)



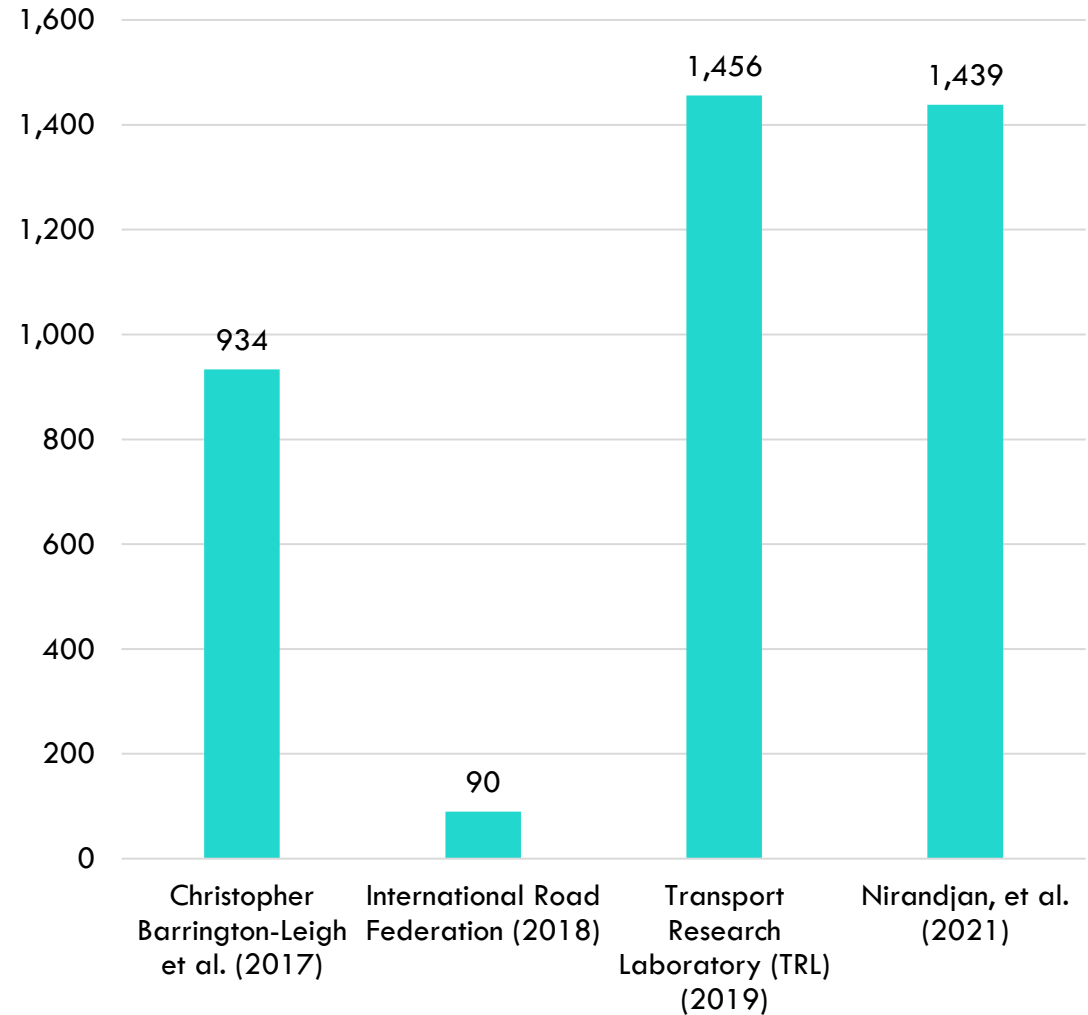
- Gross value added by transport, storage, and communication = 4% of GDP (direct)
- Employment in transport, storage, and communication ~ 23,000 (formal) ~ 10% of total employment
- Share of female employment = 11% < 13% (Asia), 27% (Europe & North America)

ROAD INFRASTRUCTURE

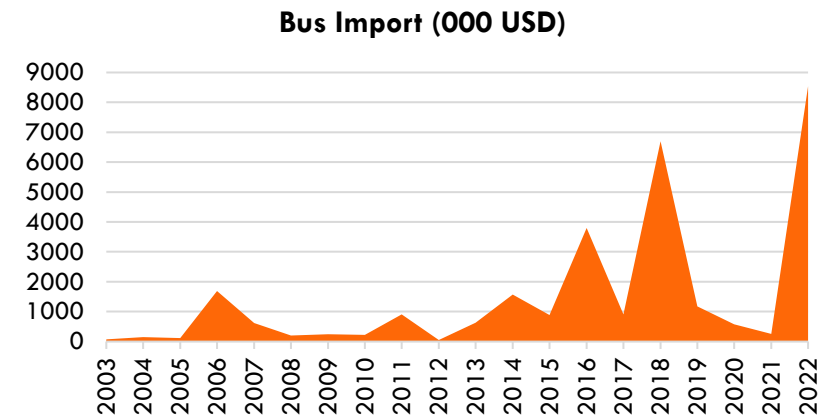
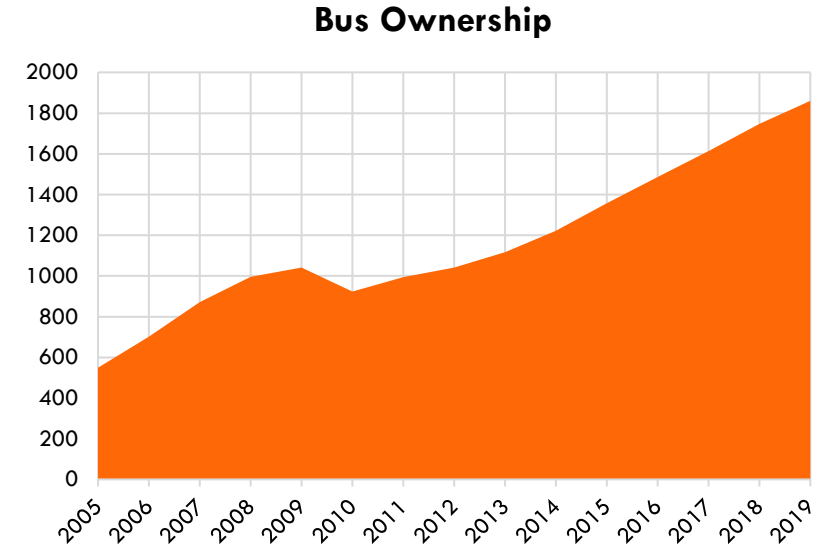
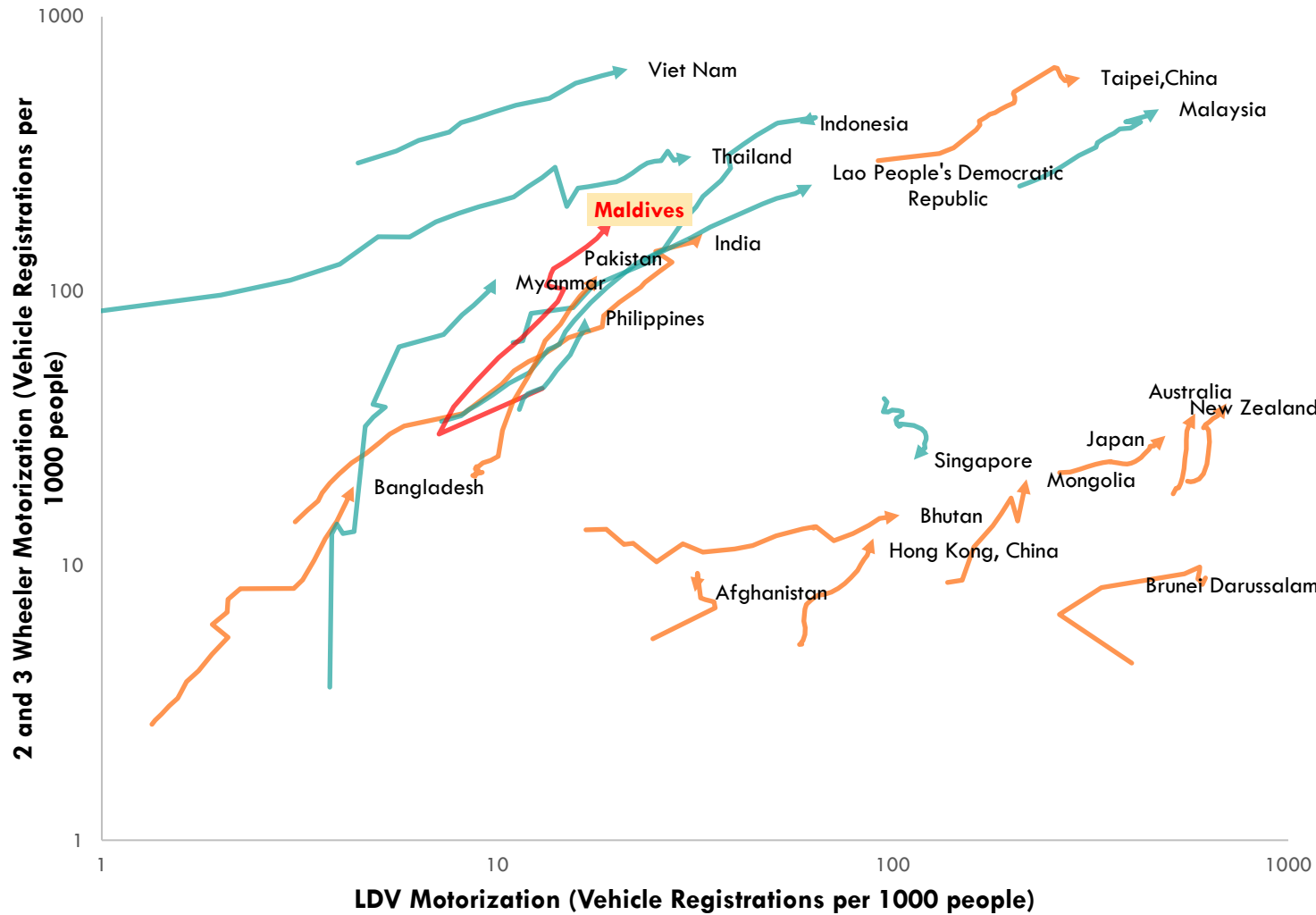
Asia-Pacific Road Length (Million km)



Road length Total (km) - Maldives



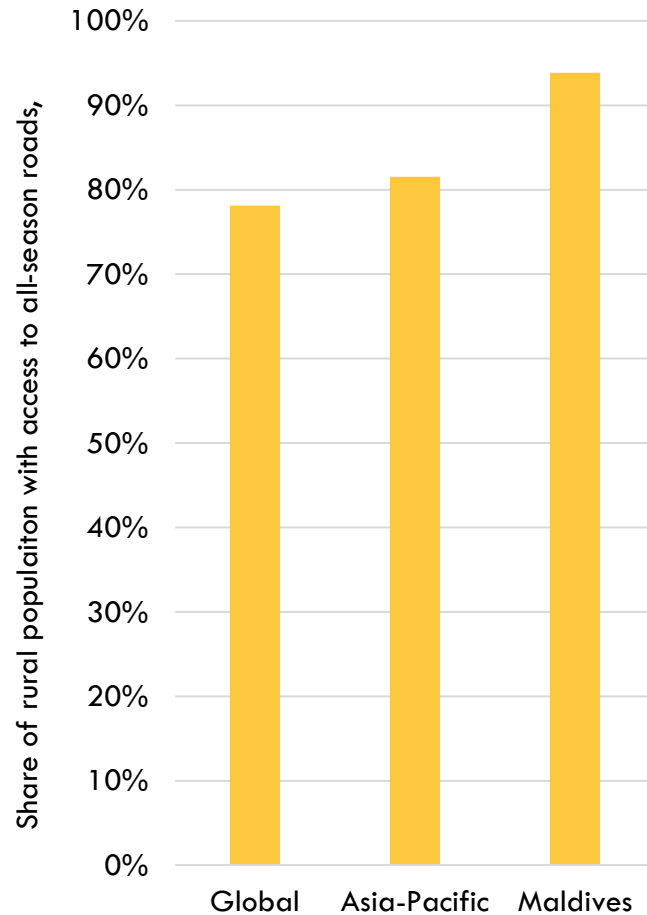
VEHICLE OWNERSHIP & PUBLIC TRANSPORT



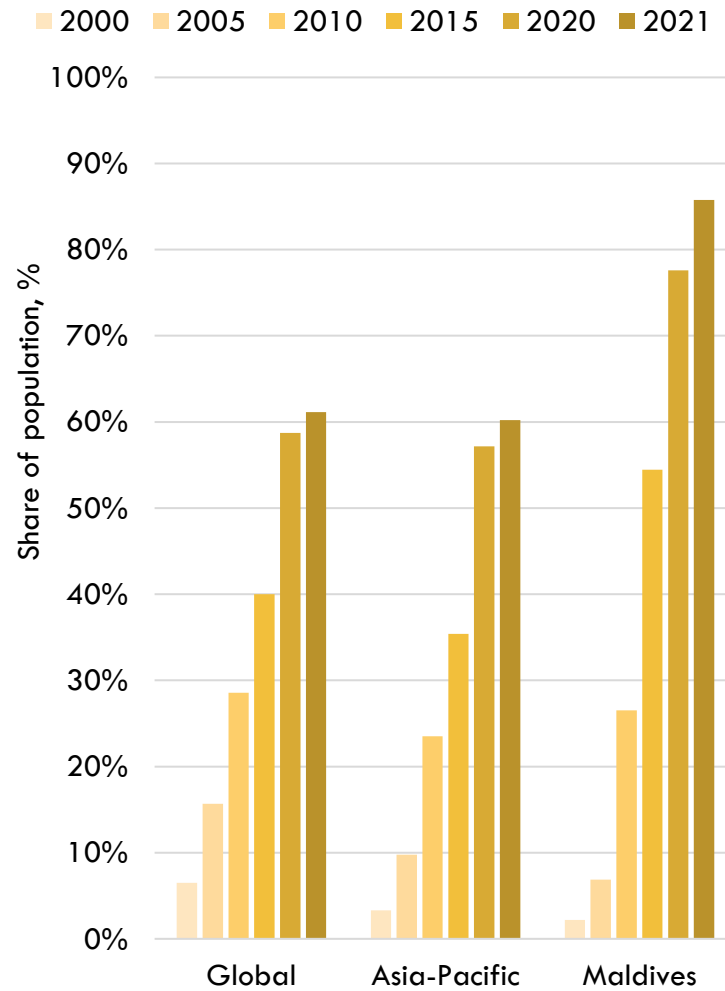
Between 2010 and 2018, vehicle registrations increased at twice the pace of vessel registrations.

TRANSPORT ACCESS & CONNECTIVITY

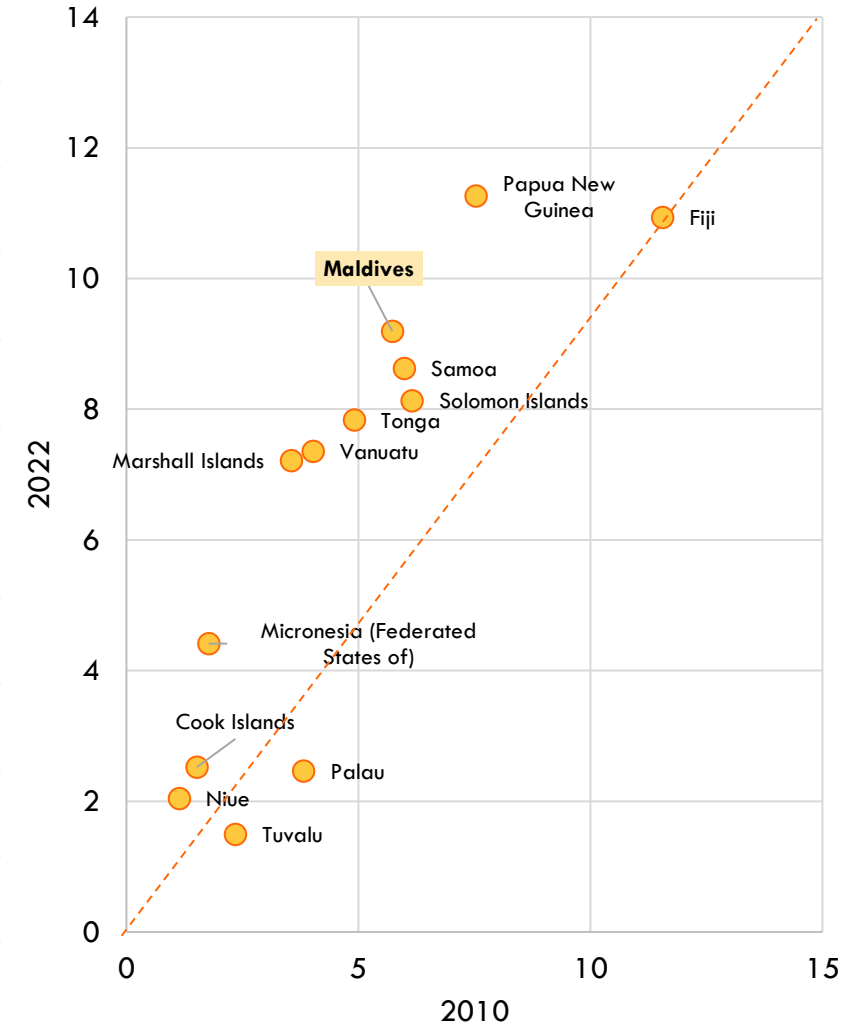
Share of Rural Population with Access to All-Season Roads, 2022



Share of Population Using the Internet

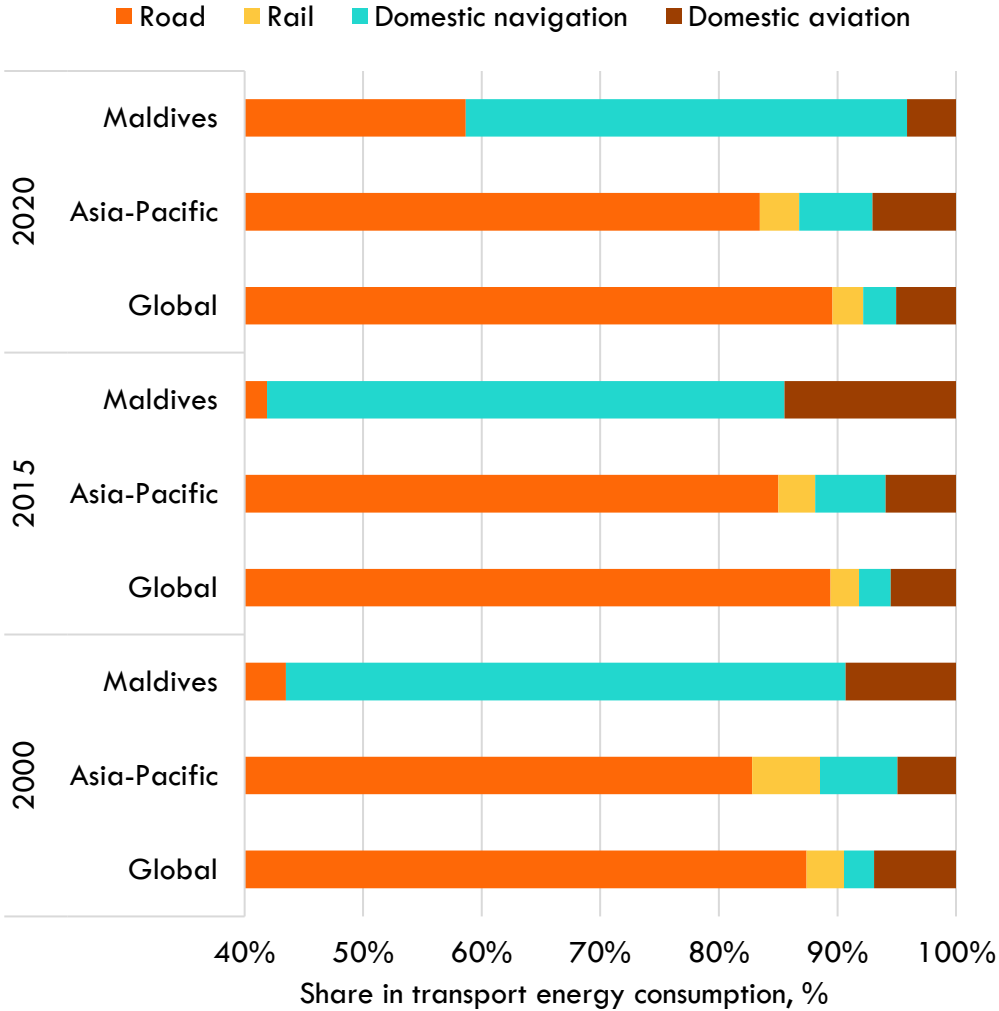


Liner Shipping Connectivity Index

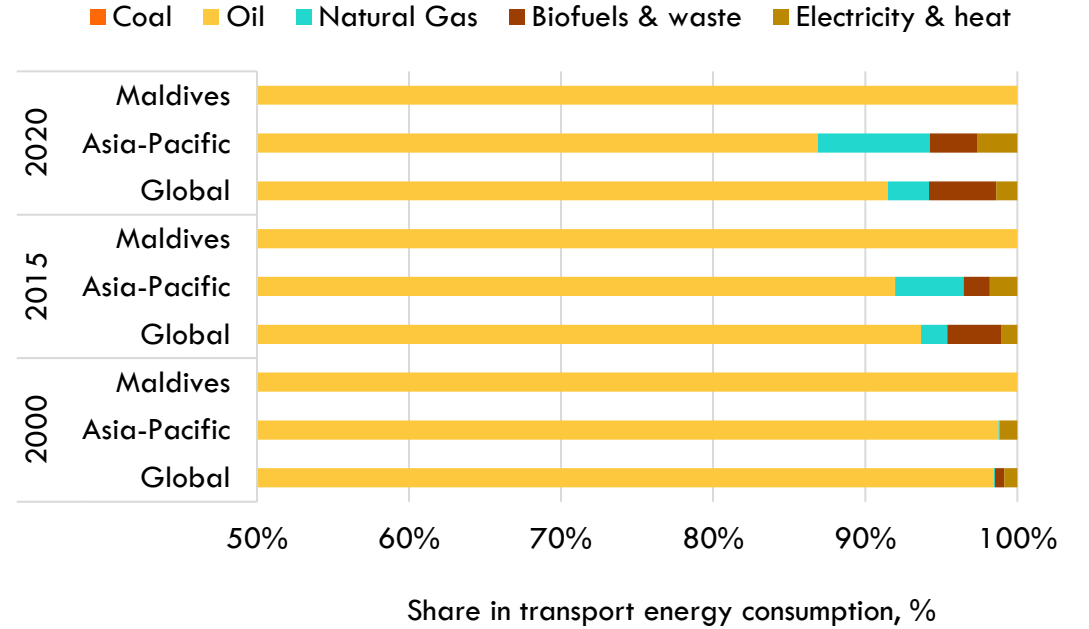


ENERGY CONSUMPTION

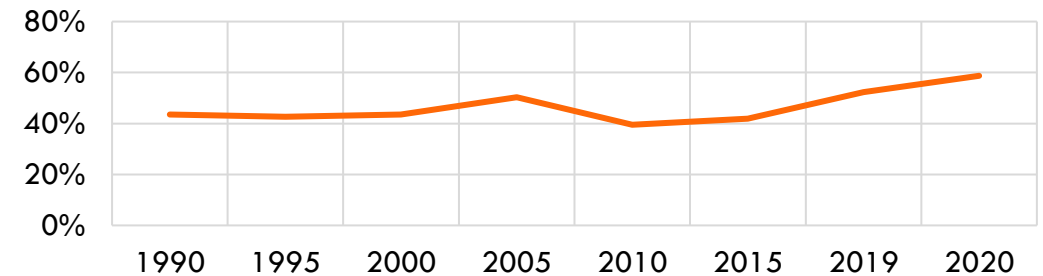
Transport Energy Consumption Share by Mode



Transport Energy Consumption Share by Source



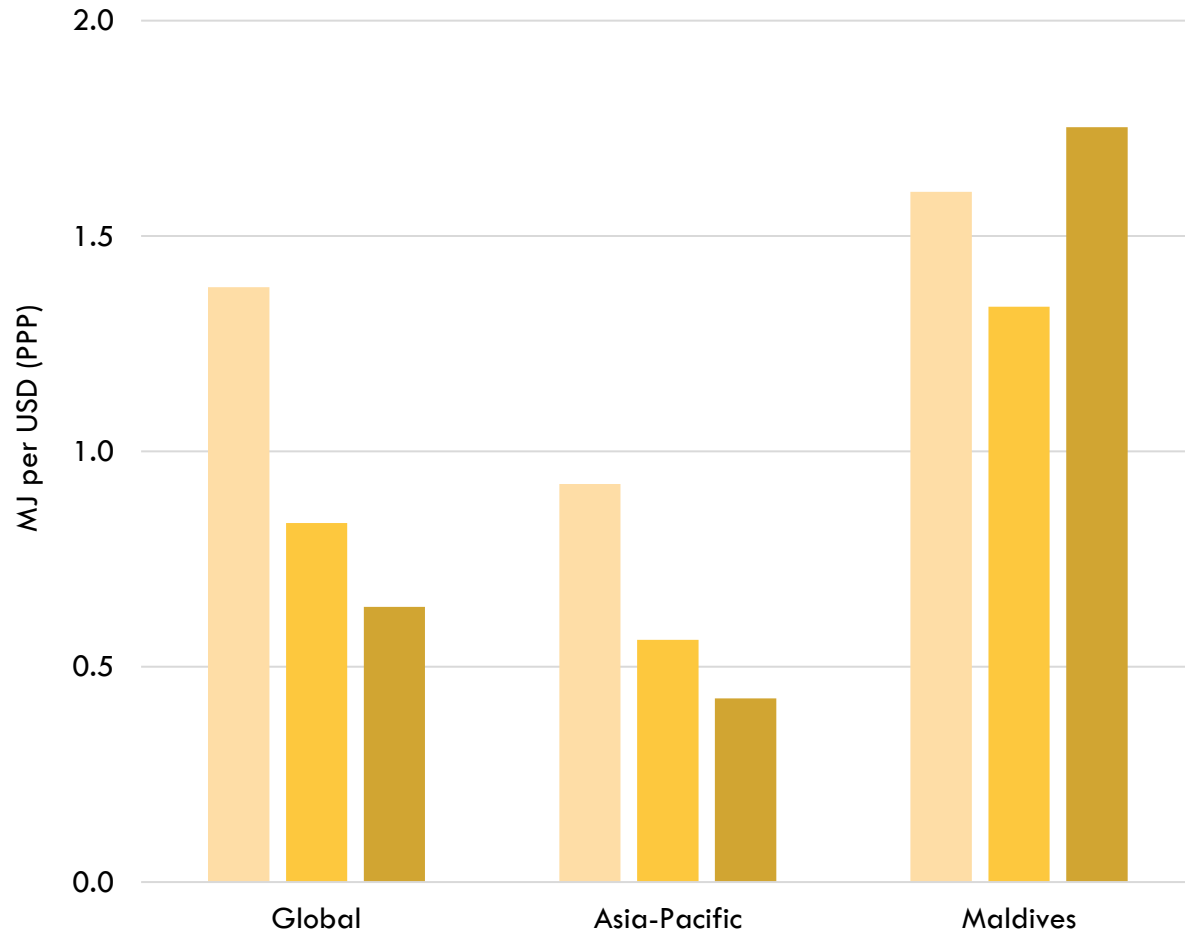
Road share in transport energy consumption



TRANSPORT ENERGY

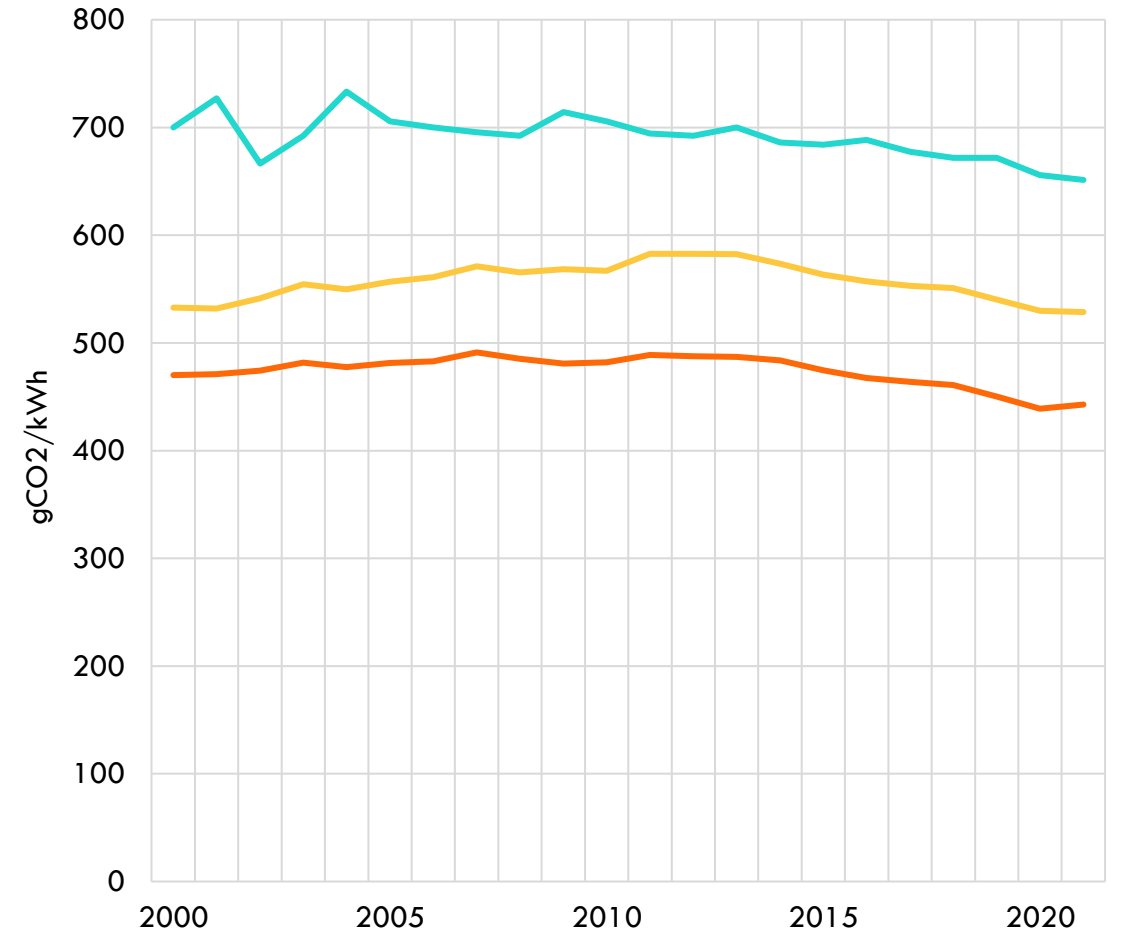
Transport Energy Intensity

2000 2015 2020



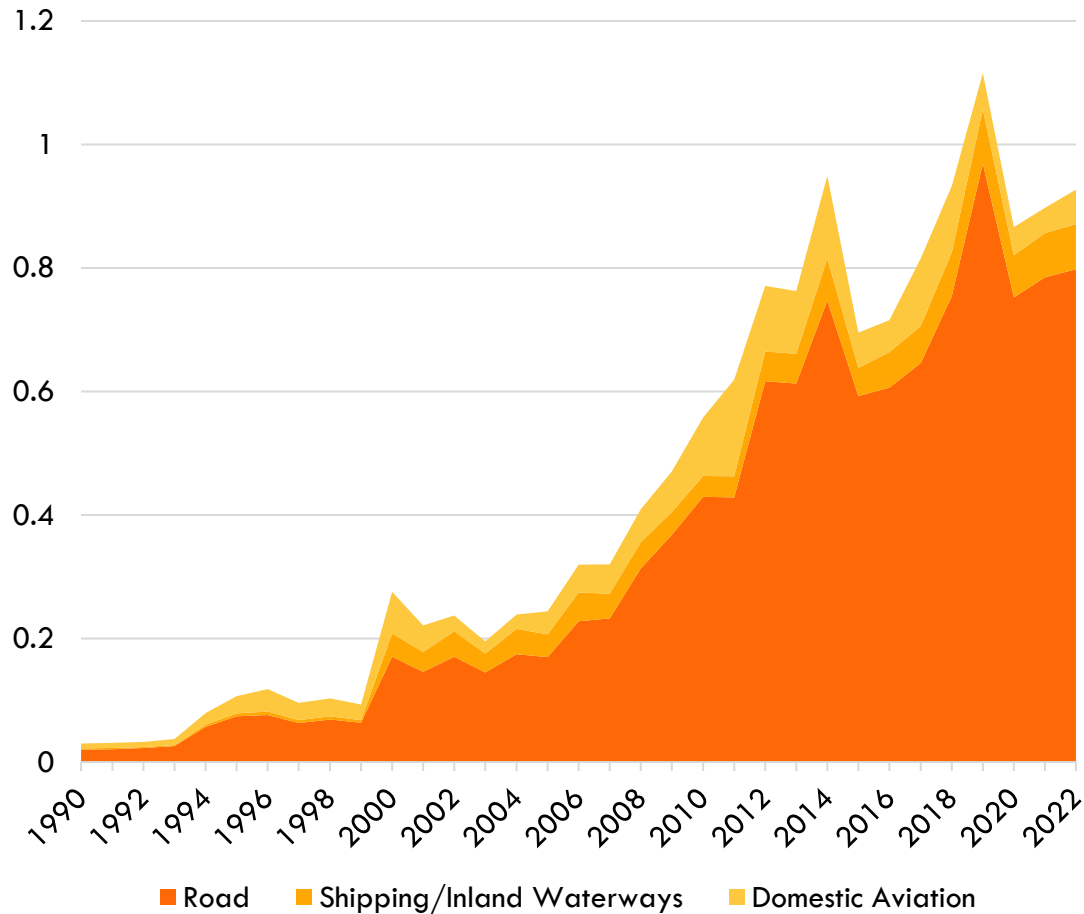
Grid Emission Factors

Global Asia-Pacific Maldives

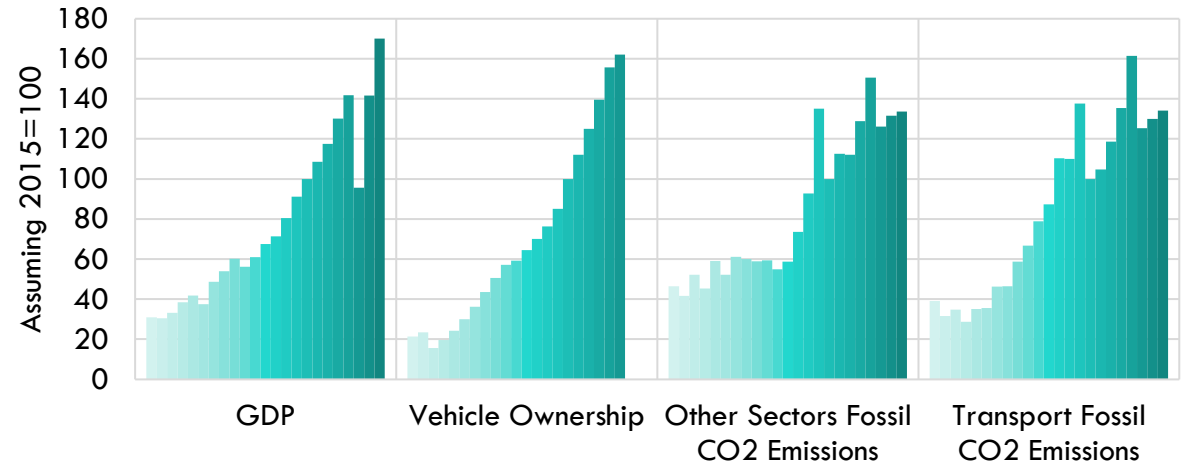


TRANSPORT CO2 EMISSIONS

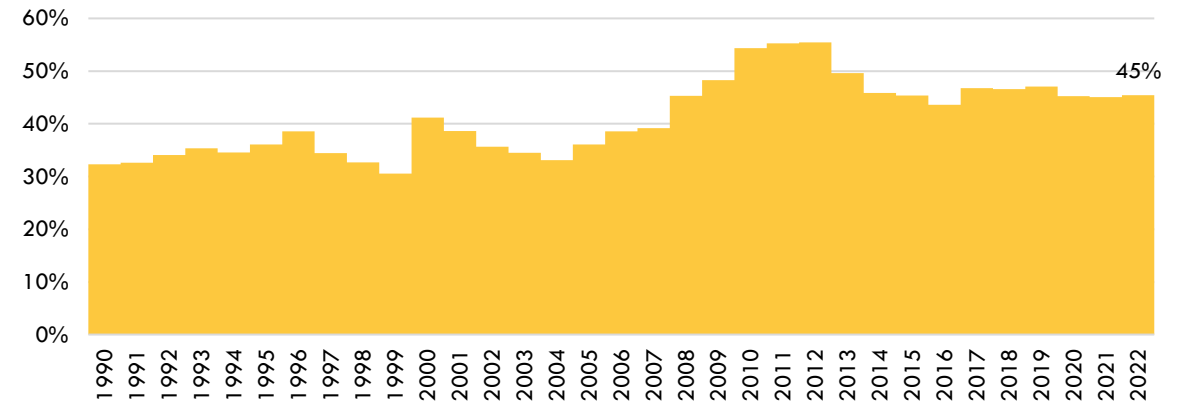
Transport CO2 Emissions (Million Tonnes)



Growth of transport – related indicators



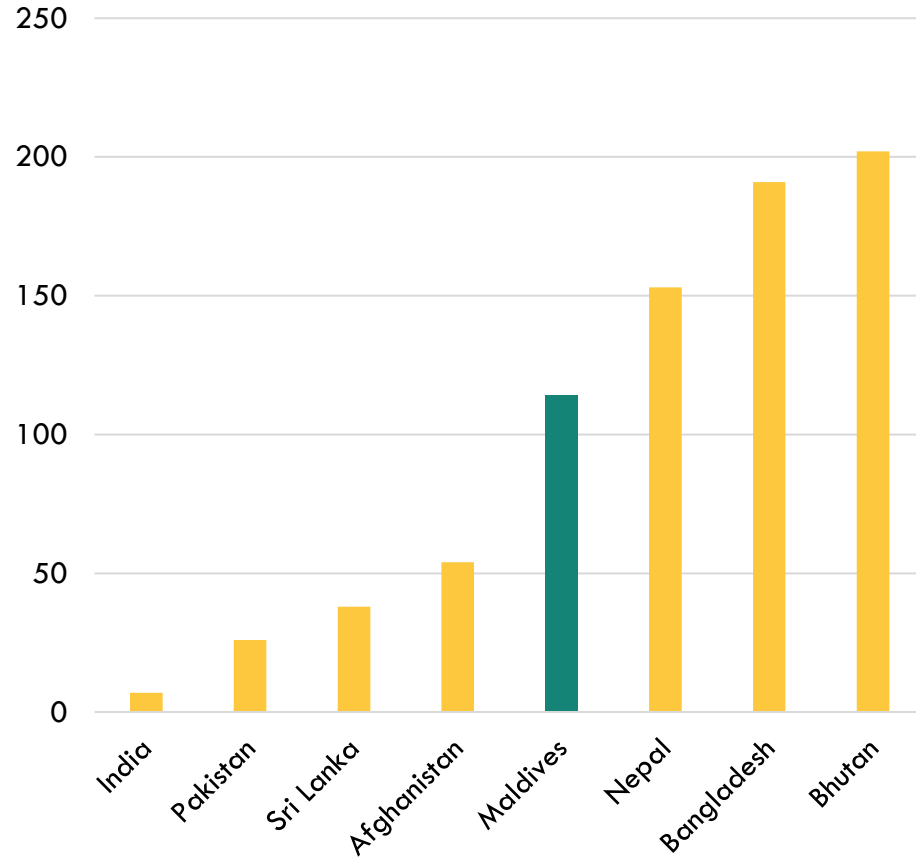
Transport share in Fossil CO2 Emissions



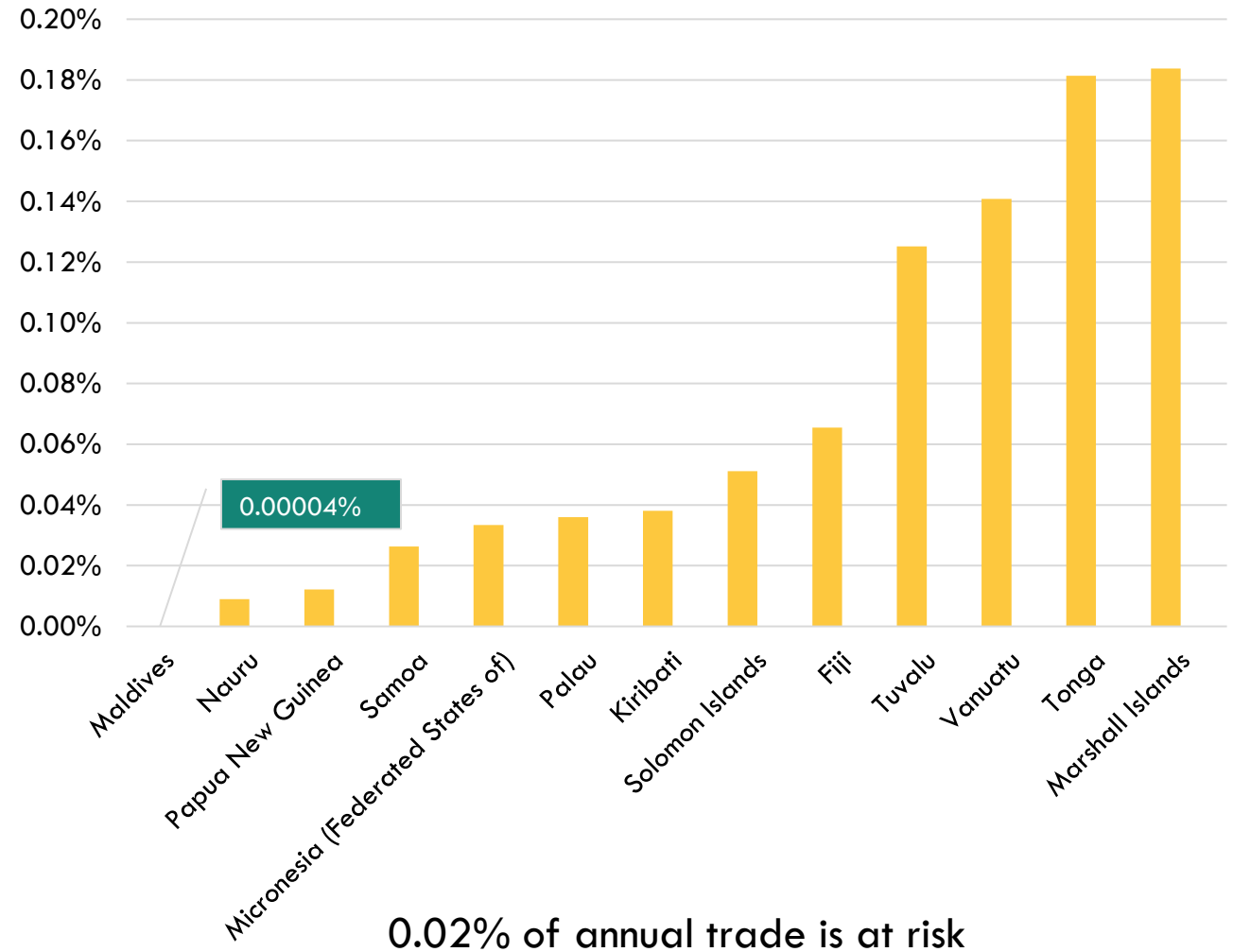
- Transport share in total Fossil CO2 emissions
- In Transport CO2 Emissions, roads constituted 62% share in 2000 and 86% share in 2022

CLIMATE CHANGE DISASTER VULNERABILITY

**National Road Vulnerability Index (NRVI)
Rank (2023)**

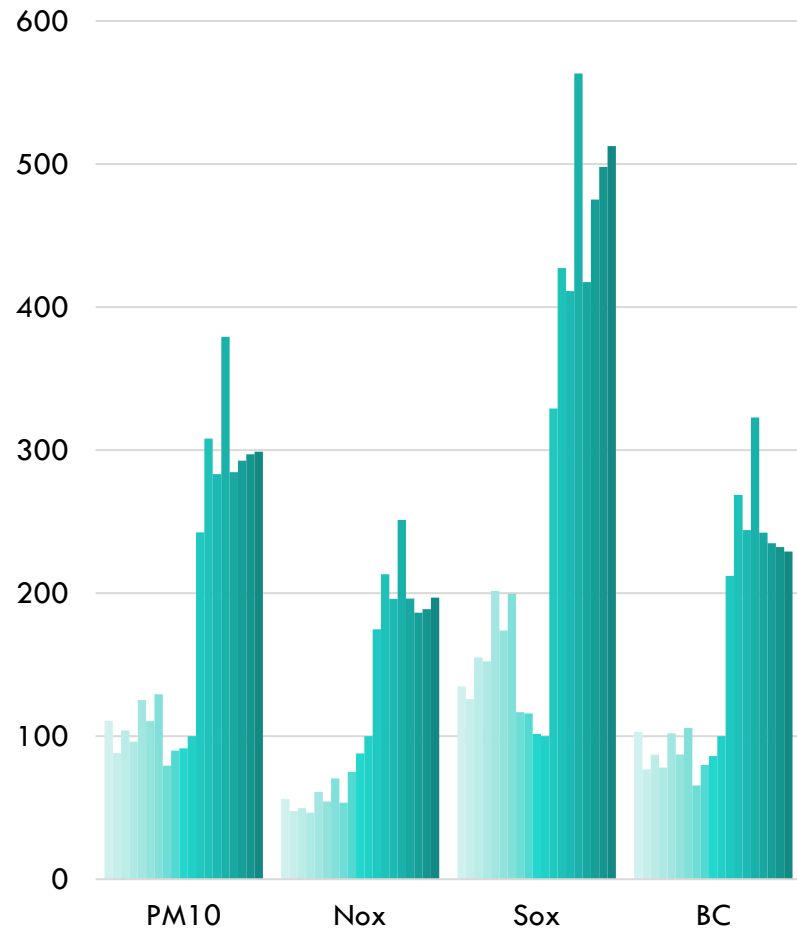


Port-specific risk per year as a percentage of the GDP (2021)

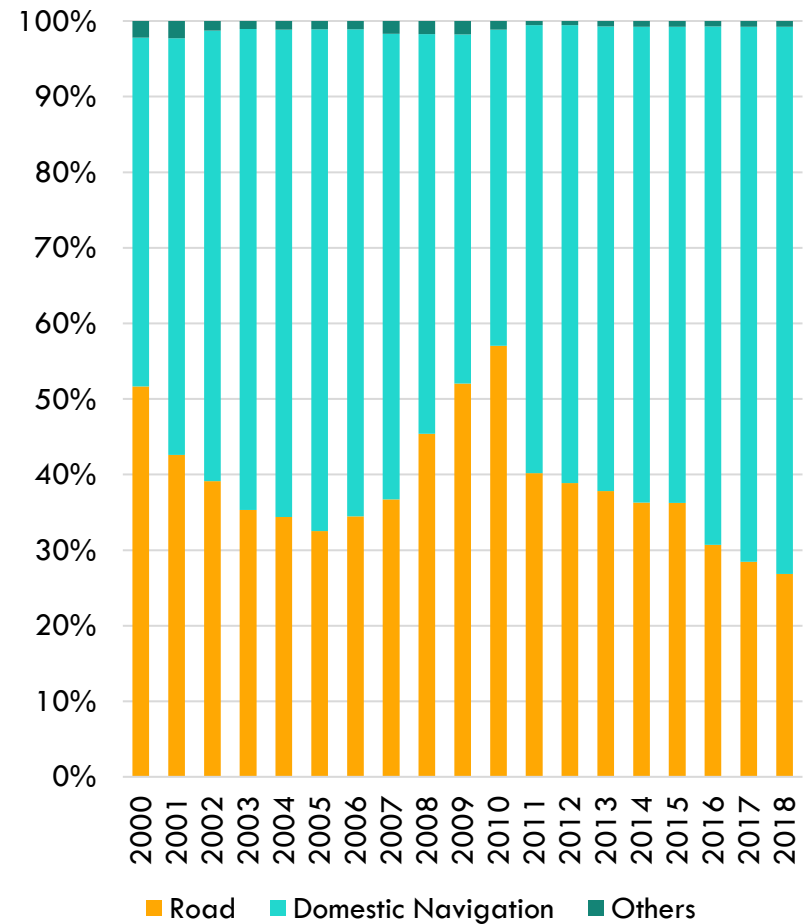


TRANSPORT AIR POLLUTION

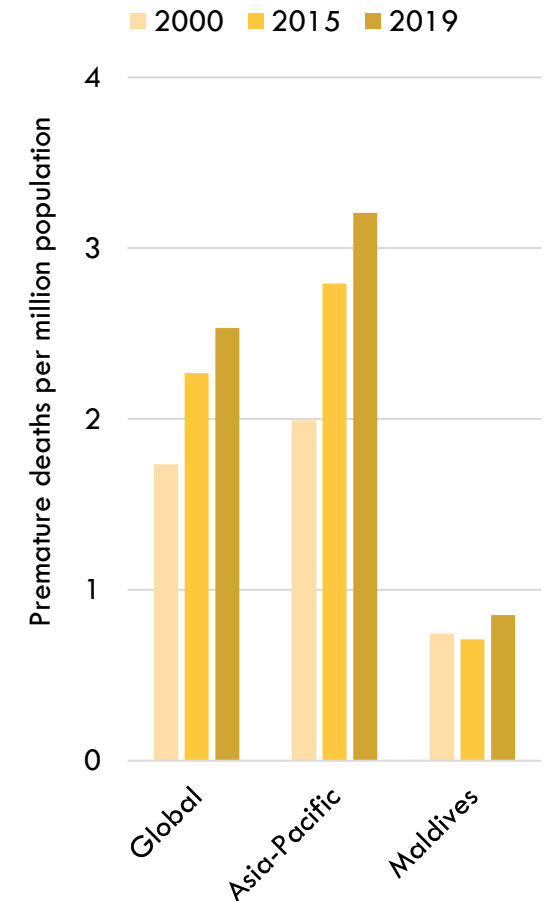
Transport Air pollutants 2000 - 2018
(2010=100)



Share of modes in total transport PM10 emissions

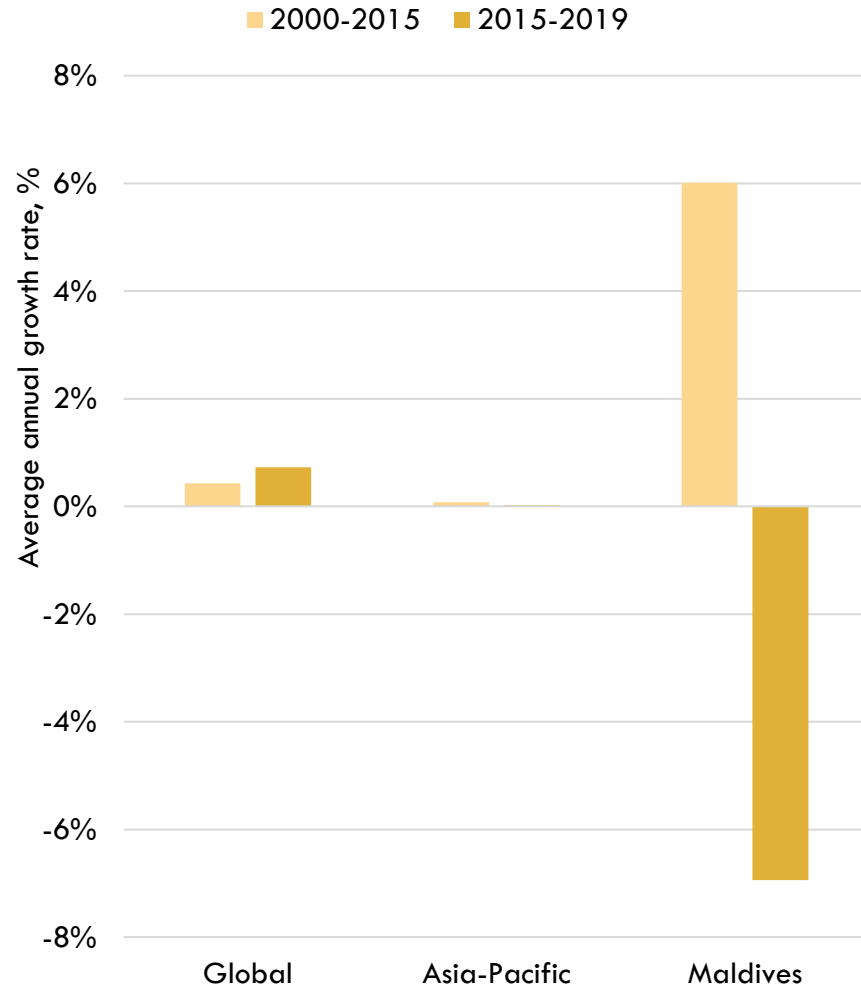


Death Rate due to Occupational Exposure to Diesel Engines

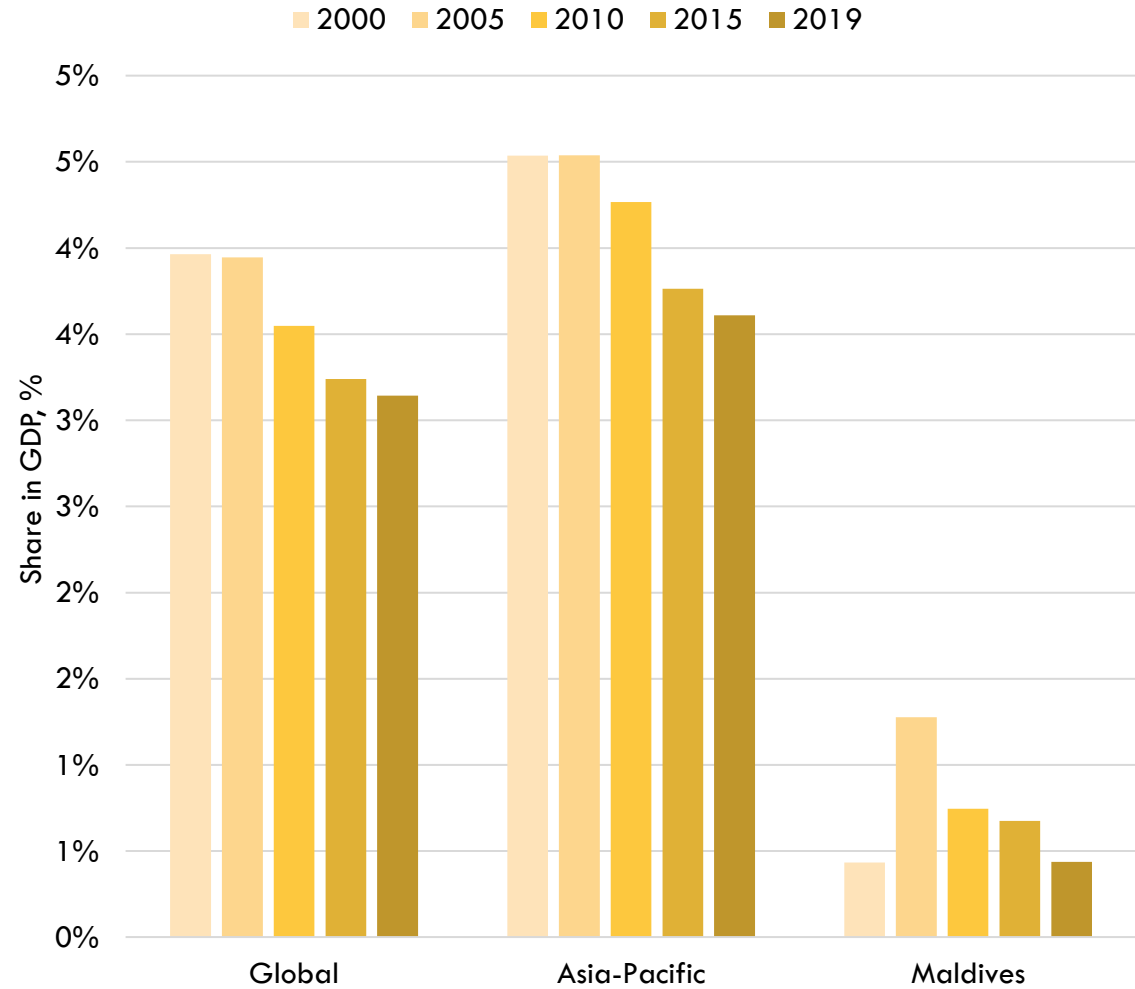


ROAD SAFETY

Annual Growth of Road Crash Fatalities

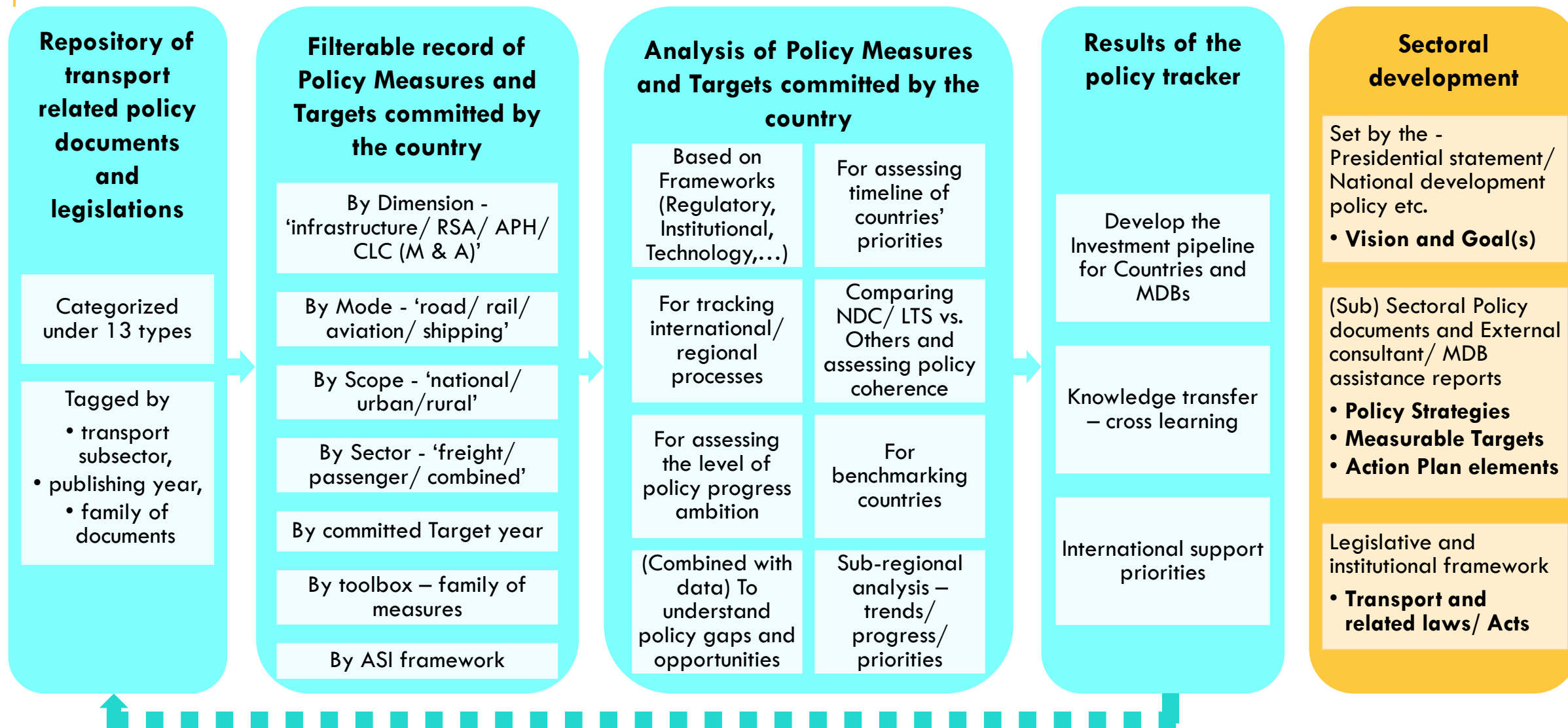


Cost of Road Crash Fatalities and Injuries as % of GDP



SECTION 3: POLICY INSIGHTS

ATO POLICY TRACKER IMPLEMENTATION

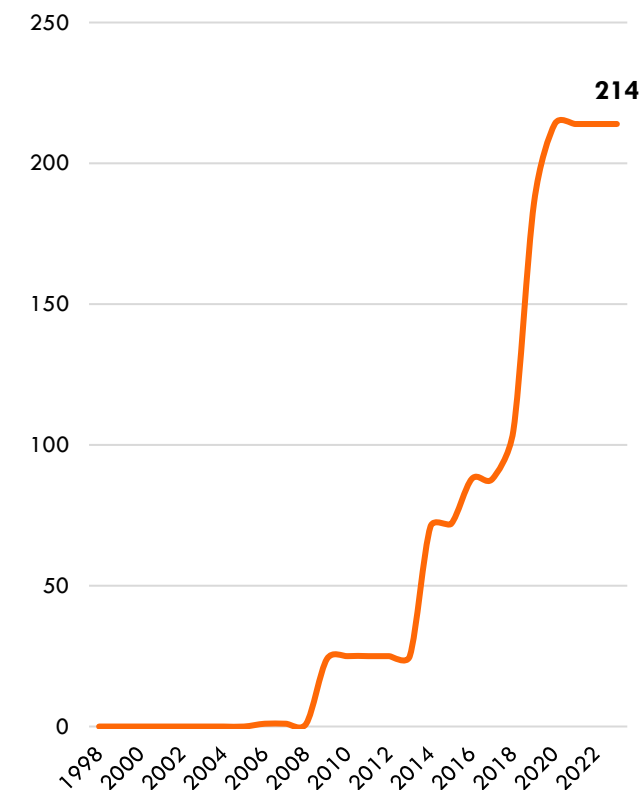


LIST OF TRANSPORT RELATED POLICY DOCUMENTS

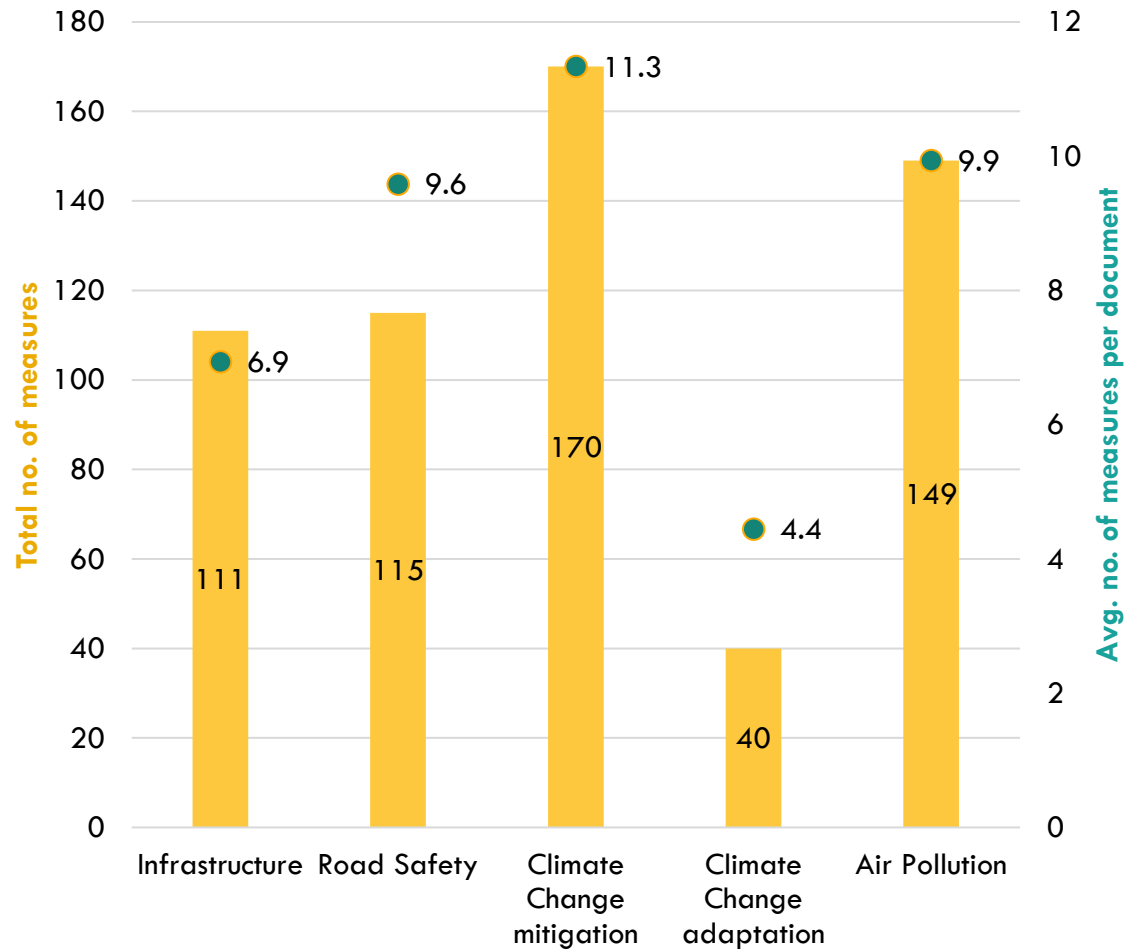
18 Documents

Document Name	Year Published	Document Type	Tag
National Strategy for Sustainable Development	2009	National Development Policy	SDG
Road Traffic Act	2009	Transport Laws/ Regulations	Road
Third National Environment Action Plan	2009	Other Transport-related Policy	National (General)
Strategic National Action Plan for Disaster Risk Reduction and Climate Change Adaptation 2010-2020	2010	Other Transport-related Policy	Climate
Maldives Climate Change Policy Framework	2015	Other Transport-related Policy	Climate
First NDC	2016	Nationally Determined Contributions	Climate
Maldives National Energy Policy and Strategy	2016	Other Transport-related Policy	Energy
National Communication (NC). NC 2.	2016	National Report to International/ Regional Processes	Climate
Biennial update report (BUR). BUR 1	2019	National Report to International/ Regional Processes	Climate
National Action Plan on Air Pollutants	2019	Other Transport-related Policy	Air Pollution
National Development Plan (ppt)	2019	Presentation by National Official	National Development Policy
National road safety action plan 2019 –2023	2019	Transport Subsector Policy	Road Safety
Strategic Action Plan 19-23	2019	National Development Policy	National Development Policy
Flight Plan 2020-2025	2020	Transport Subsector Policy	Aviation
National Spatial Plan (NSP) (2020-2040)	2020	Other Transport-related Policy	National (General)
Update of Nationally Determined Contribution of Maldives	2020	Nationally Determined Contributions	Climate
Low Carbon Strategy for Transport Sector	2014	Transport Subsector Policy	Climate
National Gender Equality Action Plan	2022	Other Transport-related Policy	Gender

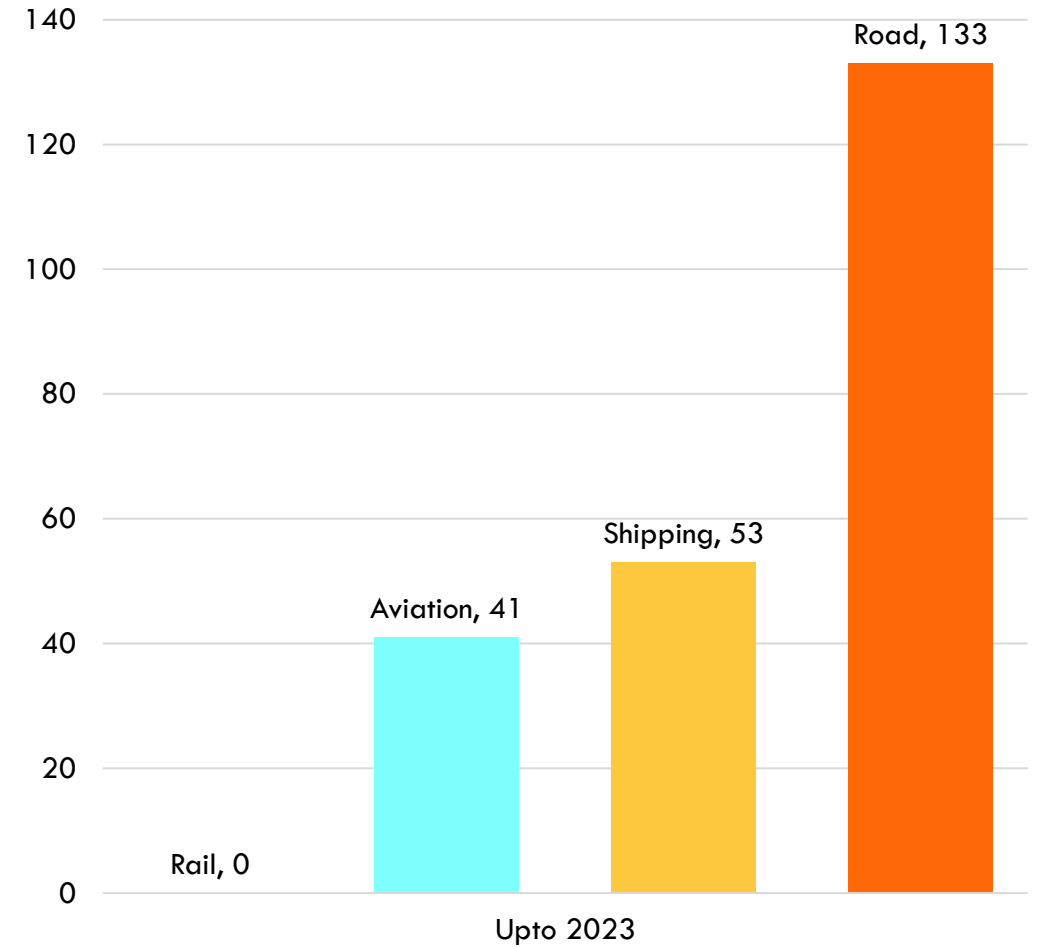
Cumulative number of policy measures



MEASURES BY DIMENSION AND MODES

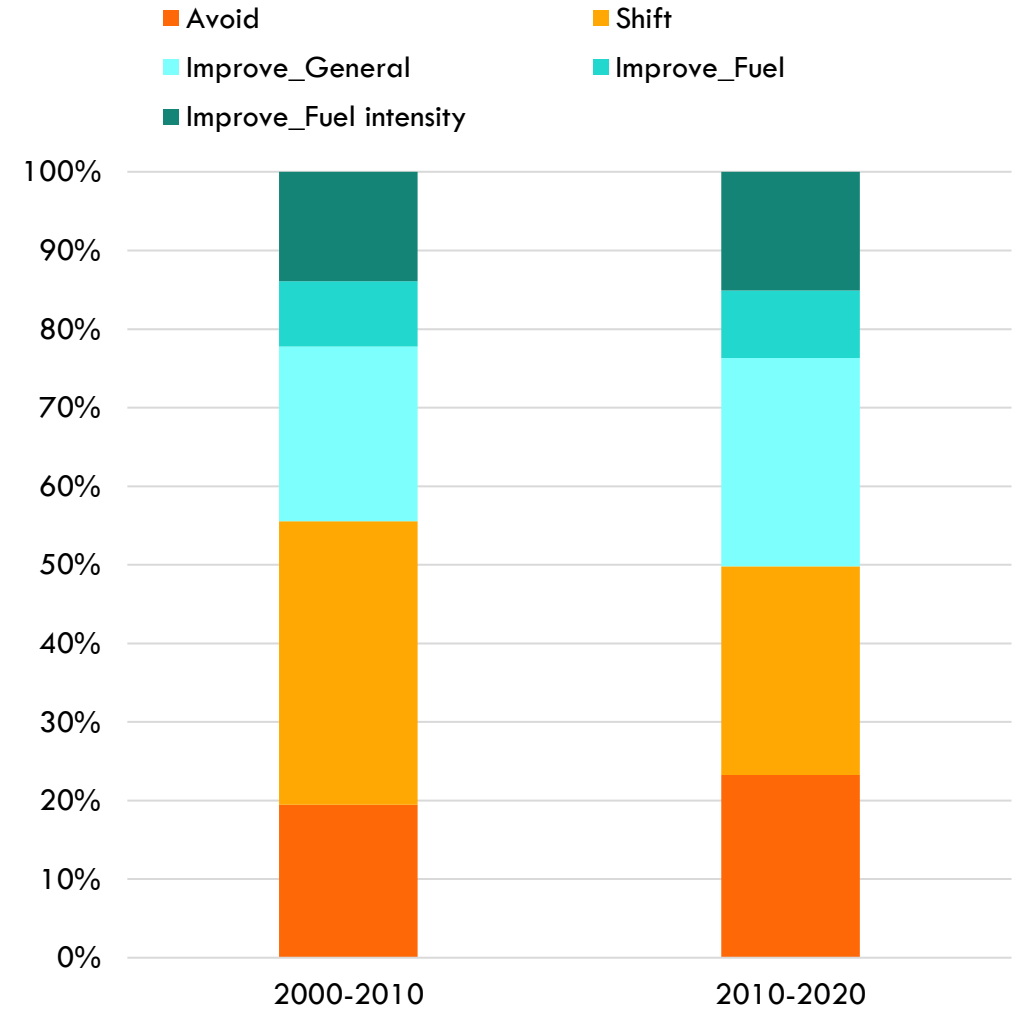
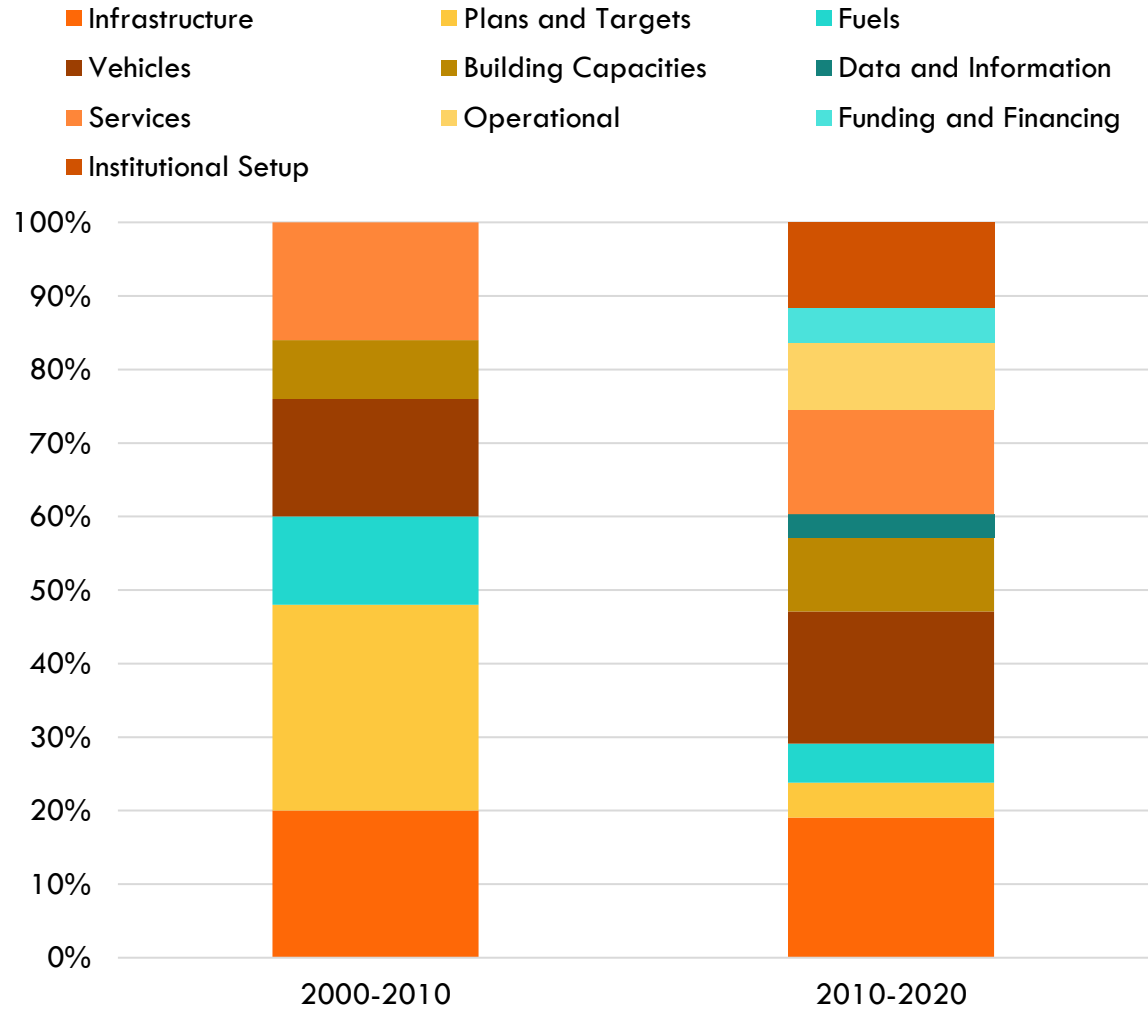


- Relatively lower focus on Climate change adaptation



- Largely the measures are for 'Road', followed by 'Shipping (including inland water navigation)'

POLICY MEASURES BY FRAMEWORKS



SAMPLE UNIQUE MEASURES FOR CLIMATE ADAPTATION

Transport Sector Measure	Text/Remarks	Document Name	Year
Disaster notification/ early warning system	Continue strengthening and expansion of the meteorological network and early warning systems to cover the entire archipelago. <ul style="list-style-type: none"> · Improve the climate and weather forecasting tools for decision making. · Strengthen the early warning systems and risk management tools. 	Update of Nationally Determined Contribution of Maldives	2020
Relocation from climate-risk areas	the commercial port would be relocated to a different island called Thilafushi.	First NDC	2016
Transport infrastructure resilience	Coastal protection measure would be carried out to protect the shoreline of Hulhule (the Airport Island) as well as for other air and sea ports. the impacts of high winds and seas to the operation of the port,	First NDC	2016
Transport infrastructure resilience	Initiating the development of a reliable inter-island transport network.	Strategic National Action Plan for Disaster Risk Reduction and Climate Change Adaptation 2010-2020	2010
Transport infrastructure resilience	Enhancing the resilience and climate proofing of critical infrastructure such as airports, ports, powerhouses and other utilities etc. Increase resiliency through better spatial planning and increased connectivity between the islands.	Update of Nationally Determined Contribution of Maldives	2020

SAMPLE UNIQUE MEASURES FOR CLIMATE MITIGATION

Transport Sector Measure	Text/Remarks
Active transport infrastructure expansion	By 2011, establish bicycle lanes on all developed roads and advocate cycling
Emission standards for aircraft	limit or reduce the impact of aviation emissions on local air quality, limit or reduce the impact of aviation greenhouse gas emissions on the global climate Pursue efficiency improvements in the Maldivian airspace to reduce environmental impact of aviation
EV charging infrastructure	promote the use of low emission vehicles such as bicycles, hybrids, and electric vehicles with dedicated RE-based charging stations
General e-mobility	promote the use of low emission vehicles such as bicycles, hybrids, and electric vehicles with dedicated RE-based charging stations
General freight and logistics improvements	measures to effect a shift towards lower transport intensity through production and logistic process reengineering and behavioural change combined with a better connection of the different transport modes. Network and establish links for freight logistics, for tourist resorts
Fuel quality	Detailed survey and/or analysis of imported fuel quality Develop fuel quality standards
Alternatively-powered rolling stock	promotion of hybrid-vehicles
Biofuels	Explore financial scheme to finance bioethanol blend Promote bioethanol fuel to use in transport instead of gasoline Introduce mechanism for import and distribute bioethanol fuel, Promote biodiesel fuel to use in transport instead of diesel
LPG/ CNG/ LNG	using natural gas or LPG, hybrid vehicles,
General public transport	Strengthen Public transport system
General public transport	Conduct feasibility assessments, alongside energy efficiency and fuel consumption analysis in providing public transportation through ferry and bus services Introduce government subsidised public transport service (mini-bus service, taxis and school buses)
Ship efficiency improvements	Develop vessel emission standards
Ship efficiency improvements	Establishment of vehicle/vessels emissions standard
Target - Net zero, carbon neutrality, and other long-term climate action	Informed decision making on becoming carbon neutral
Teleworking	Develop and train to use internet-based systems for women to work from home
Intermodality measures	Intermodal (air, land and marine), integrated transportation network covering the archipelago
Technology and knowledge transfer	Clean technology and health conscious
Development of climate change/ low carbon plan/ policy	Prepare a sectoral low emission development plan to reduce GHG emission. - Transport Develop comprehensive plans and policies to reduce GHG emissions from the transport sector
Vehicle inspection and maintenance	air quality emissions testing vehicle inspection and monitoring equipment
Vehicle inspection and maintenance	Periodic inspection is in effect
Vehicle air pollution emission standards	Revise vehicle emission standards
Vehicle efficiency standards	Improve energy efficiency in the transport sector by making use of cost-effective instruments.
Vehicle labelling	introduce emission standards and labelling for road transport
Vehicle restrictions (import, age, access, sale, taxation)	Review and revise the regulation to address the age of vehicles imported into the country
Vehicle scrappage scheme	Strengthen the infrastructural and technical capacity in transfer and demolition of vehicles in the toward facilities in enforcement of regulatory requirements

SAMPLE UNIQUE TARGETS

Transport Sector Measure	Text/Remarks	Document Name	Year	Target
Renewable energy	By 2030, increase substantially the share of renewable energy in the global energy mix	Maldives National Energy Policy and Strategy	2016	2030
Biofuels	Bioethanol 15% blend in all gasoline	National Action Plan on Air Pollutants	2019	2025
	Biodiesel 20% blend in diesel			
General public transport	By 2023, at least 60% of the population in the Greater Male' Region utilise public transport services on a regular basis	Strategic Action Plan 19-23	2019	2023
General shipping improvement	By 2023, at least 60% of maritime incidents are reduced compared to 2018 levels	Strategic Action Plan 19-23	2019	2023
	By 2023, 90% of the resident population have access to air connectivity within a 30-minute radius by speed boat			
General transport demand management	By 2023, vehicle congestion in Greater Male' Region is reduced by 30% compared to 2018 levels	Strategic Action Plan 19-23	2019	2023
Vehicle efficiency standards	Economy-wide: BY 2030, double the global rate of improvement in energy efficiency	Maldives National Energy Policy and Strategy	2016	2030

Transport Sector Measure	Text/Remarks	Document Name	Year	Target
General public transport	By 2023, at least 60% of the population in the Greater Male' Region utilise public transport services on a regular basis	Strategic Action Plan 19-23	2019	2023
General transport demand management	By 2023, vehicle congestion in Greater Male' Region is reduced by 30% compared to 2018 levels	Strategic Action Plan 19-23	2019	2023

SAMPLE UNIQUE MEASURES FOR ROAD SAFETY

Transport Sector Measure	Text/Remarks
Active transport infrastructure expansion	By 2011, establish bicycle lanes on all developed roads and advocate cycling
Awareness raising on the benefits of safe vehicle systems and proper maintenance of vehicles	Conduct Road safety awareness programs/campaigns
Bus fleet renewal	Review and modify buses and bus terminals to ensure passenger safety and accessibility, with a specific focus on PWDs, pregnant women, people with young children, and senior citizens
General education and behavior change	Conduct a behavioral outcome survey
General education and behavior change	Conduct periodic awareness sessions to students enrolled in higher secondary and above, on road safety, ethics, road courtesy, and first aid
General vehicle improvements	Strengthen vehicle safety features and systems mandatory through legislation
Lead agency on road safety	Establish a Government Road Safety Board/council (Policy) Establish a technical Road Safety committee Appoint Road Safety Lead Agency
Lead agency on road safety is responsible for legislation	Conduct mandatory road crash investigations for fatal incidents
Lead agency on road safety is responsible for monitoring and evaluation	Strengthen an integrated National Surveillance system for road crash
National drug-driving law in place	Incorporate regulations on substance use and driving
Nationwide emergency hotline for road crashes	Establish universal national emergency care access number &
Number of vehicle registration limit	capping of the number of vehicles for islands
Reference to finance mechanisms within country	Establish a mechanism for insurance companies to support road safety projects
Rehabilitation programs and financing of care for crash victims	Integrate trauma care in the existing emergency services Establish post-crash response services
Routine transport asset maintenance	Conduct mandatory road safety audit at regular intervals and periodically
Speed limit on rural roads <= 70 kph	30 km/h
Stakeholder Involvement	Build technical capacity of relevant stakeholders in relation to road safety implementation
Technical standards for general transport infrastructure	Enforce the current safety standards and regulations for all categories of existing vehicles
Technical standards for road infrastructure	Incorporate international standards / National legislations are followed in Improve existing road infrastructure Incorporate safety system in all stages of road development
Traffic management	Strengthen traffic enforcement
Training on first aid for road users	Conduct periodic trainings for taxi drivers and those employed in private hire vehicles on transport regulations, road safety, road courtesy, and first aid
Transport law	Strengthen current licensing system
Vehicle import inspections	Ensure all vehicles imported are in accordance with the national and international safety standards
Vehicle inspection and maintenance	Establish maintenance service providers that are easily accessible in all parts of the country.
Vehicle inspection and maintenance	Strengthen the monitoring of road worthiness centres and enforce authorisation of road worthiness
Vehicle restrictions (import, age, access, sale, taxation)	Review and revise the regulation to address the age of vehicles imported into the country
Vehicle scrappage scheme	Strengthen the infrastructural and technical capacity in transfer and demolition of vehicles in the toward facilities in enforcement of regulatory requirements

SOURCES

Socio – Economic Indicators:

- UN Statistics Division
- ILO
- World Bank

Infrastructure Indicators:

- Christopher Barrington-Leigh et al.
- TRL
- Nirandjan, et al.
- IRF

Access Indicators:

- SDSN
- UN DESA
- ITU
- UNCTAD

Climate Change Indicators:

- ESMAP
- EDGAR
- UN Stats
- Ember
- Koks et al.
- Verschuur et al.
- IEA

Air Pollution Indicators:

- EDGAR
- GBD

Road Safety Indicators:

- WHO
- World Bank
- GBD
- Country Official Stats

Misc. Common/ Policy:

- ATO Outlook
- ATO Policy Tracker (*Not published*)

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

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