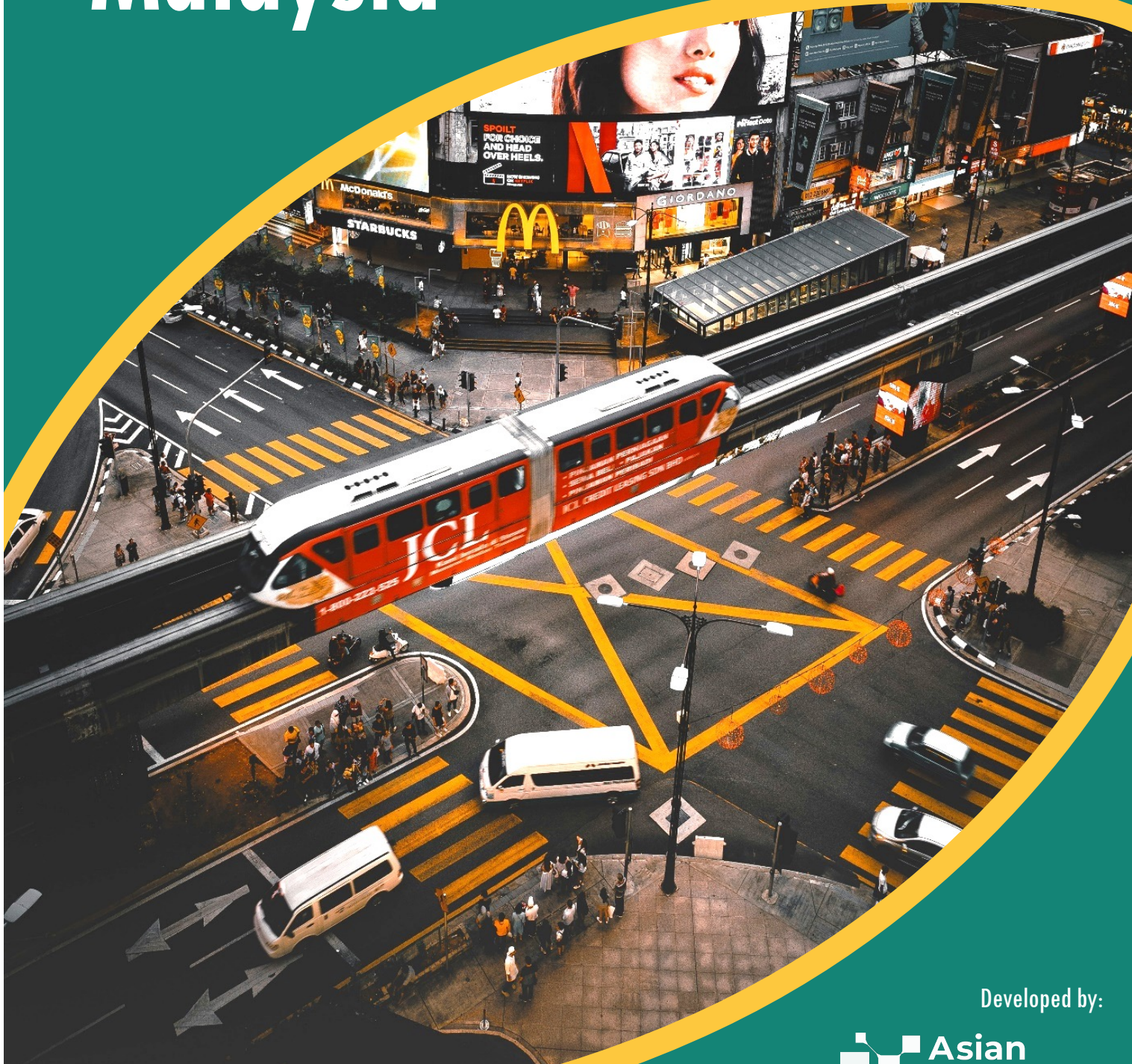


Transport and Climate Profile Malaysia



Credits: unsplash

Developed by:



Developed with the support of:



Introduction to the profiles: These “Transport and Climate Profiles” are part of the research work entitled “Transport NDC Gap Analysis for Low- and Middle-Income Countries (LMICs) in Asia and the Pacific” which is being implemented and builds on the work of the Asian Transport Outlook (ATO), a project initiated and supported by the Asian Development Bank (ADB). ATO is also being supported by the Asian Infrastructure Investment Bank (AIIB). The research is being co-funded by UKAID through the UK Foreign, Commonwealth and Development Office (FCDO) under the High-Volume Transport (HVT) Applied Research Program managed by DT Global International Development UK LTD (DT Global). The research is being implemented under HVT057 (Transport Decarbonisation Index - <https://transport-links.com/funded-projects/transport-decarbonisation-index-tdi>) whose lead research supplier is the Partnership on Sustainable, Low Carbon Transport. These profiles are designed to complement the main report of the research entitled *Bridging the Gap: A Deep Dive into NDCs and Transport Policy Landscapes in Low- and Middle-Income Asian Economies*. While intended as supplementary materials, they also function as standalone knowledge products. All the related knowledge products will be made available through <https://asiantransportoutlook.com/analytical-outputs/ndc-analysis> and <https://asiantransportoutlook.com/analytical-outputs/transportclimateprofiles/>

The Asian Transport Outlook (ATO) is an initiative that aims at strengthening the knowledge base on transport in the Asia-Pacific region. It supports the planning and delivery of transport-related assistance in Asia, supports wider transport policy making, and helps track global and regional processes related to sustainable development. For example, ATO is the monitoring mechanism for the Aichi 2030 Declaration on Environmentally Sustainable Transport – Making Transport in Asia Sustainable (2021-2030) which was adopted by more than 20 countries in Asia-Pacific through the High Level Environmentally Sustainable Transport Forum (EST) that is organized by the United Nations Centre for Regional Development (UNCRD)-DSDG/UN DESA, along with its partners. For more information, visit asiantransportoutlook.com

This profile is structured into two main sections: Data Insights and Policy Insights. Under “Data Insights”, individual components at the intersection of transport and climate change are detailed. Similarly, the “Policy Insights” section outlines various policy documents, measures, and targets.

Disclaimer: The ATO project collects, collates, organizes, and presents transport-relevant data from publicly available official sources and reputable, peer-reviewed secondary sources. Users should be aware that: the ATO does not generate any primary data; the source data may contain inconsistencies or gaps; despite rigorous quality control measures, the ATO cannot guarantee the absolute accuracy, completeness, or suitability of the data for specific purposes.

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Transport and Climate Profile: Malaysia

August 2024

The publication is available at <https://asiantransportoutlook.com/analyticaloutputs/countryprofiles/>

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Executive Summary

An upper-middle-income country in Southeast Asia, Malaysia has seen a significant rise in transport-related CO2 emissions, a trend that has been accelerating since 2015.

CO2 Emissions:

- Malaysia's transport sector CO2 emissions in 2023 were 66.348 million tonnes, constituting 23% of the total economy-wide emissions. While the sector's emissions growth has slowed down to 1% annually since 2015, compared to 4% before the Paris Agreement, it still outpaces the Asia-Pacific average of 1% during the same period. The road sector remains the primary contributor, accounting for 99% of transport CO2 emissions in 2022 and 27% of total economy-wide emissions. Although Malaysia has reduced its transport sector CO2 emissions intensity with GDP to 51.9 gCO2 per USD in 2023 from 107.6 in 2000, it still lags behind the Asia-Pacific average of 32.0 gCO2 per USD.

Energy Consumption:

- Trends: Malaysia's transport sector's energy consumption was 722,150 terajoules in 2021. The sector's energy intensity with GDP has improved, reaching 0.74 megajoules per USD in 2021.
- Fuel Sources: Oil products dominate the road sector's energy consumption (95%), while electricity is the primary energy source for the rail sector.

Adaptation and Resilience:

- Potential Losses: Malaysia faces average annual losses of 151.59 million USD to its transport infrastructure due to hazards, representing 0.01% of its GDP.
- Vulnerability: Malaysia ranks 51st out of 208 countries in terms of national road vulnerability, indicating a need for improved resilience.

Vehicle Fleet:

- Growth: The vehicle fleet in Malaysia has grown significantly to about 35 million vehicles, with 1,021 vehicles per thousand population.
- Electric Mobility: Malaysia has made significant strides in electric vehicle (EV) adoption, importing 1353.1 million USD worth of EVs between 2017 and 2023, primarily electric light-duty vehicles (LDVs). The share of electric vehicles in total road vehicle imports grew from 3.1% in 2017 to 21.3% in 2023, surpassing the South East Asia subregion's average of 16.1%. This progress is reflected in Malaysia's high E-mobility Readiness Index score of 81/100 in 2024, with strong scores in access to technology, supportive EV policies, clean energy access, and financial instruments.

Urban Transport:

- Rapid Transit: Malaysia has expanded its urban rapid transit network, reaching 6.09 kilometers per million urban population in 2021. However, access to public transport remains limited in many cities.

Investments:

- ODA and PPP: Malaysia has received official development assistance (ODA) and public-private partnership (PPP) investments in the transport sector, primarily focusing on roads, rail, and ports.

Policy:

- The NDC has an economy-wide emissions target indicating that Malaysia intends to reduce its GDP's greenhouse gas (GHG) emissions intensity by 45% by 2030, relative to the emissions intensity of GDP in 2005. This consists of 35% on an unconditional basis, and a further 10% is conditioned upon receipt of climate finance, technology transfer and capacity building from developed countries.; The updated NDC includes the following increased ambition: (a) The 45% of carbon intensity reduction is unconditional;
 - NDC and LTS: Malaysia's Nationally Determined Contribution (NDC) sets an economy-wide emissions target but lacks specific transport sector targets. The country also lacks a Long-Term Strategy (LTS) with particular emissions reduction goals.
 - Policy Priorities: Malaysia's priorities focus on general e-mobility, vehicle air pollution standards, public transport, and institutional reform.

NDC Gaps and Policy Alignment:

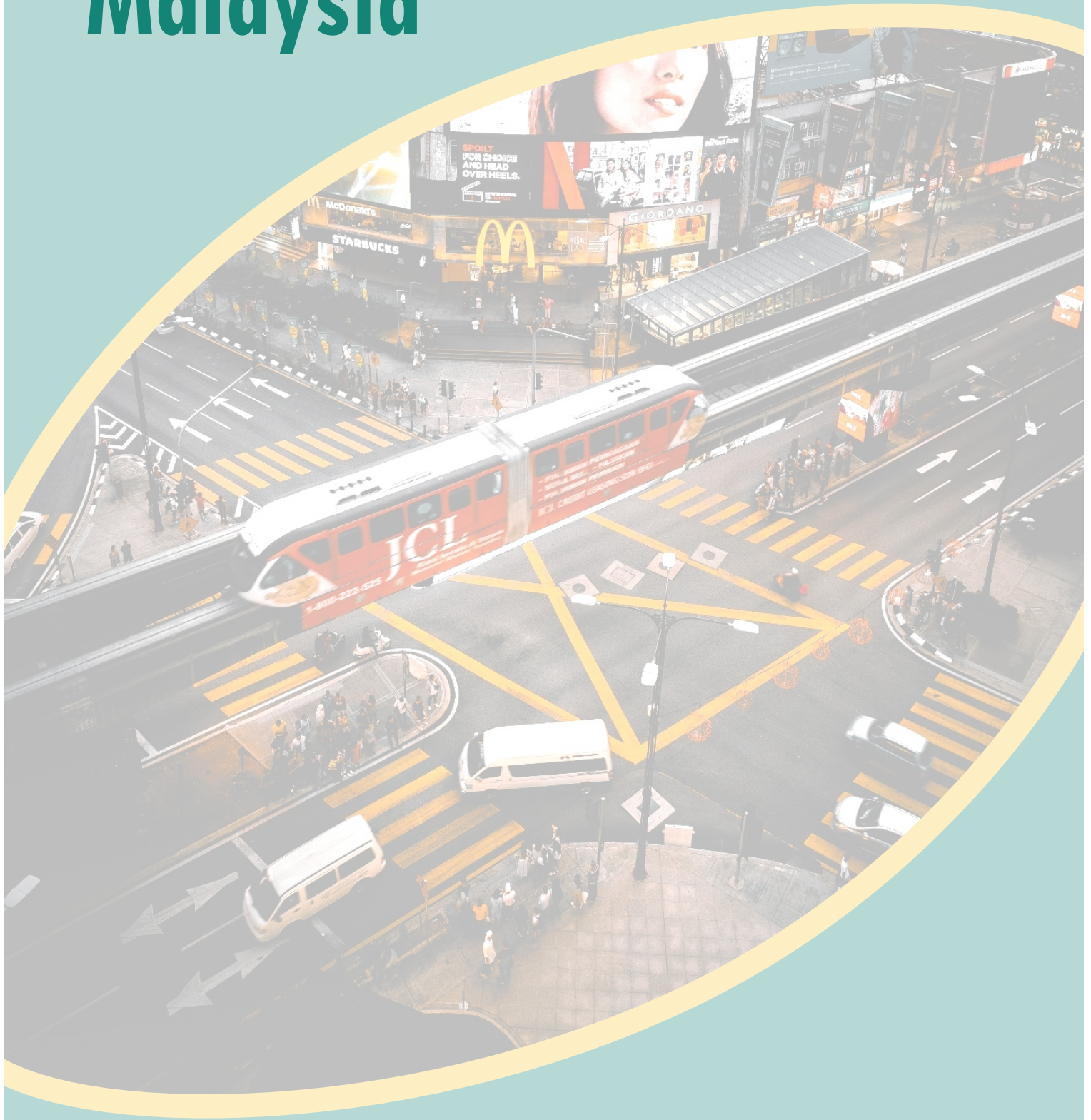
- Malaysia's broader transport policy documents reveal diverse targets, including biofuels, EV charging infrastructure, modal shifts, and vehicle emission standards. However, a significant gap exists between these policy documents and the country's Nationally Determined Contribution (NDC) and Long-Term Strategy (LTS). None of the top 10 climate change policy priorities identified in these documents are derived from the NDC or LTS, indicating a misalignment between national climate goals and the implementation of transport policies. Furthermore, the focus heavily leans toward climate change mitigation (78%) with minimal emphasis on adaptation and resilience (14%). This imbalance could leave Malaysia's transport sector vulnerable to the adverse effects of climate change. Key documents like the Twelfth Malaysia Plan, Green Technology Master Plan, and Low Carbon Mobility Blueprint, while addressing relevant issues, do not fully bridge this gap. This analysis underscores the need better to integrate climate considerations into Malaysia's transport policies and develop a comprehensive long-term strategy to address both mitigation and adaptation in the transport sector.

Policy Priorities and Opportunities:

- Priorities: Prioritizing the development of a comprehensive transport sector strategy with clear emissions reduction targets is crucial.
- Opportunities: Malaysia can explore opportunities to expand electric mobility, improve public transport access, and invest in resilient transport infrastructure.

Malaysia's transport sector faces significant challenges related to emissions, energy consumption, and resilience to climate change impacts. Addressing these challenges requires a comprehensive approach integrating ambitious targets, supportive policies, and investments in sustainable transport solutions. Malaysia can move towards a more sustainable and resilient transport system by strengthening policy alignment with the NDC, promoting electric mobility, and enhancing public transport.

Data Insights Malaysia



Malaysia

Transport and Climate Profile

Population (2024)

34.7 million

Urban population

79%

Rural population

21%

Below 18 y.o.

28%

Above 60 y.o.

12%

Population density

104 persons per sqkm

Subregion

(1) **South East Asia**

Income class

Upper middle income

Gross domestic product

(1) (GDP PPP, 2023)
1.28 trillion USD

GDP per capita (PPP, 2023)

37,248 USD (1,2)

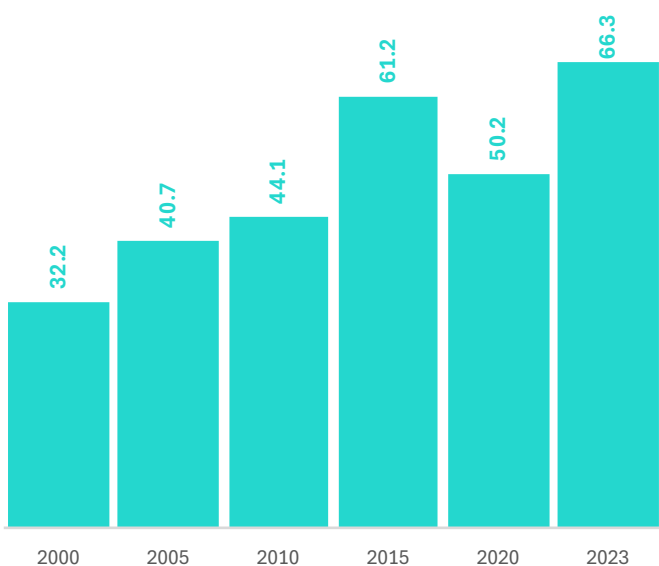
(1) Domestic consumption per capita, tonnes (2024)

21.3 tonnes (3)

(1,2) *Domestic consumption is the total amount of materials directly used in the economy (used domestic extraction plus imports), minus the materials that are exported.*

I. Transport and Climate Change

Transport fossil CO2 emissions, million tonnes



In 2010, transport contributed 20% of total fossil CO2 emissions. By 2023, transport contributed 23%.

Share of transport CO2 emissions by mode (2022)

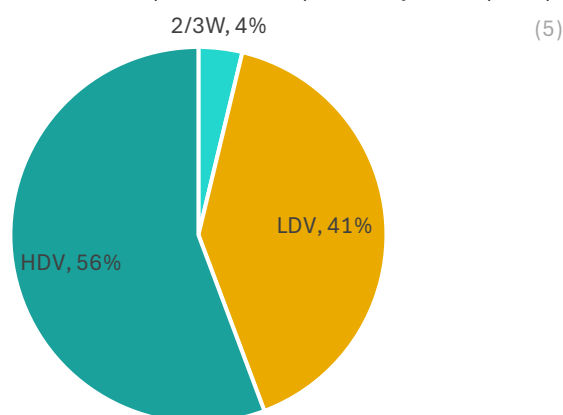
(4) | Road **99.1%** | Rail **0.0%** (4)

| Navigation **0.0%** | Aviation **0.9%** (4)

Navigation and aviation only includes domestic transportation

Between 2000-2015, road transport contributed 97% in transport fossil CO2 emissions. Between 2016-2022, road transport contributed 98%.

Road transport CO2 emissions (well-to-wheel), share by mode (2022)



Transport CO2 emissions intensity (2023)

52 gCO2 per USD

(2,4)

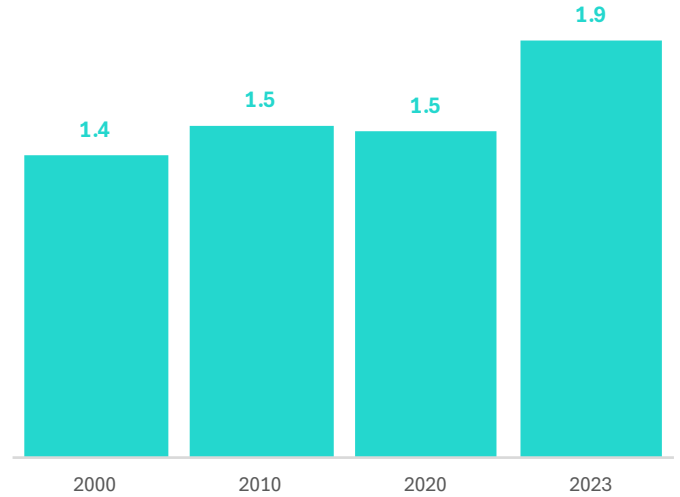
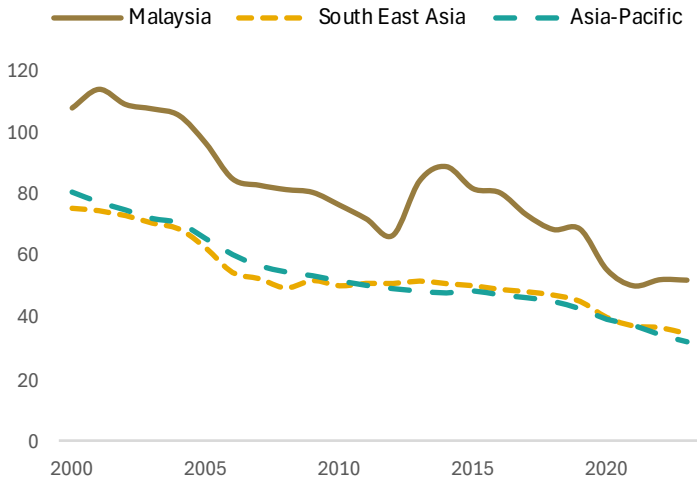
Asia-Pacific average is 32 gCO2 per USD

Transport fossil CO2 emissions per capita, tonnes

(1,4)

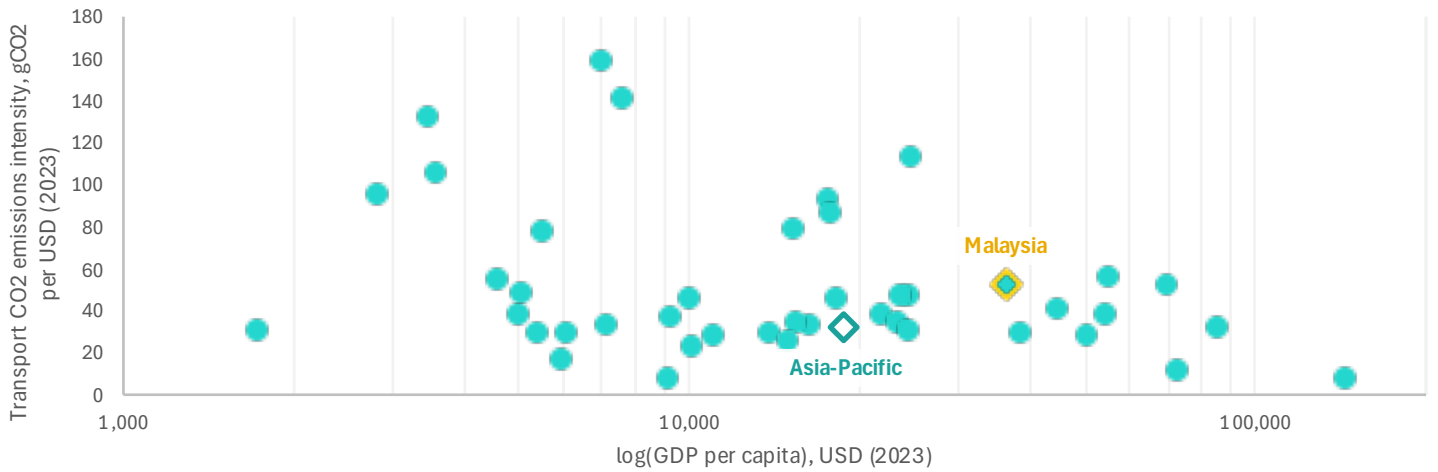
Transport CO2 emissions intensity trend, gCO2 per USD

(2,4)



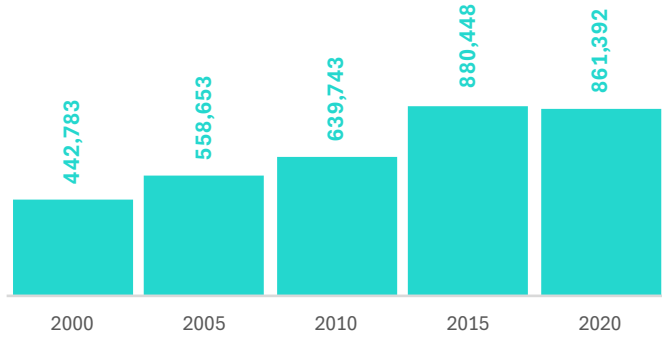
Transport CO2 emissions intensity in Asia-Pacific, gCO2 per USD

(2,4)

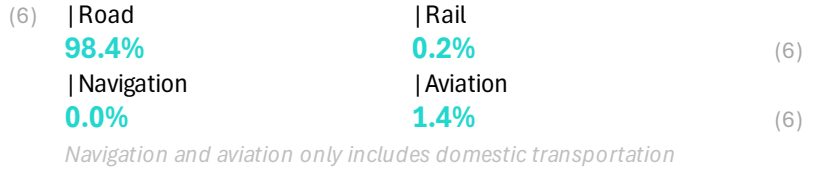


II. Transport Energy Consumption

Transport energy consumption, TJ



Share of transport energy consumption by mode (2021)

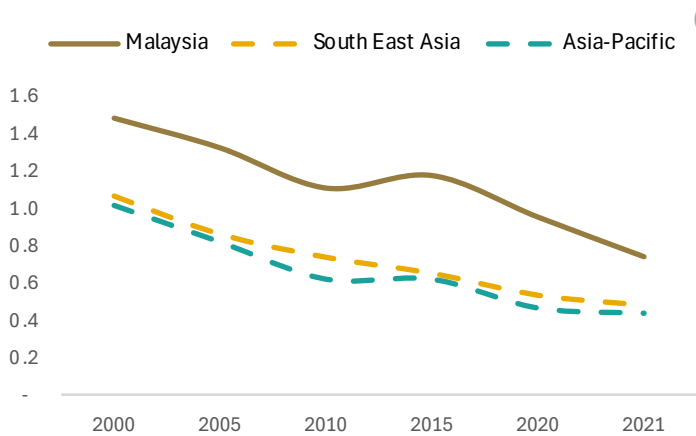


Transport energy intensity (2021)

0.7 MJ per USD
Asia-Pacific average is 0.4 MJ per USD

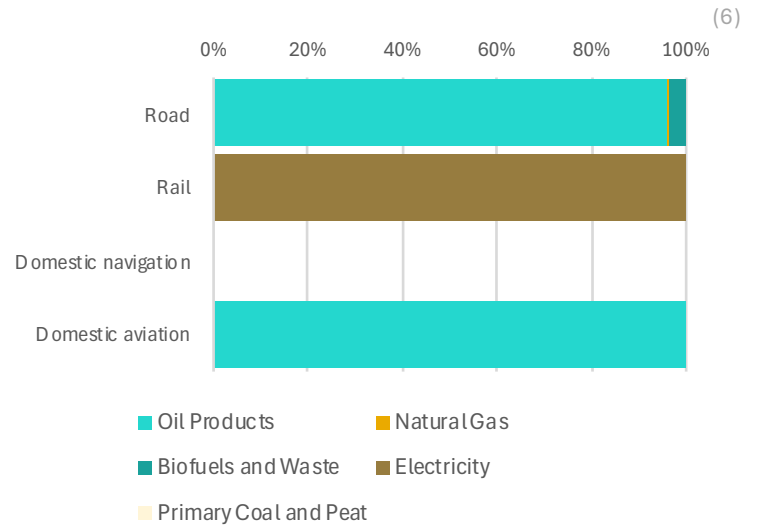
(2,6)

Transport energy intensity trend, MJ per USD



(2,6)

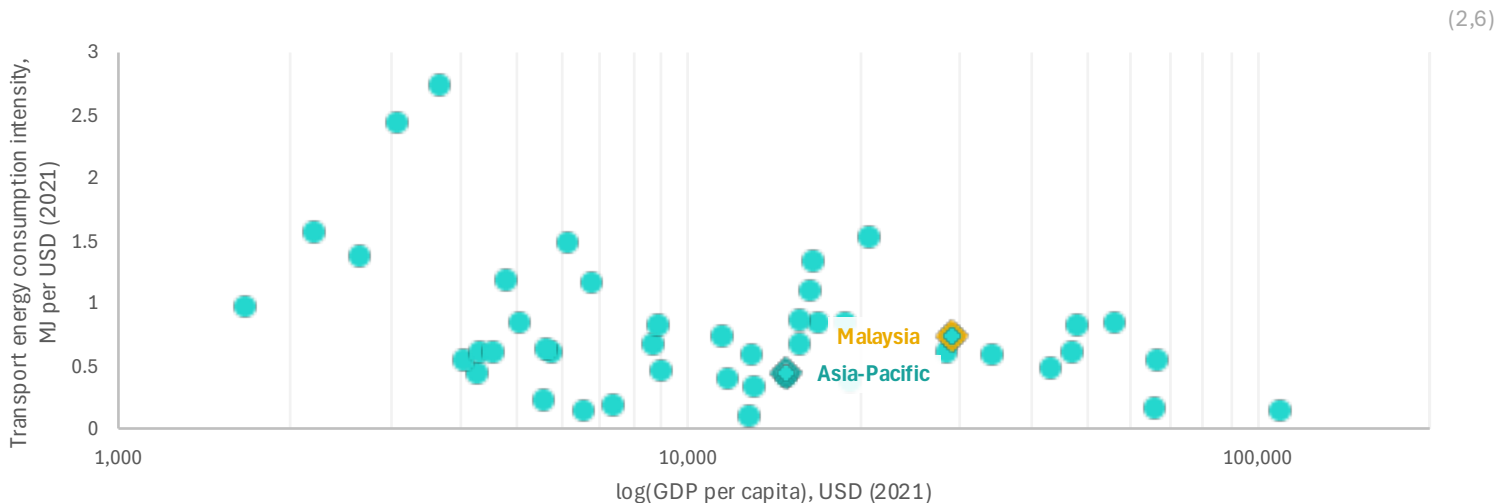
Share of transport energy consumption by source (2021)



Share of transport in renewable energy consumption



Transport energy intensity in Asia-Pacific, MJ per USD

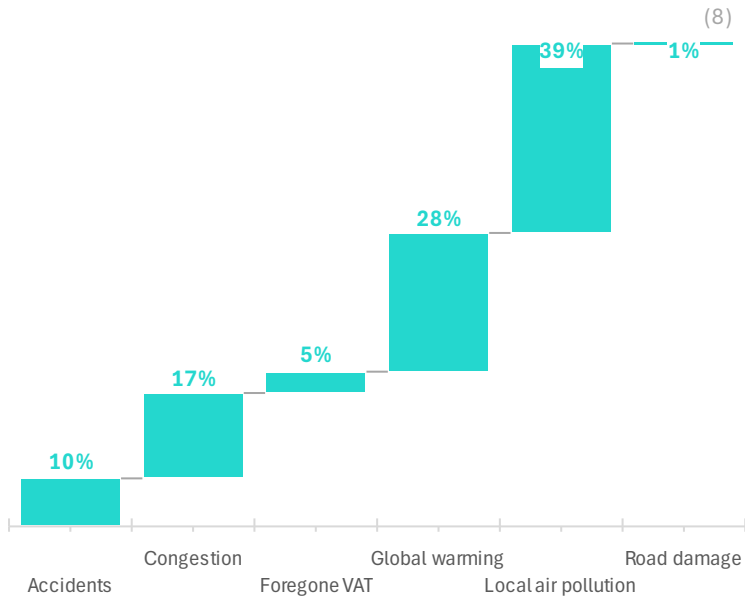


Transport fossil fuel subsidies, cumulative (2010-2022)

34.59 billion USD

5.6% of Asia-Pacific total

Estimated externalities due to fossil fuel subsidies



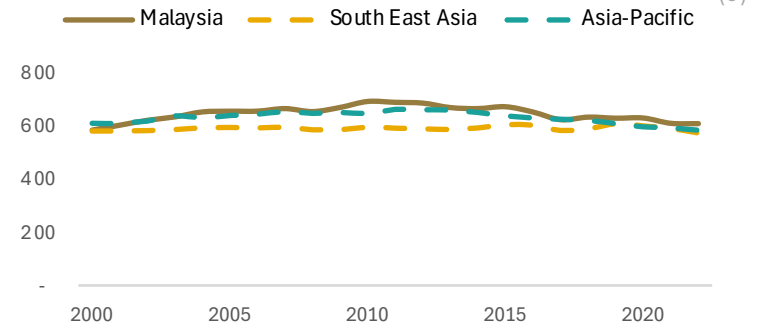
Data includes all sectors and all fuel types

Grid emission factor (2022)

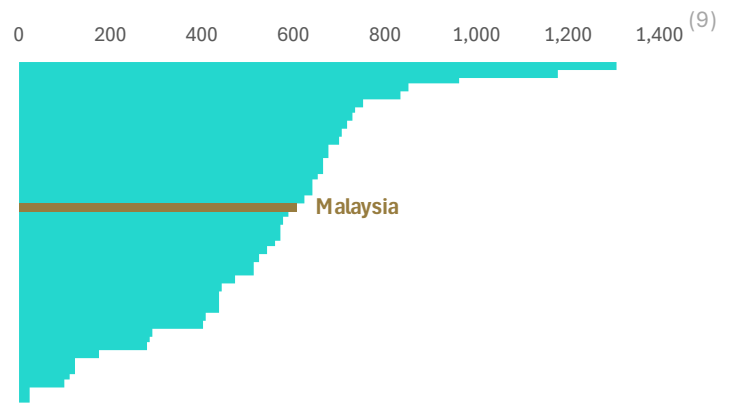
(7) **606 gCO₂ per kWh**

(9)

Grid emission factor trend, gCO₂ per kWh



Grid emission factors in Asia-Pacific, gCO₂ per kWh



III. Adaptation and Resilience

Average annual losses to transport infrastructure due to hazards (2023)

152 million USD

Road	Rail
58%	40%
Ports	Airports
1%	0%

National road vulnerability index ranking (2023)

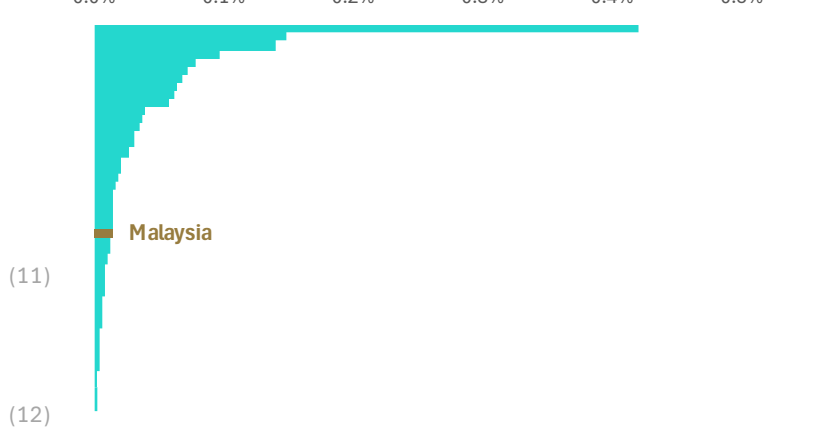
51st out of 208 countries

Share of population in low elevated coastal zones (2018)

5%

Average annual losses to transport infrastructure due to hazards, as a share of GDP, in Asia-Pacific (2023)

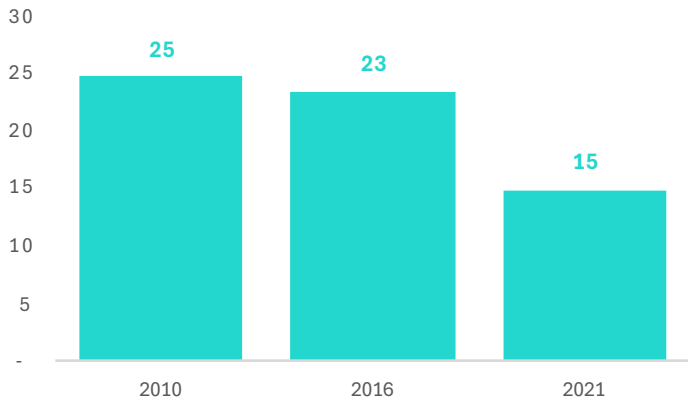
(10) 0.0% 0.1% 0.2% 0.3% 0.4% 0.5% (10)



IV. Other Externalities

Road crash fatalities (2021)
4.7 thousand deaths

Road crash fatality rate per 100 thousand population

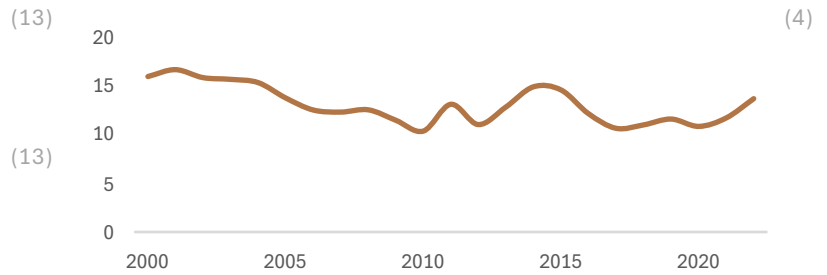


Asia-Pacific average is 16 fatalities per 100 thousand population

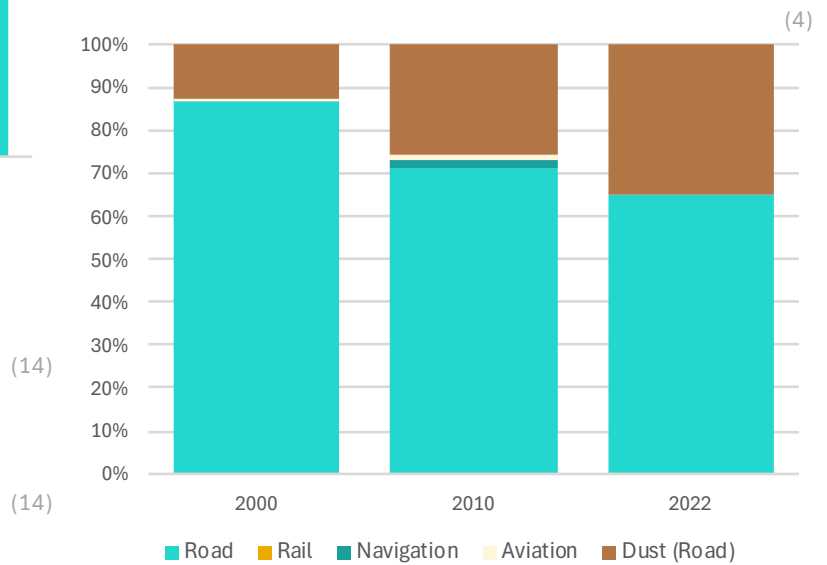
Rural access index (2023)
85%

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

Transport PM 2.5 emissions trend, thousand tonnes



Transport PM 2.5 emissions share by source



V. Vehicle Fleet

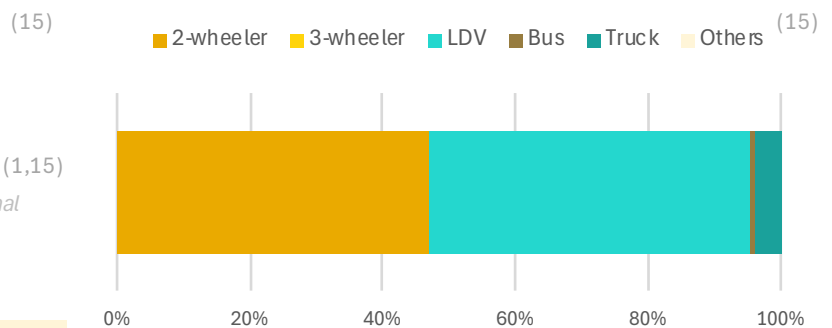
Road vehicles (2022)
34.6 million vehicles

Road vehicle motorization rate (2022)
1,021 vehicles per thousand population

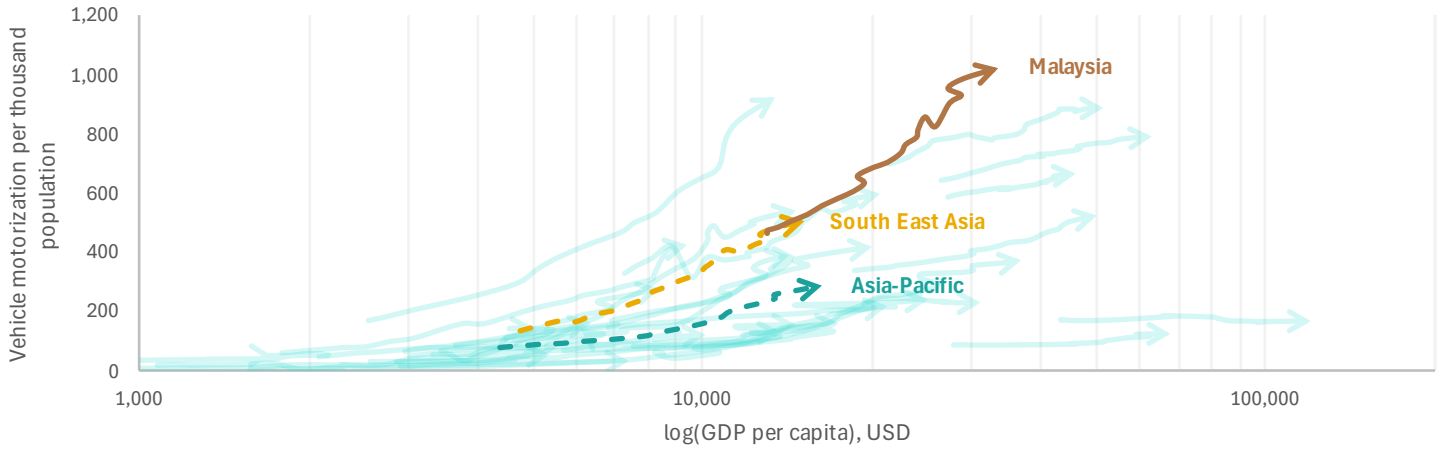
Road vehicles include 2- and 3-wheelers, LDVs, buses and other informal public transport, trucks, and other unclassified types

In 2000, Malaysia had 463 vehicles per thousand population. By 2022, this has increased to 1,021 compared with Asia-Pacific average of 577 in 2022.

Share of vehicles by type



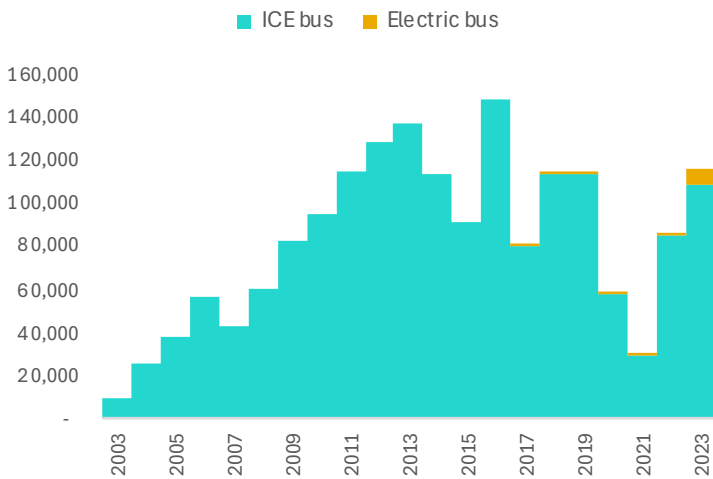
Vehicle motorization per thousand population in Asia-Pacific (2000-2022)



Bus import value (2015-2023)

824.6 million USD

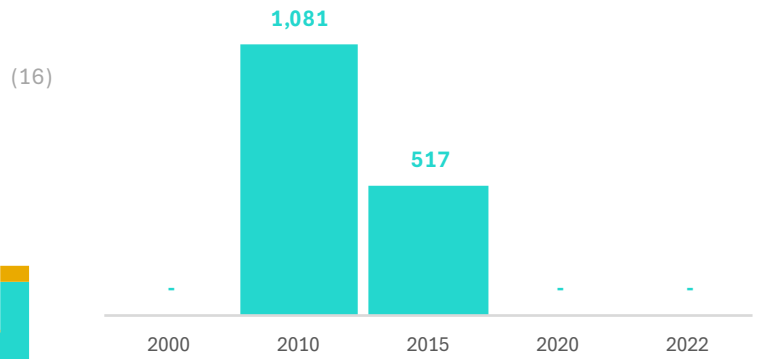
Bus import value, thousand USD



Bus vehicle production, units

(16)

(17)



E-mobility Readiness Index (2024)

| Technology & Market

20/25

| Policy

15/25

| Energy

21/25

| Financial

25/25

| Overall

81/100

(18)

Electric road vehicle import value (2017-2023)

1353.1 million USD

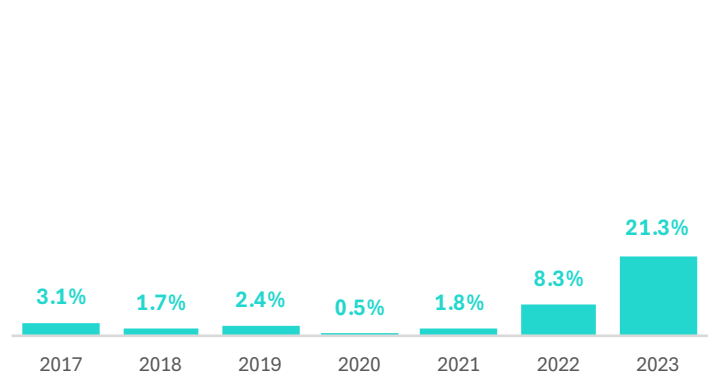
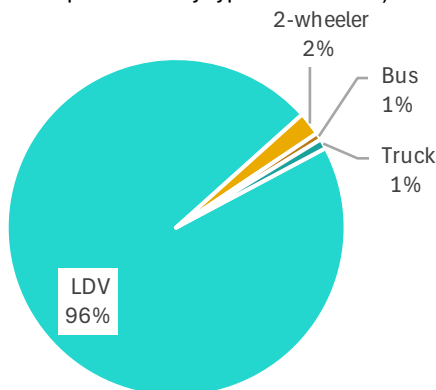
(16)

Electric road vehicle share in total road vehicle import value trend

(16)

Electric road vehicle import share by type (2017-2023)

(16)



VI. Urban Transport

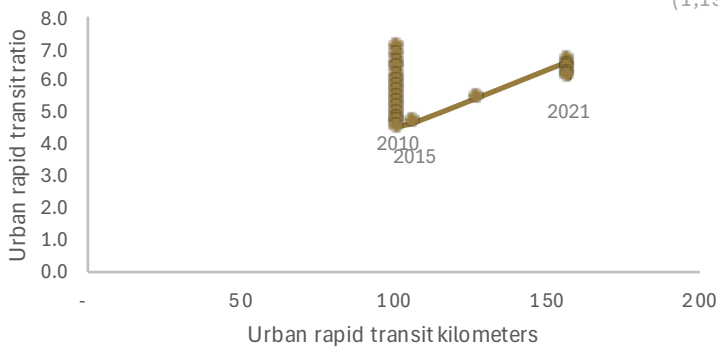
Urban rapid transit length (2021)

| BRT **5 kilometers** | LRT **None**
 | Metro **152 kilometers**

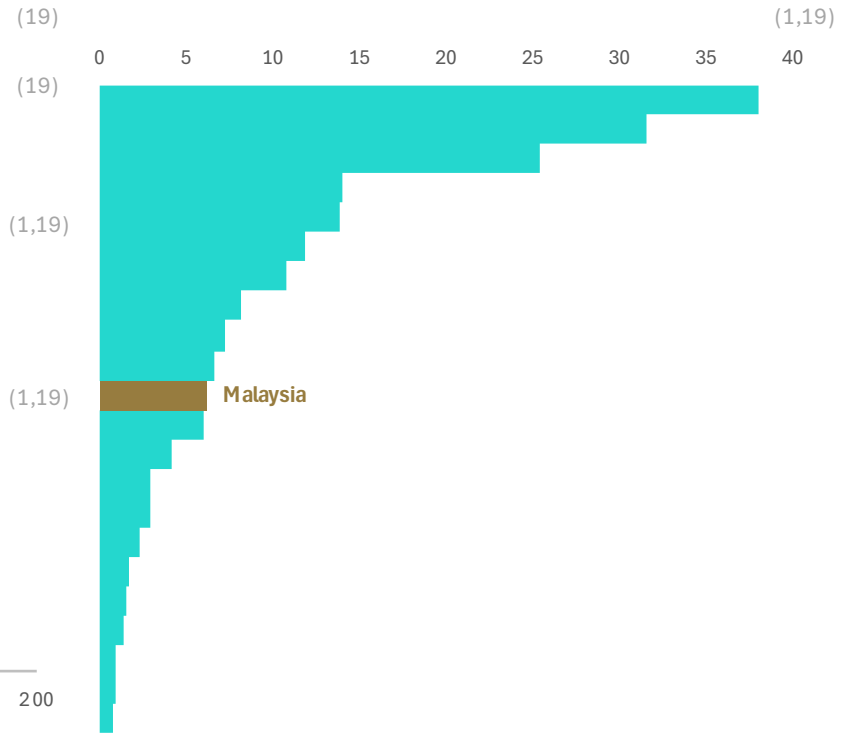
Urban rapid transit ratio (2021)

6.1 kilometers per million urban population

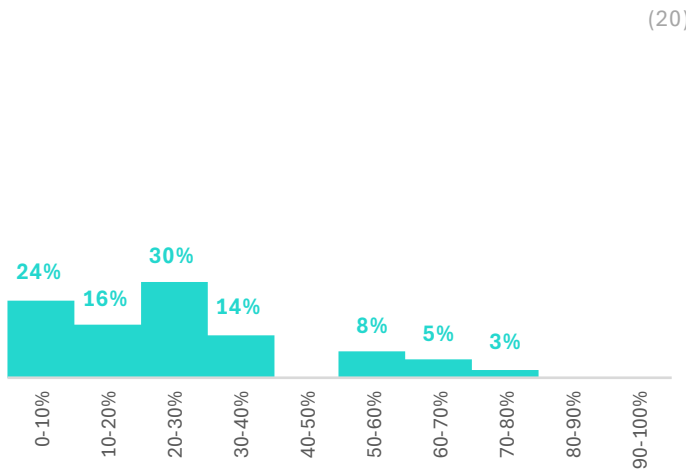
Urban rapid transit ratio, kilometers per million urban population (2000-2021)



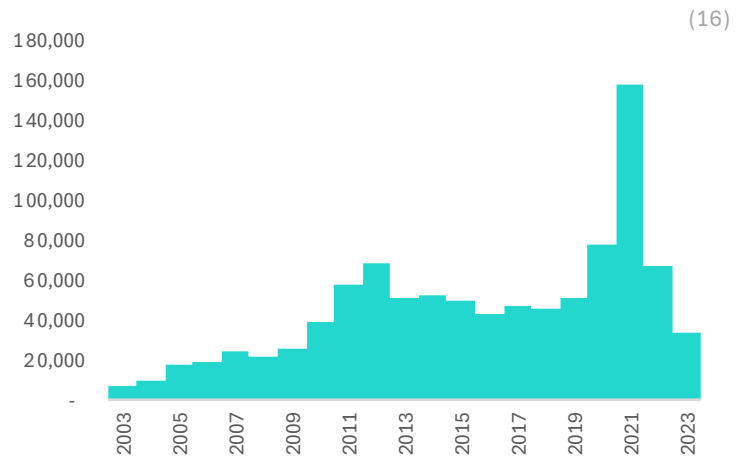
Urban rapid transit ratio in Asia- Pacific, kilometers per million urban population (2021)



Share of cities by level of access to public transport (out of 37 cities)



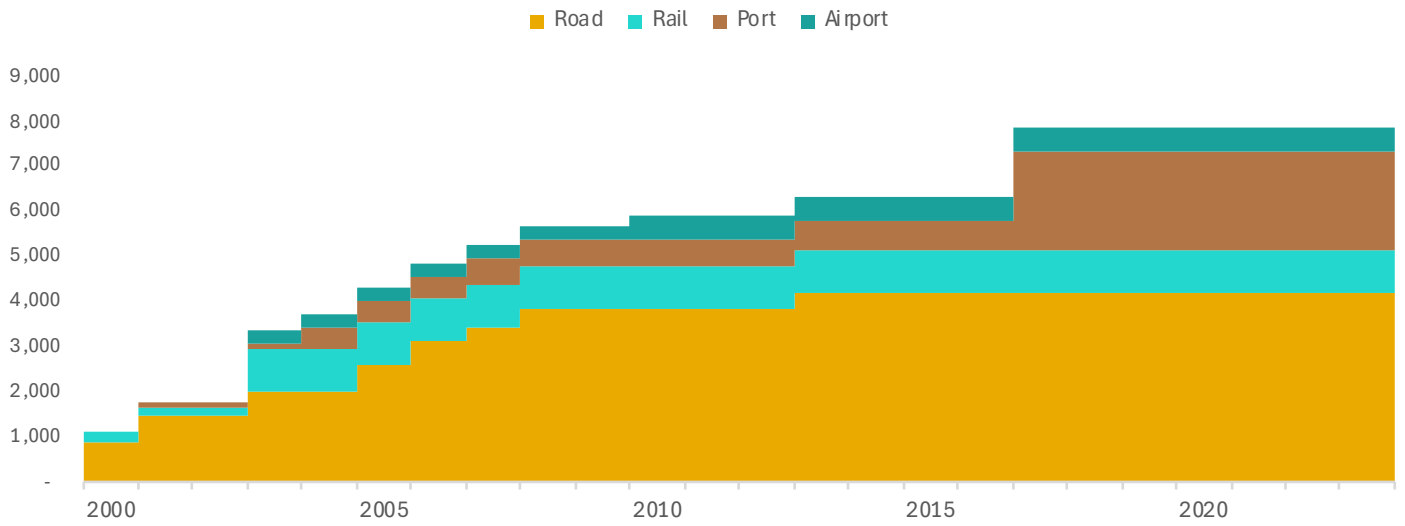
Bicycle import value, thousand USD



VII. Transport Investments

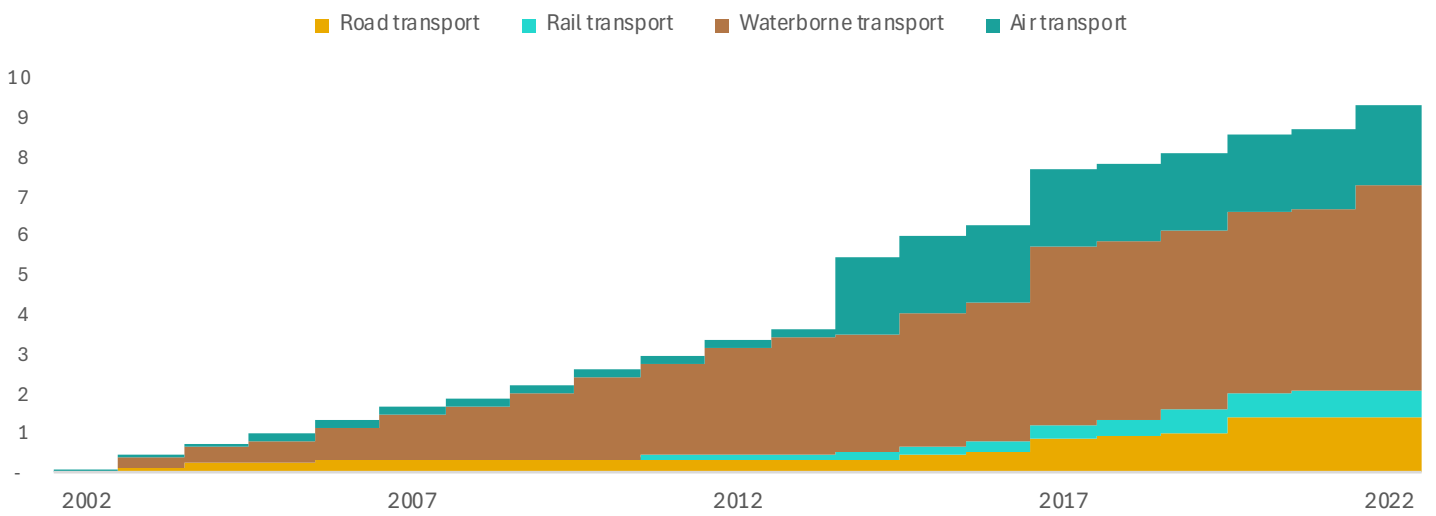
Public-private partnership investments in the transport sector, million USD

(21)

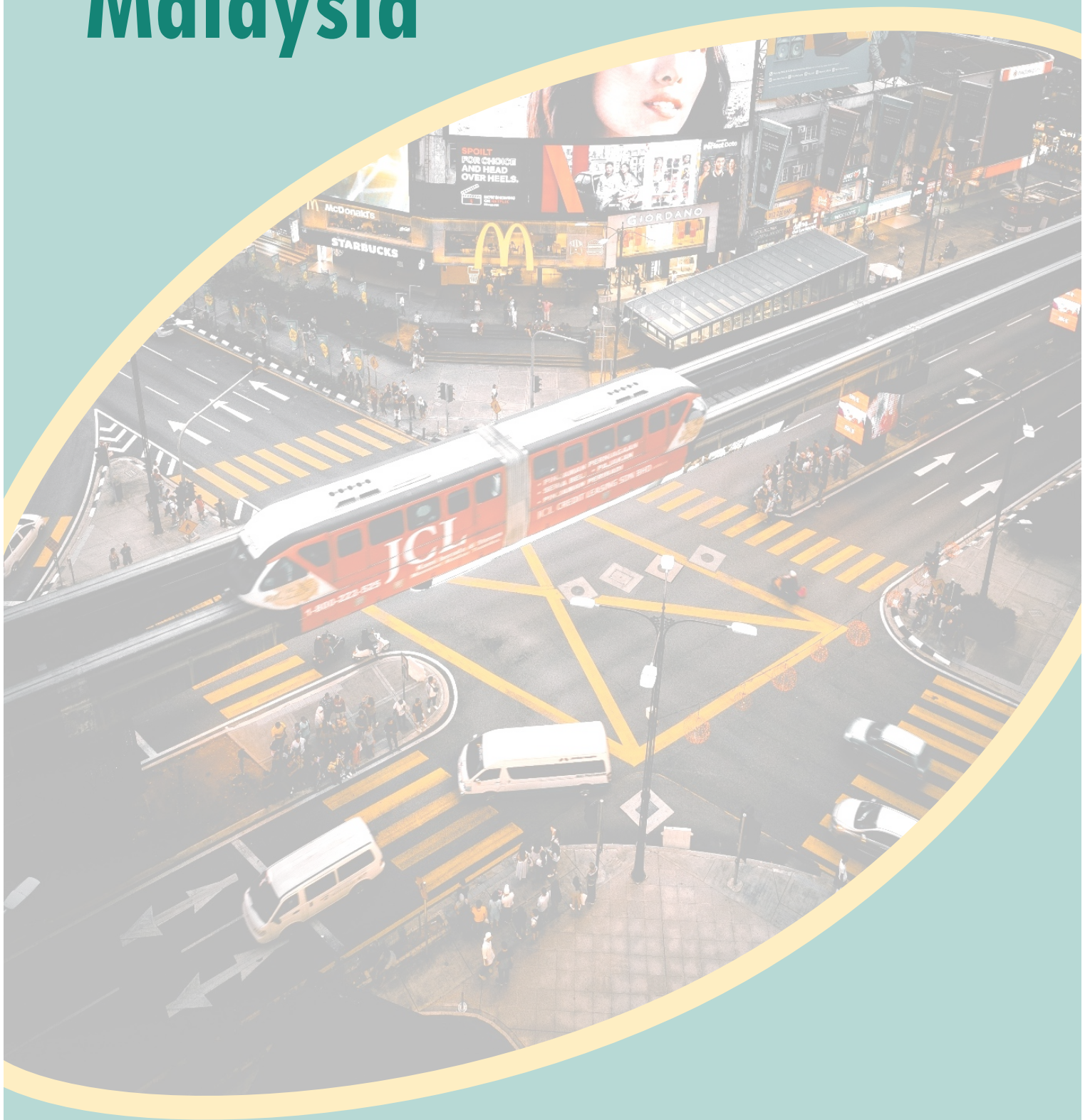


Official development assistance in the transport sector, million USD

(22)



Policy Insights Malaysia



VIII. Transport and Climate Policy Documents

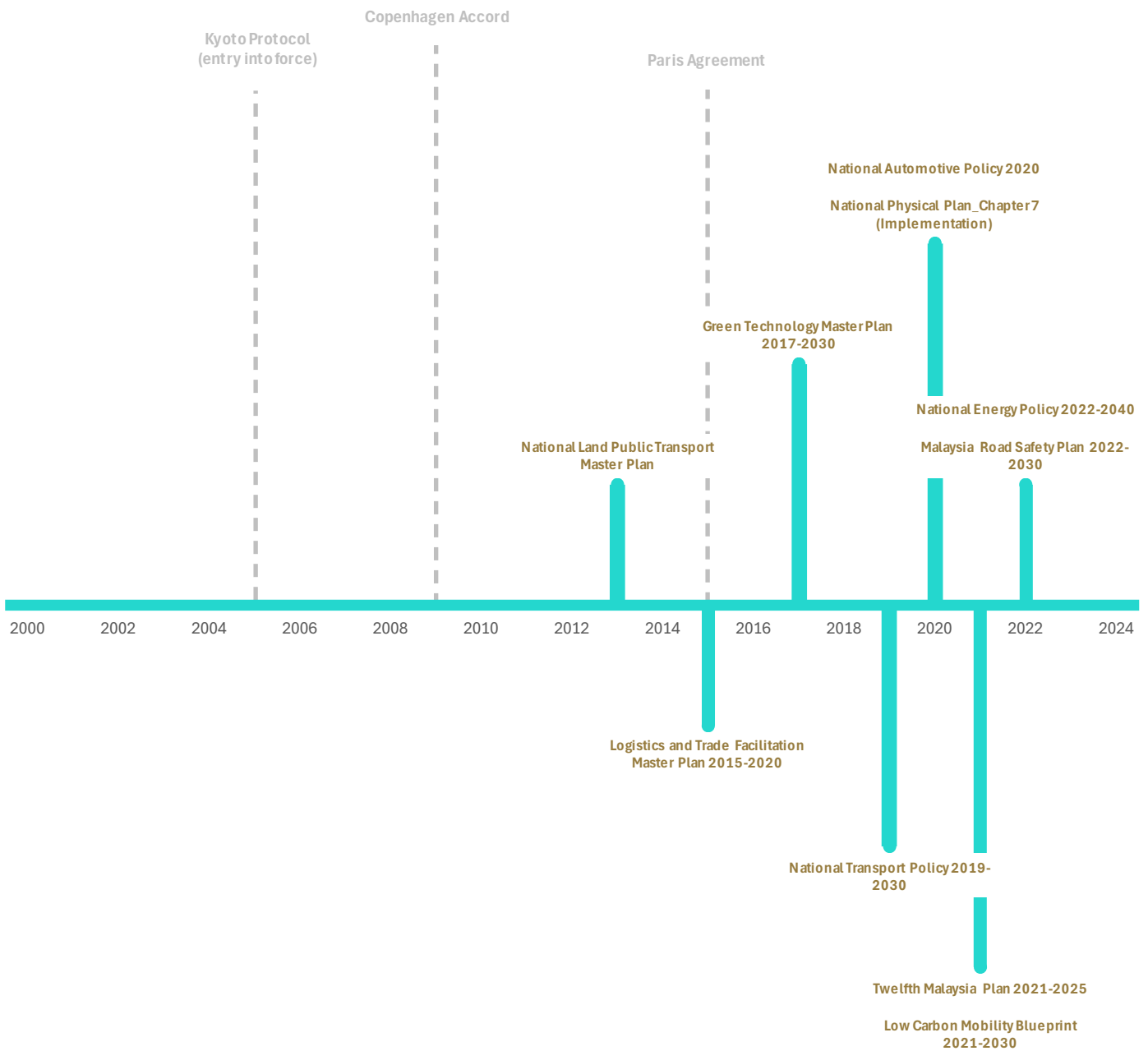
Transport-related policy documents in Malaysia

Selection made based on the number of climate change mitigation and adaptation policy measures

Nationally Determined Contributions of Malaysia

2015: Intended Nationally Determined Contribution of the Government of Malaysia

2021: Updated Nationally Determined Contribution - MYS



IX. Representation of Transport in Key Climate Policy Documents

Nationally Determined Contributions

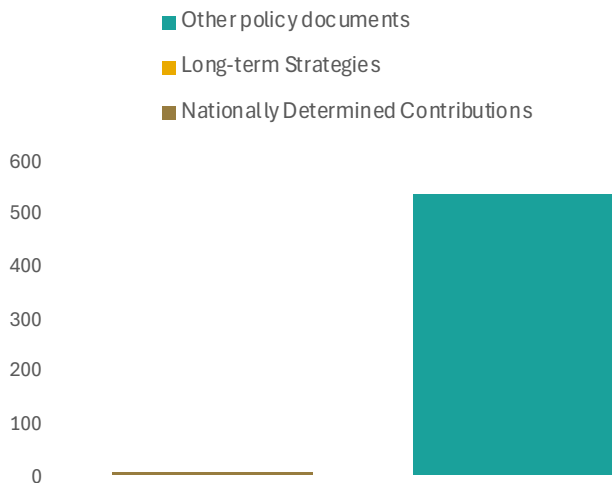
		Road transport	Rail transport	Domestic navigation	Domestic aviation	Urban transport
<i>Updated Nationally Determined Contribution - MYS (adopted in 2021)</i>	Mitigation measures					
	Mitigation targets					
	Adaptation measures					Yes
	Adaptation targets					

Long-term Strategies

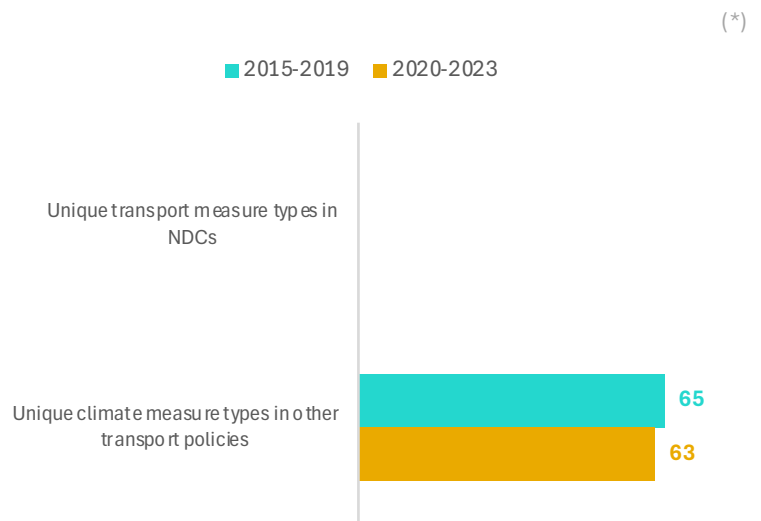
		Road transport	Rail transport	Domestic navigation	Domestic aviation	Urban transport
None	Mitigation measures					
	Mitigation targets					
	Adaptation measures					
	Adaptation targets					

X. Distribution of Transport and Climate Policy Measures in Policy Documents

Number of policy measures by source

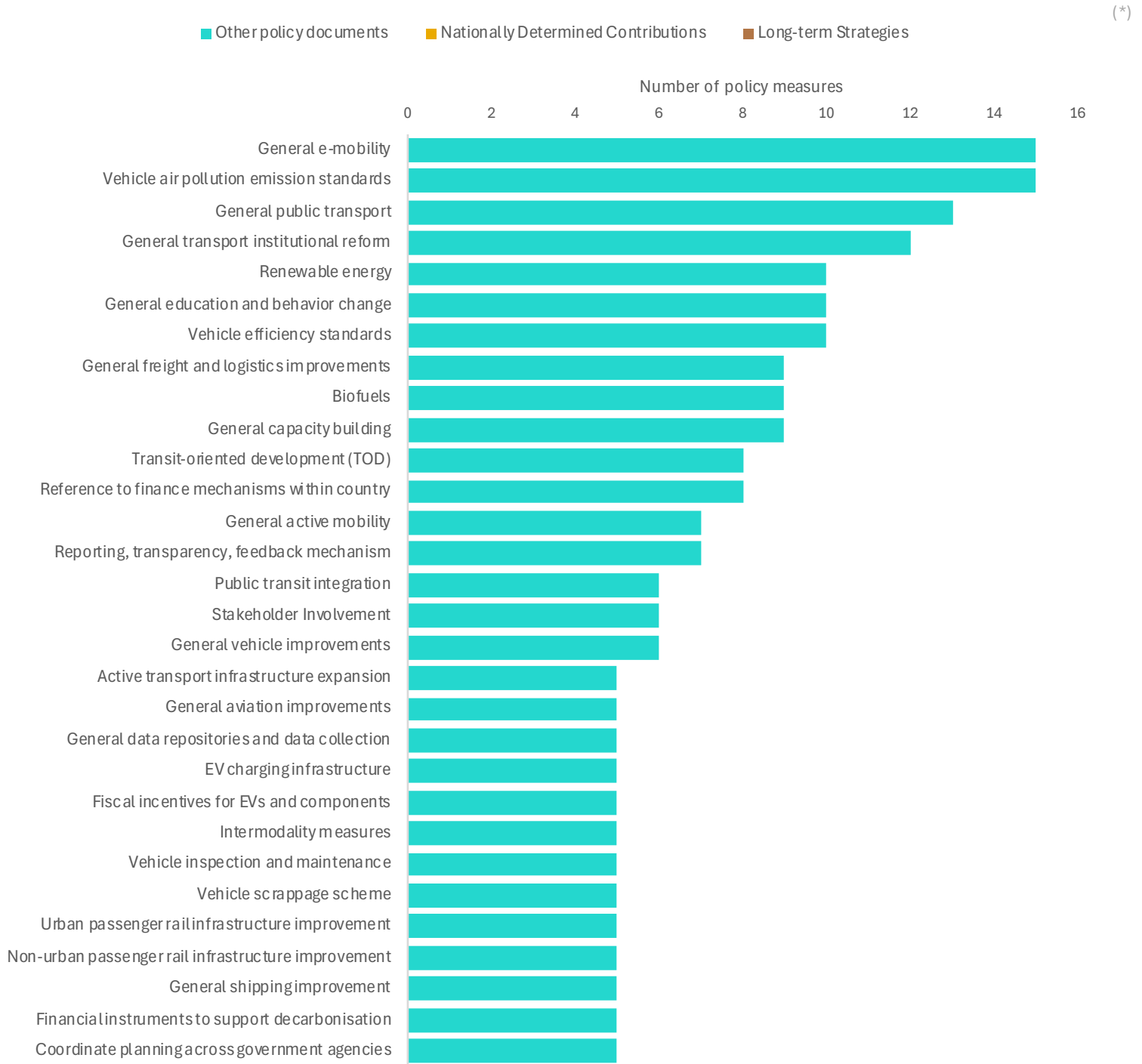


Integration of climate ambition, unique number of policy measures in (*) NDCs and other transport policies

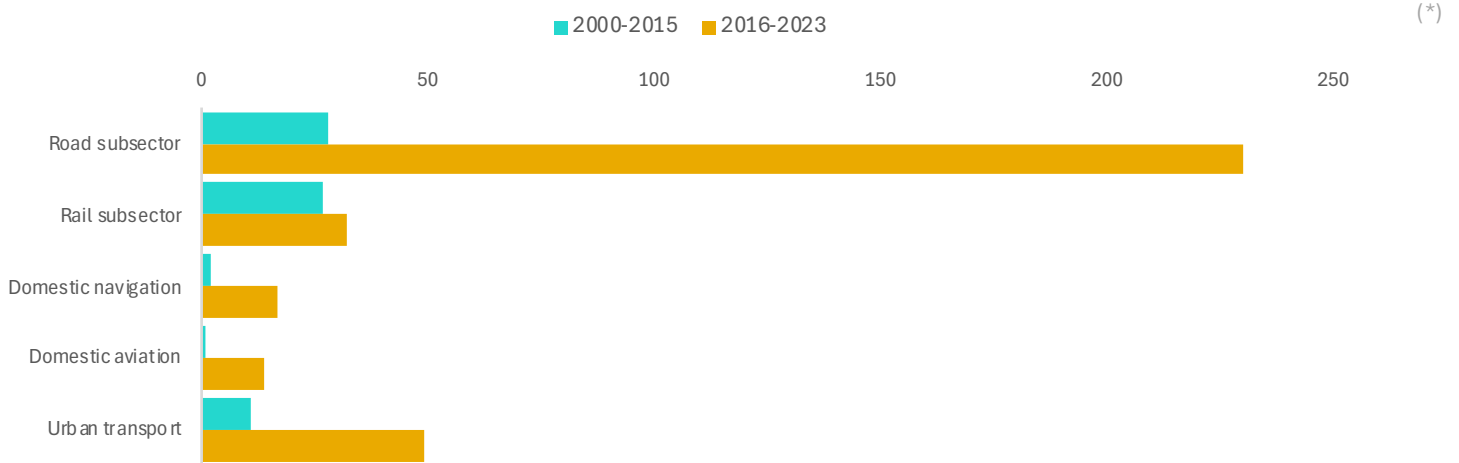


XI. National Policy Priorities on Transport

Priority policy measures on climate change mitigation and adaptation in transport (top 30)



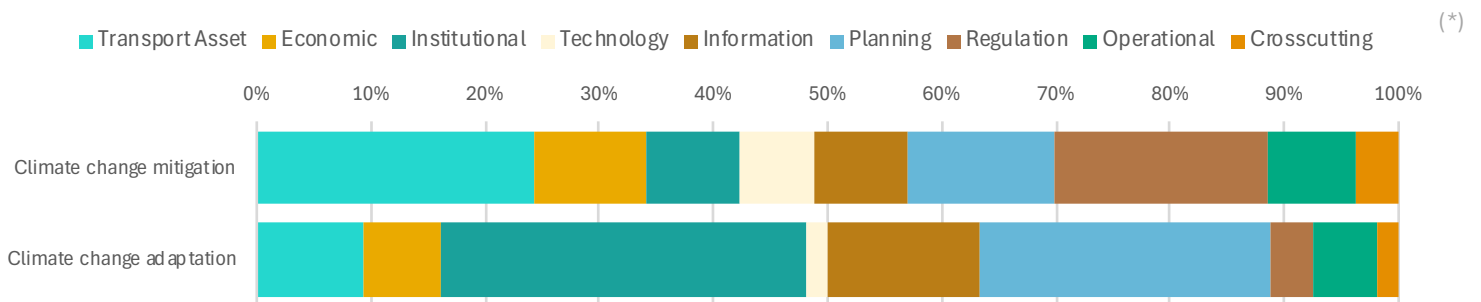
Number of climate change policy measures by subsectors



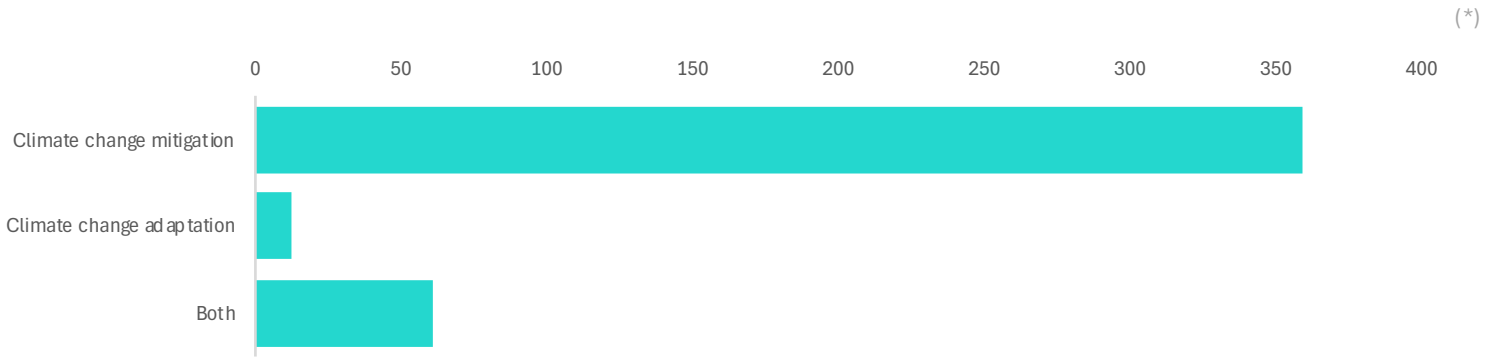
Number of climate change policy measures by passenger vs. freight



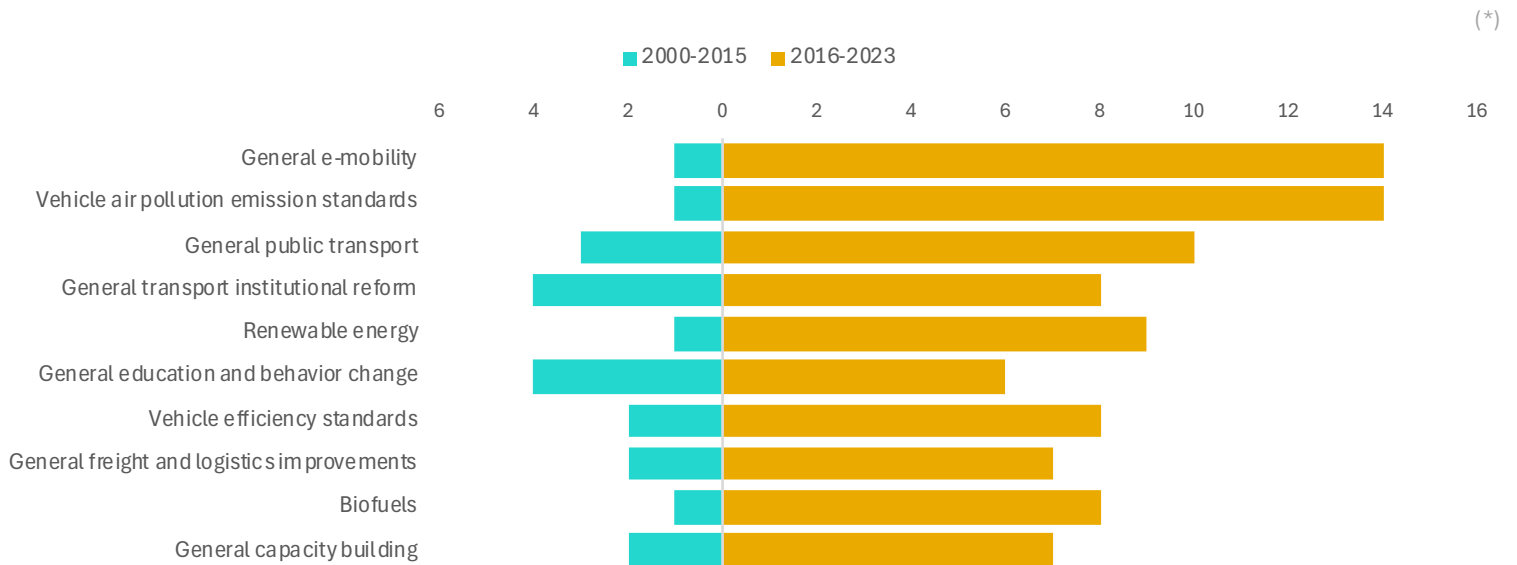
Transport-related climate change policy measures by framework



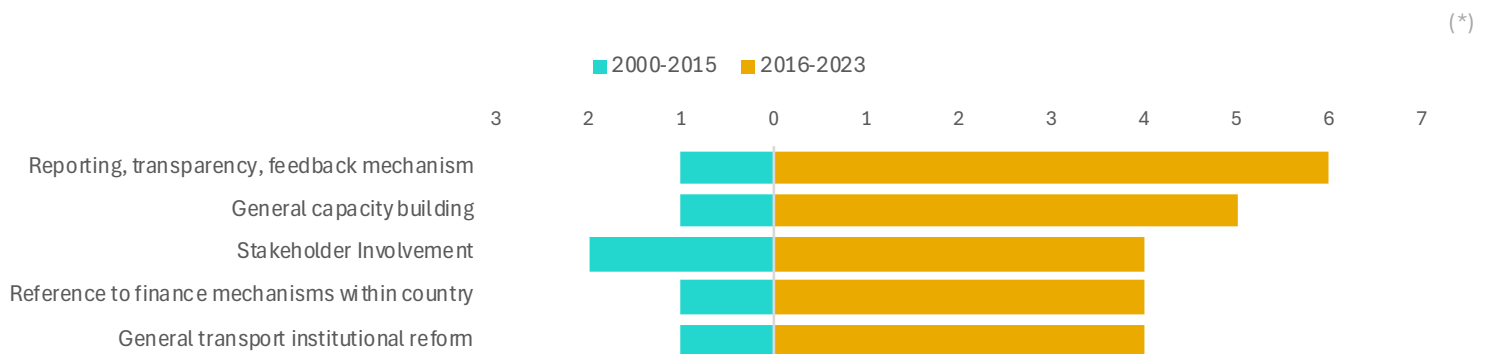
Number of climate change mitigation vs. climate change adaptation policy measures



Climate change mitigation top 10 typology, number of policy measures



Climate change adaptation top 5 typology, number of policy measures



XII. Direct GHG Targets

This table contains transport-relevant (e.g. economy-wide; sector-specific) GHG emissions targets as explicitly mentioned in the policy documents of Malaysia

Document	Year published	Target	Target year
Economy-wide emissions			
Intended Nationally Determined Contribution of the Government of Malaysia	2015	Malaysia intends to reduce its greenhouse gas (GHG) emissions intensity of GDP by 45% by 2030 relative to the emissions intensity of GDP in 2005. This consist of 35% on an unconditional basis and a further 10% is condition upon receipt of climate finance, technology transfer and capacity building from developed countries.	2030
Updated Nationally Determined Contribution - MYS	2021	Malaysia intends to reduce its economy-wide carbon intensity ¹ (against GDP) of 45% in 2030 compared to 2005 level. The updated NDC includes the following increased ambition: (a) The 45% of carbon intensity reduction is unconditional;	2030
Green Technology Master Plan 2017-2030	2017	Malaysia has pledged to reduce its GHG emissions intensity of GDP by 45% by 2030 relative to the emissions intensity of GDP in 2005. This consists of 35% on an unconditional basis and a further 10% is conditional upon receipt of climate finance, technology transfer and capacity building from developed countries.	2030
Net zero, carbon neutrality, and other long-term climate action			
National Energy Policy 2022-2040	2022	This is also aligned to the target of Long-Term Low Emission Development Strategy (LT-LEDS) to achieve net-zero GHG emissions in 2050.	2050
Transport GHG emission			
Twelfth Malaysia Plan 2021-2025	2021	Up to 45% Reduction in Greenhouse Gas (GHG) Emissions Intensity to GDP by 2030 Based on Emissions Intensity in 2005	2030

XIII. Indirect Transport Climate Change Targets

This table shows non-GHG targets as specified in the policy documents in Malaysia which indirectly benefit climate change mitigation and adaptation in the transport sector

Document	Year published	Target	Target year
Biofuels			
National Energy Policy 2022-2040	2022	Alternative fuel standard for heavy transport = B30 from B5 in 2018	2040
Employment in transport, communication, and storage			
National Automotive Policy 2020	2020	EMPLOYMENT OPPORTUNITIES - MANUFACTURING = 128,000 JOBS	2030
National Automotive Policy 2020	2020	EMPLOYMENT OPPORTUNITIES - MaaS = 75,000 JOBS	2030
National Automotive Policy 2020	2020	EMPLOYMENT OPPORTUNITIES - AFTERMARKET = 46,000 JOBS	2030
National Automotive Policy 2020	2020	EMPLOYMENT OPPORTUNITIES - IoT = 44,000 JOBS	2030
National Automotive Policy 2020	2020	EMPLOYMENT OPPORTUNITIES - ROBOTICS = 30,000 JOBS	2030
National Automotive Policy 2020	2020	TOTAL EMPLOYMENT OPPORTUNITIES = 323,000 JOBS	2030
EV charging infrastructure			
Low Carbon Mobility Blueprint 2021-2030	2021	a.Establish a national target of 9000 AC charging points and 1000 DC charging points by 2025.	2025
Freight transport shifting to rail or inland waterways (IWT)			
Twelfth Malaysia Plan 2021-2025	2021	Increase in Cargo Volume via Rail, in Northern, Central and Southern Regions = 10%	2025
General aviation improvements			
Twelfth Malaysia Plan 2021-2025	2021	Increase in Air Transport Passengers = 20% by 2025	2025
General e-mobility			
Green Technology Master Plan 2017-2030	2017	2,000 electric buses are set to be on the road by the year 2030, and this initiative aims to reduce the environmental impact further; Participation from private developers includes private-public engagement to provide targeted support, and facilitate industry growth and possibly demand for exports. Some local industry players have already initiated local GT development in the manufacturing of electric buses and monorail trains. EV introduction via Completely Built Unit (CBU) importation and various application programs shall be pursued to increase the visibility and acceptance of the technology. Concurrently, while the market is being primed, development of EV related technology can be embarked upon. To ride on this tide of EV development, it is crucial for Malaysia to embark on electric vehicle technology development.	2030
Green Technology Master Plan 2017-2030	2017	% of total industry volume to be Energy Efficient Vehicles (EEV) (fuel efficient vehicles, hybrid and EV) = 100%	2030
Low Carbon Mobility Blueprint 2021-2030	2021	d.Establish 50% target of new government fleet to be BEV (2023 – 2025).	2025

XIII. Indirect Transport Climate Change Targets

This table shows non-GHG targets as specified in the policy documents in Malaysia which indirectly benefit climate change mitigation and adaptation in the transport sector

Document	Year published	Target	Target year
Low Carbon Mobility Blueprint 2021-2030	2021	b.Establish 20% target of new GLC fleet to be BEV (2023 – 2025).	2025
Low Carbon Mobility Blueprint 2021-2030	2021	c.Establish 50% target of new GLC fleet to be locally manufactured BEV (2026 – 2030).	2030
National Automotive Policy 2020	2020	NxGV standards for all vehicles will be developed by year 2021 to ensure NxGV market penetration by year 2025	2025
National Energy Policy 2022-2040	2022	Percentage of electric vehicle (EV) share = 38% from <1% in 2018	2040
LPG/ CNG/ LNG			
Green Technology Master Plan 2017-2030	2017	Moving from gasoline and diesel vehicles to alternative fuel vehicles running on biodiesels and CNG can also be fast solutions in improving the energy efficiency of existing vehicles. Nevertheless, this requires significant effort in the development of relevant technology as well as the preparation of supporting infrastructures, particularly in terms of good coverage of refilling stations and service centres for biofuel and CNG vehicles.	2040
National Energy Policy 2022-2040	2022	Percentage of Liquefied Natural Gas (LNG) as alternative fuel for marine transport = 25% from 0% in 2018	2040
Measures to improve rural-urban connectivity			
Twelfth Malaysia Plan 2021-2025	2021	Constructing and Upgrading Rural Paved Roads = 2,800 km	2025
Renewable energy			
Green Technology Master Plan 2017-2030	2017	The aspirational targets for installed RE capacity are set at 20% in 2020, 23% by 2025 and 30% by 2030 as compared with 18.9% in 2016.	2025
Green Technology Master Plan 2017-2030	2017	The aspirational targets for installed RE capacity are set at 20% in 2020, 23% by 2025 and 30% by 2030 as compared with 18.9% in 2016.	2030
National Energy Policy 2022-2040	2022	Total installed capacity of RE = 18,431 MW from 7,597 MW in 2018	2040
National Energy Policy 2022-2040	2022	Percentage of RE in TPES = 17% from 7.2% in 2018	2040
Target - Modal shift			
Green Technology Master Plan 2017-2030	2017	40% rail based public transport in all cities	2030
Green Technology Master Plan 2017-2030	2017	According to the NLPTMP, it is targeted that modal share for public transport in urban areas will reach 40% by 2030.	2030
National Energy Policy 2022-2040	2022	Percentage of urban public transport modal share = 50% from 20% in 2018	2040
National Land Public Transport Master Plan	2013	increase of 40 percent modal share in urban areas of public transport	2030
Target - Road crash fatalities			
Malaysia Road Safety Plan 2022-2030	2022	TO ACHIEVE AT LEAST 50% REDUCTION IN THE NUMBER OF DEATHS CAUSED BY ROAD CRASHES IN 2030	2030
Vehicle air pollution emission standards			

XIII. Indirect Transport Climate Change Targets

This table shows non-GHG targets as specified in the policy documents in Malaysia which indirectly benefit climate change mitigation and adaptation in the transport sector

Document	Year published	Target	Target year
Green Technology Master Plan 2017-2030	2017	EURO 5 RON 95 & 97	2025

XIV. Transport and Climate Policy Measures

This table lists the policy measures that relate to climate change mitigation and adaptation in the transport sector that had been identified in the transport policy documents of Malaysia

Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
Disaster monitoring and risk assessment for transport infrastructure							
Updated Nationally Determined Contribution - MYS	2021	. In managing future risks and potential loss from climate change, Malaysia is mainstreaming climate resilience into urban planning and development of infrastructures. This will include emphasising infrastructure integrity assessments and revisions of the existing manuals and guidelines.					x
Malaysia. Biennial update report (BUR). BUR 2. National Communication (NC). NC 3.	2018	Transit-Oriented Development (TOD) that was introduced in the densely populated Greater Kuala Lumpur/Klang Valley area can help to harmonise the congested traffic during floods, which may occur more frequently in the future due to climate change. Current practice of wet and dry weather inspection by KTMB’s patrolman is therefore important to reduce the occurrences of service disruption due to floods and dry spell. Guidelines for ships navigating in Malaysia waters has been established by The Maritime Communication Centre Malaysia and monitored by The Navigation Security Department of Maritime Traffic Services of the Marine Department, and this includes poor visibility during the haze periods. For rail based transport systems, the standards for the design of hill slopes and track embankment for railways, and free board for culverts and bridges, need to take climate change factors into account. Continued monitoring of railway facilities during extreme weather will help to reduce accidents. Similarly, the impact of sea level rise on the operation of port and jetty facilities needs to be further assessed, and the information channelled to the relevant stakeholders for planning and follow-up actions. Existing road and drainage standards and guidelines needs to be reviewed periodically to incorporate climate change and sea level rise information for a better adaptation approach. There is also a need to study the effect of extreme weather and climate change on infrastructure such as roads, drainage, culverts and bridges in order to construct infrastructure that will be more resilient and durable to meet the demands of future climate change. In addition, more technically advanced design methodologies need to be developed to enhance the safety and durability of roads, drainage and bridges constructed in flood prone and coastal areas.					

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Malaysia. Biennial update report (BUR). BUR 2. National Communication (NC). NC 3.	2018	The Highway Network Development Masterplan (HNDP), which was established in 2007, has considered environmentally sensitive and flood prone areas for new and existing road development strategies. To maintain connectivity during floods, the PWD's Disaster Operations Room (Bilik Gerakan Bencana JKR) provides alternative routes for road users in the event of floods. The PWD's e-disaster (e-bencana) website also provides information on recurring flooded areas, and this has enhanced the safety of road users during disasters. For roads facing recurring floods, the platform level is raised and the drainage capacity is increased to overcome the problems. Other measures include review and enhancement of buffer zones, and the practice of ecological engineering					
Access restriction by corridor/ road							
National Land Public Transport Master Plan	2013	The use of such consolidation facilities can be aggressively encouraged by restricting road usage for trucks in city centres.	x				x
National Low Carbon Cities Masterplan	2021	Identify and demarcate areas for car free zone.	x				
Accreditation of vehicle inspection centers							
Road Transport Act 1987	2013	(1) No person other than a person licensed to carry out inspection under this Act may inspect a motor vehicle. (2) Any person who contravenes this section shall be guilty of an offence and shall on conviction be liable to a fine not exceeding ten thousand ringgit or to imprisonment for a term not exceeding two years or to both.	x				
Active transport infrastructure expansion							
Green Technology Master Plan 2017-2030	2017	Pedestrian Linkages	x				
Green Technology Master Plan 2017-2030	2017	To shift from motorised to cycling as an alternative transport mode for people, the Government is planning to build cycling or bikeways infrastructure especially in the cities. This initiative is in line with the Low Carbon Cities program spearheaded by KeTTHA and MGTC in promoting cycling as a healthy and green lifestyle leading to a healthy and cleaner environment.	x				

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
Low Carbon Mobility Blueprint 2021-2030	2021	b. Upgrade FLM connectivity with interconnected barrier-free pedestrian walkways and cycle lane network throughout the urban areas from and to transit points (full coverage and availability). b. Design, evaluate and implement NMT modes in network and infrastructure. This needs to be embarked upon by Local Authorities in the short-term. Based on common practice, the area to be covered is about 400m radius around the transit station or transport terminal. The area can be increased to 500m radius if willingness to walk and cycle improves. b. MOT needs to consider relooking into the Road Transport Act and other related regulations to allow for bicycles and PMDs to be used on roads even though there are no designated cycle lanes currently. Cyclists must have proper gear including safety helmets and bicycles should be road worthy.	x				x
National Transport Policy 2019-2030	2019	Develop necessary infrastructure to increase usage of active and non-motorised transport and allow them to be carried in trains	x				
Twelfth Malaysia Plan 2021-2025	2021	Pedestrian infrastructure in urban areas will be upgraded to ensure that it is safe, user-friendly and connected to public transport nodes to encourage active mobility among urban dwellers. In promoting active mobility, pedestrian and cycling infrastructure will be enhanced to be user-friendly, connected, safe and comfortable. . This enhancement includes traffic calming measures and natural shading for pedestrian walkways.	x				x
Adaptation transport laws, regulations and programmes							
Twelfth Malaysia Plan 2021-2025	2021	Meanwhile, new developments in high-risk, flood-prone and environmentally sensitive areas, including highlands will be strictly regulated. In addition, existing building codes will be reviewed, while critical buildings and infrastructure will be retrofitted.					
Adaptation-related education and training							
Twelfth Malaysia Plan 2021-2025	2021	Coordination among disaster management-related agencies will be strengthened to further improve the efficiency of disaster response measures, including health-related disasters. This will be supported by increasing the number of technical training and simulation exercises, including with regional and international disaster response teams. The capability of communities living in disaster-prone areas will be strengthened through sharing of knowledge and practical approaches as well as by organising more regular drills.					
Twelfth Malaysia Plan 2021-2025	2021	Community-based Disaster Risk Management and Civil Defence Emergency Response Team for Community programmes, led by disaster management-related agencies as well as local stakeholders, will continue to be implemented to empower local communities to undertake early disaster response.					
Automated enforcement of speed limits							

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Malaysia Road Safety Plan 2022-2030	2022	Apart from those listed above, other achievements of MRSP 2014-2020 towards improving road safety are the implementations of electronic enforcement Activity (AwAS cameras), a demerit system for traffic offenders, a new curriculum for driving school, an introduction to ASEAN NCAP system, an introduction to road safety management system (ISO39001) and the enforcement of child restraint system (CRS).	x				
Bike sharing							
Low Carbon Mobility Blueprint 2021-2030	2021	a. Local Authorities need to encourage the use of bicycles in the city/township and allow private bicycle operators to provide bike rental schemes with proper guidelines for their operations. b. The bike operators have to incorporate appropriate and easy electronic payment method and attractive system of pick-up and drop-off (example like in central London) to make it more attractive for users of public transport to use bicycle as FLM mode. c. This can be incorporated into the planning process when Local Authorities are developing or reviewing their local plans.	x				
Biofuels							
Green Technology Master Plan 2017-2030	2017	Malaysia has implemented biodiesel blending programmes of 5% (B5) and 7% (B7) PME thus far.	x				
Green Technology Master Plan 2017-2030	2017	Action plans to promote the reliability and sustainability of biofuel for transport and industrial use will be implemented, which includes collaborations among Government bodies such as MPOB, MPIC, NRE, KeTTHA, MOT and MITI to: • Enhance knowledge sharing among ministries; and • Explore export markets for biodiesel. Moving from gasoline and diesel vehicles to alternative fuel vehicles running on biodiesels and CNG can also be fast solutions in improving the energy efficiency of existing vehicles. Nevertheless, this requires significant effort in the development of relevant technology as well as the preparation of supporting infrastructures, particularly in terms of good coverage of refilling stations and service centres for biofuel and CNG vehicles.					

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
Low Carbon Mobility Blueprint 2021-2030	2021	Implement higher biodiesel blends for diesel vehicles. a. Implement B20 in 2020 (2020). b. Conduct in-depth study on higher biodiesel implementation: use of B30 for all diesel vehicles and use of B100 for specified vehicles (e.g. city buses) (2020-2021). c. Implement B30 for all diesel vehicles and/or B100 for specified vehicles (2022). Conduct Communication, Education and Public Awareness (CEPA) in partnership with OEMs to promote use of biodiesel. a. Engage with OEMs (2020-2021). b. Formulate CEPA strategies (2021-2022). c. Implement CEPA to promote use of biodiesel (2022-2025). d. Require B100 buses to have advertisements promoting them as fully biodiesel Explore possibility of capturing biogas in palm oil mills/landfills/wastewater treatment plants for transport use. a. Conduct in-depth study of possibility of capturing biogas in strategic palm oil mills/landfills/ wastewater treatment plants for transportation use. b. Identify palm oil mills/landfills/wastewater treatment plants strategic to biogas supply for transport. c. Provide incentives under Green Technology Financing Scheme (GTFS) until 2030.	x				x
National Automotive Policy 2020	2020	(i) coordinate comprehensive research to be conducted by industry and education institutions through the establishment of a testing centre on research and use of biodiesel; (ii) introduce a comprehensive validation system for biodiesel application in the transportation sector. The measure will be developed by Government together with industry and relevant government agencies; (iii) conduct a review of the ecosystem development of diesel vehicle to ensure smooth implementation and promotion of higher biodiesel grade;					
National Biofuel Policy 2006	2006	Diesel for land and sea transport will be a blend of 5% processed palm oil and 95% petroleum diesel. This B5 diesel will be made available throughout the country. As this sector is the main user of diesel which is highly subsidised, it will be given priority in this policy. A promotional awareness programme will educate the public on the use of B5 diesel. The voluntary trials will be monitored to enhance acceptance of B5 diesel. The Malaysian Standard specifications for B5 diesel will be established. Legislation to mandate the use of B5 diesel will be passed and enforced. Efforts will be made to get engine manufacturers to extend their warranties to the use of B5 diesel. Extensive B5 diesel testing shall be carried out to facilitate the granting of such engine warranties.	x				

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
National Energy Policy 2022-2040	2022	Implement pilot and market entry programmes of hydrogen as well as next generation bioenergy Capture growth opportunities of biofuels in marine and aviation sectors For first and second generation bioenergy technologies, efforts will be given towards the objective of driving cost-effectiveness of energy generation on the supply-side, as the country has large feedstock advantages, especially from the palm oil industry. Research, technology development and adoption will be conducted on the demand-side to enhance technical and commercial viability in emerging end-use sectors such as the utilisation of hydrotreated vegetable oil (HVO) for aviation and marine to enable higher blends of biofuels in transport and industrial use. Other end-use applications that should be focused on for technology development and adoption are the use of biogas in BioCompressed Natural Gas (BioCNG) as well as potential use of bio-based solid fuels to substitute fossil fuels in power generation and as feedstock for industry. Strategic development of third and fourth generation bioenergy will be considered with a focus on areas that have potential to create technological advantage compared to global peers. This includes localisation and customisation of technologies that are developed globally, such as optimising the utilisation of algae-based technology in the production of biofuel. Optimise the role of biofuels penetration in existing transport and industry uses, factoring in impact of Palm Oil Gas Oil (POGO) on fiscal costs of enhancing biodiesel blending. Invest to build local capabilities and technology advantage to unlock high potential emerging areas of biofuel use such as in marine bunkering and aviation, biogas and biomethane (such as, BioCNG) in industry, supported by early-stage funding and grants to encourage early-mover adoption. Invest and build technology advantage in biofuels used in marine bunkering as a high potential fuel of the future and explore adoption of biofuels for onboard energy use and for diesel-powered vessels.					
Twelfth Malaysia Plan 2021-2025	2021	In the transport sector, the B10 biodiesel blend containing 10% palm methyl ester was introduced in 2019					

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Twelfth Malaysia Plan 2021-2025	2021	The measures will include formulating a comprehensive biomass policy, developing local technology through R&D&C&I, accelerating the development of high value-added products and services and promoting utilisation of high value-added biomass products. These measures are envisaged to increase investments in the biomass industry to RM10 billion in the Plan period. Local capabilities in the biomass industry need to be enhanced in developing and adopting advanced biomass conversion technologies that are sustainable, reliable and cost-effective. R&D&C&I activities by research institutions, HEIs and government-linked companies (GLCs) will be intensified to further create value from biomass resources. Efforts will be undertaken to position Malaysia as the key producer of bio-jet fuel in the region. In this regard, a programme to produce Malaysia’s first bio-jet fuel prototype using local research and technology will be initiated. The first bio-jet fuel test on piloted aircraft will be conducted in early 2022. As the biomass industry is relatively new to Malaysia, efforts will be intensified to increase the domestic utilisation of biomass-related products as well as leverage its potential in generating high value exports. In this regard, biomass products will be branded as an important component of the green agenda. A strategic communication plan will be crafted to streamline all biomass public awareness and education programmes as well as advocacy efforts. The B20 biodiesel programme that contains 20% palm methyl ester will be expanded throughout the country in stages, while the B30 programme will be introduced at the end of the Twelfth Plan to further increase the use of biofuel. Apart from large hydro and solar, focus will also be on increasing the contribution from other renewable sources, such as biomass and biogas. The biodiesel blend for the transportation sector will be continuously upgraded from B15 to B20 and eventually to B30. Assessment will be conducted to identify the gaps and costs required to upgrade blending depots to be B30-compliant. In addition, more engagement with stakeholders will be held to address issues of manufacturers’ acceptance of B30.					
BRT							
Green Technology Master Plan 2017-2030	2017	The effective modes of public transport such as the Sunway Bus Rapid Transit (BRT) system has also been implemented, as Transit Oriented Development (TOD) project involving public-private collaboration between the Government and Sunway Group.	x				
Green Technology Master Plan 2017-2030	2017	BRTs in other development corridors, such as Iskandar Malaysia, and other states i.e. Penang and Sabah;	x				

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
Low Carbon Mobility Blueprint 2021-2030	2021	a. Embark on a detailed study on the feasibility of developing BRT systems in GKL and other main cities especially safety requirement sharing with other modes. b. Determine network coverage of the BRT systems in GKL and main cities. c. Determine necessary requirements for infrastructure and enablers for successful implementation of BRT systems.	x				x
Budget/ identification of public transport projects							
Twelfth Malaysia Plan 2021-2025	2021	Meanwhile, the Sustainable Development Financing Fund and Public Transport Fund were set up in 2019 to facilitate private sector efforts in implementing sustainable development-related initiatives.	x	x			
Bunkering infrastructure for alternative fuels							
National Energy Policy 2022-2040	2022	Capture growth with LNG uptake in marine bunkering Invest to build local capabilities and technology advantage to unlock high potential emerging areas of biofuel use such as in marine bunkering and aviation, biogas and biomethane (such as, BioCNG) in industry, supported by early-stage funding and grants to encourage early-mover adoption. Position Malaysia as a regional LNG bunkering hub for long-term advantage, with supporting port incentives and policies.			x		
Coordinate planning across government agencies							
Green Technology Master Plan 2017-2030	2017	Close collaboration between SPAD and other Government agencies to assess the reduction in carbon emissions for the public transportation sector. Subsequently, regional plans will be rolled-out to improve inter-connectivity and overall upgrade of the public transport infrastructure.					
Malaysia Rail Supporting Industry Roadmap 2030	2014	Form a national-level council or committee that will oversee the national rail industry development and well-being.		x			
National Land Public Transport Master Plan	2013	State-level implementation committees and national execution unit will monitor and jointly conduct problem-solving programs to overcome any hurdles to implementation Alignment across different implementing organisations – encompassing leadership and working levels – is important and will be helped by the steering committee, the national execution unit and by state-level implementation committees					
National Low Carbon Cities Masterplan	2021	Streamline and Integrate Related Low Carbon Policies and Regulations - An umbrella policy that integrates and aligns other sectoral policies and regulations					
Twelfth Malaysia Plan 2021-2025	2021	The role of the National Physical Planning Council and National Council for Local Government will be enhanced to enable effective planning and implementation of sustainable development through better coordination and cooperation among agencies at Federal, state and local levels.					

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
Customs Convention on the Temporary Importation of Private Road Vehicles 1954							
59 UN Transport Agreements/ and Conventions Serviced by ECE	2021	Ratification, accession, or definite signature by country	x				
Data modelling improvements							
Green Technology Master Plan 2017-2030	2017	These collaborative agencies will establish the baseline of green transportation in Malaysia, including assessment of EE and emission data.					
National Energy Policy 2022-2040	2022	Enhance accuracy and comprehensiveness of nationwide GHG accounting standards, such as establishing country-specific emission factors.					
National Land Public Transport Master Plan	2013	a macro-level national land public transport multi-modal model will be developed to guide the assessment of future demand based on trends in economic and demographic indicators.					
Twelfth Malaysia Plan 2021-2025	2021	Carbon impact assessment for the transport sector will be developed.					
Define roles and accountabilities across agencies							
Logistics and Trade Facilitation Master Plan 2015-2020	2015	Reposition MOT as the champion agency for logistics					
National Energy Policy 2022-2040	2022	Establish clear responsibility and governance for the coordinated delivery of fuel economy and fuel of the future initiatives across stakeholders.					
Design standards for sidewalks and bicycle paths							
Global Status Report on Road Safety 2018	2018	Yes	x				
Development density or intensiveness							
Clean air action plan	2010	integrated land-use planning that focuses on densification of urban areas					x
Low Carbon Mobility Blueprint 2021-2030	2021	Encourage Local Authorities to consider sustainable intensification of land-use development or redevelopment to limit urban sprawl and move towards car-lite planning					x
National Low Carbon Cities Masterplan	2021	Define the urban growth boundary (UGB) through land use planning policy or any development plans to curb urban sprawl into rural areas and natural conservation areas.					x
National Physical Plan_Chapter 7 (Implementation)	2020	Promote sustainable density development The Transfer of Development Rights (TDR) mechanism is suitable for rapidly growing urban areas as well as areas that have to be protected from development activities. This includes controlling natural resource areas and their environment, areas of heritage value, conservation areas, parks, green spaces and agriculturally productive areas such as the granary areas of the country					x

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
Development of active transport plan/ policy							
Low Carbon Mobility Blueprint 2021-2030	2021	a. Incorporate a comprehensive walking and cycling network and infrastructure as FLM access modes to/from transit stations and transport terminals when developing or revising Local Plans (by Local Authority).	x				
National Low Carbon Cities Masterplan	2021	Formulate a walkable city/pedestrian master plan for existing cities, centres and neighbourhoods.	x				
Development of air pollution plan/ policy							
National Physical Plan_Chapter 7 (Implementation)	2020	Enhance efforts to reduce urban air pollution					x
Twelfth Malaysia Plan 2021-2025	2021	Existing regulations, master plans and guidelines will be enhanced, while new ones will be put in place. These include the introduction of regulation on household e-waste, master plan on clean air and guidelines for managing end-of-life vehicles as well as green practice modules for chemical and scheduled waste industries.					
Development of automotive plan/ policy							
Green Technology Master Plan 2017-2030	2017	National Automotive Policy (NAP) was introduced in 2006 with the objective of transforming the domestic automotive industry and integrating it into the increasingly competitive regional and global industry network.					

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
National Automotive Policy 2020	2020	i) National Roadmap for Automotive & Mobility Value Chain (NRAMVC) The NRAMVC aims at developing and enhancing the competitiveness of components suppliers of automotive and mobility value chain to be able to supply either to regional or global markets ii) National Roadmap for Automotive & Mobility Technology (NRAMT) NRAMT charts the way forward on related technology development in the aspect of EEV, NxGV, smart mobility, Internet of Things (IoT) infrastructure and IR4.0 that support the development and manufacturing of automotive product and mobility ecosystem. iii) National Roadmap for Automotive & Mobility Talent (NRAMTa) The NRAMTa outlines improved plans for the development of a competitive workforce that is fit for industry demand at all levels of manufacturing, marketing, automotive services up to the integration of mobility ecosystem. iv) National Roadmap for Automotive Aftermarket (NRAA) The NRAA outlines detailed criteria through improvements of remanufacturing, standards and best practices that can be adopted by domestic automotive stakeholders to make Malaysia as an automotive remanufacturing hub in ASEAN. v) National Blueprint for Automotive Mobility as a Service (NBAMaaS) The NBAMaaS outlines core planning of transport services and mobility solutions that are specifically tailored to accommodate development needs of Malaysia automotive industry. vi) National Blueprint for Automotive Robotics (NBAR) The NBAR outlines strategies in robotic technology towards providing solutions to the issues and challenges especially in the manufacturing sector vii) National Blueprint for Automotive Internet of Things (NBAloT) The NBAloT outlines the direction of connectivity revolution in automotive industry and marketing strategies of connected vehicles including Vehicle-to-Everything (V2X), Autonomous vehicles, safety aspect and regulations.					
Twelfth Malaysia Plan 2021-2025	2021	In addition, specific blueprints for the automotive value chain identified under the NAP 2020 will be formulated to promote the adoption of specific technologies and expand market segments.					
Development of aviation plan/policy							
National Transport Policy 2019-2030	2019	Develop an integrated and market driven aviation expansion plan.				x	
Twelfth Malaysia Plan 2021-2025	2021	A National Airports Strategic Plan will be formulated to provide policy direction for the development of airports to meet future aviation needs and strengthen the governance of the aviation industry.				x	
Development of biofuel plan/policy							
Green Technology Master Plan 2017-2030	2017	Malaysian Biomass Industry Action Plan 2020 (MBIAP) The NBP was introduced in 2006 to supplement part of the energy demand for transport sector using biodiesel as a source of alternative fuel.					
National Energy Policy 2022-2040	2022	Define strategy of bio-based resources use across energy (including solid, liquid, gas fuels) and non-energy uses (including bio-chemicals, bio-fertiliser, bio-products, others.) to optimise value-add of bio-based resources.					

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Twelfth Malaysia Plan 2021-2025	2021	A national biomass policy will be formulated as a comprehensive framework to ensure the sustainable development of the industry and unlock its economic potential. The policy will prescribe measures to strengthen collaboration and coordination among related agencies to ensure effective implementation.					
Development of climate change/ low carbon plan/ policy							
Green Technology Master Plan 2017-2030	2017	Malaysia has taken the initial step to embrace GT through the National Green Technology Policy (NGTP), which was unveiled by the Prime Minister on 24th July 2009. The Policy focuses on four pillars, namely Energy, Environment, Economy and Social. To spearhead the development of green cities, KeTTHA and MGTC launched the Low Carbon Cities Framework and Assessment System (LCCF) in 2011.					
Low Carbon Mobility Blueprint 2021-2030	2021	Update VTA requirements on new diesel vehicles to be FAME prepared. a. Update related policies of VTA to include FAME prepared diesel vehicles (which enable diesel vehicles to run with higher biodiesel blends without need to upgrade any component) (2020). b. Enforce policy of FAME prepared diesel vehicles by VTA (2023). Introduce a requirement for rebuild trucks to be FAME prepared. a. Conduct study on how to introduce the requirement as a policy (2020) b. Implement the policy on FAME prepared requirement (2023)					
National Low Carbon Cities Masterplan	2021	Re-align and consolidate low carbon targets according to sectors at national level for the period of year 2020 - 2030. These targets include the following: - GHG emission reduction for energy sector (electricity, transportation, water, waste, agriculture and industry sectors); Integrate Low Carbon Guidelines and Components into Existing and New Development Planning Documents (including urban transport policies) in 3-5 years					x
National Policy on Climate Change	2009	Identify and recommend options towards low carbon economy for transportation					

XIV. Transport and Climate Policy Measures

This table lists the policy measures that relate to climate change mitigation and adaptation in the transport sector that had been identified in the transport policy documents of Malaysia

Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
Twelfth Malaysia Plan 2021-2025	2021	A master plan for low-carbon cities will be introduced to guide and coordinate low-carbon initiatives at the local levels. In this regard, a lowcarbon mobility blueprint will be introduced to guide the planning, implementation, monitoring and evaluation of green mobility initiatives. The blueprint will outline strategies to reduce GHG emissions from the transportation sector as well as accelerate the shift to green mobility, particularly low-carbon public transport and active mobility. To ensure effective implementation of green mobility initiatives, master plans and design guidelines for green mobility at the local level will be developed, while relevant legislation at the Federal and state levels will be reviewed. New policies, legislation and blueprints will be formulated, while existing ones will be reviewed and benchmarked against international standards and best practices. The National Policy on the Environment 2002, the National Policy on Climate Change 2009 and the National Policy on Biological Diversity 2016-2025 will be reviewed to ensure coherence and comprehensiveness.					x
Development of e-mobility transport plan/policy							
Low Carbon Mobility Blueprint 2021-2030	2021	Develop an electric bus roadmap. Develop FCEV roadmap. a. Explore FCEV potential. b. Establish FCEV roadmap. c. Implement FCEV roadmap. d. Conduct a Hydrogen Economy study (hydrogen production, distribution and storage).	x				
National Transport Policy 2019-2030	2019	Execute implementation of Low Carbon Mobility Blueprint Action Plan	x				
Development of logistics plan/policy							
Green Technology Master Plan 2017-2030	2017	Apart from the public and private transportation, some improvements in the freight sector has also been set in place via the National Logistics and Trade Facilitation Master Plan 2015-2020.					
Development of national development plan/ policy							
National Land Public Transport Master Plan	2013	A series of state level regional master plans will be developed in accordance with the PAD Act 2010 (Act 715). There will be one plan per state, as well as a plan for Greater KL/KV. Guided by the National Master Plan, these plans will provide directions on the development of intraregional mobility. They will also satisfy the unique demands of the rural areas.					
Development of national energy plan/ policy							
Green Technology Master Plan 2017-2030	2017	In order to reduce reliance on fossil fuels and efficient use of natural resources, energy policies such as Four-Fuel Diversification Policy (1981) and Five-Fuel Diversification Policy (2001) were introduced to diversify and seek new alternatives in the energy sector. National Renewable Energy Policy and Action Plan (NREPAP) and Feed-in Tariff (FIT)					

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Green Technology Master Plan 2017-2030	2017	Reinvigorating National Energy Efficiency Action Plan (NEEAP)					
Twelfth Malaysia Plan 2021-2025	2021	A national oil and gas services and equipment (OGSE) industry blueprint, which will serve as a guide for the development of the industry, will be formulated. The blueprint will provide strategic direction to improve competitiveness, efficiency and technological capability of local OGSE industry players. Through these improvements, the local OGSE industry players will be able to upscale services and undertake complex jobs domestically and internationally. The existing energy-related policies will be streamlined and harmonised to formulate a long-term comprehensive single energy policy. A comprehensive natural gas roadmap will be developed for this purpose to provide medium- and long-term directions, focusing on liberalising the gas market and increasing domestic gas demand.					
Development of other transport-related plan/ policy							
Low Carbon Mobility Blueprint 2021-2030	2021	Incorporate planning considerations when Local Authorities develop or review their Local Plans or State Structure Plans.					
National Land Public Transport Master Plan	2013	Taxi Transformation Plan (TTP) Integration and Interchange Plan (IIP) Travel Demand Management Plan (TDMP)	x				
National Transport Policy 2019-2030	2019	Prepare framework for identification, prioritisation, adoption and regulation to support the arrival of future technology for all transport modes Align the long-term planning of urban centres and public transport network across the National Transport Policy, National Urbanisation Policy and the National Housing Policy					x
Development of public transport plan/ policy							
National Land Public Transport Master Plan	2013	Stage bus network planning is critical in ensuring adequate coverage of bus services across the city, and will be integrated into the overall land public transport planning at the regional and local levels. Urban Rail Development Plan (URDP) Bus Transformation Plan (BTP)	x	x			x
National Physical Plan_Chapter 7 (Implementation)	2020	Prepare Urban Public Transportation Master Plan	x	x			x
Development of transport adaptation/ emergency/ disaster plan/ policy							
Malaysia. Biennial update report (BUR). BUR 2. National Communication (NC). NC 3.	2018	Localised stormwater management and drainage master plan studies have been completed for frequently flooded urban areas.					x
Twelfth Malaysia Plan 2021-2025	2021	Introduction of the Policy on Disaster Risk Management by 2025 A national policy on disaster risk management and multi-level disaster resilience plans as well as a national adaptation action plan will be developed.					
Development of transport plan/ policy							

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Green Technology Master Plan 2017-2030	2017	The NLPTMP was launched by the Land Public Transport Commission (SPAD) in 2012. The NLPTMP provides a high level timeline to guide the transformation in the public transportation service up to the year 2020.					
Disaster notification/ early warning system							
Twelfth Malaysia Plan 2021-2025	2021	As planned, the integrated weather and flood forecasting and early warning system were developed for the Sungai Kelantan, Sungai Pahang and Sungai Terengganu river basins.					
Twelfth Malaysia Plan 2021-2025	2021	Technologies, including artificial intelligence sensors and alert systems, will be leveraged to ensure more effective disaster response. Early warning systems and disaster response will be enhanced to ensure at-risk communities are better prepared to take action ahead of impact, thus saving lives and minimising property losses. The use of big data analytics and artificial intelligence in forecasting and early warning systems will enable better prediction and mitigation of disaster risks.					
Ecodriving							
Low Carbon Mobility Blueprint 2021-2030	2021	Introduce eco-driving component in new driver training course to obtain driving license. a. Formulation of eco-driving implementation program (2021-2022). b. Implement eco-driving component in new driver training course (2023 onwards). Implement communication, marketing, and branding. a. Devise concept of campaign to be launched (2021-2022). b. Deploy TV and radio commercials, print, information desk and supporting activities (2023 onwards). Introduce eco-driving training requirement for commercial drivers. a. Engage with stakeholders of commercial driver training (2021-2022). b. Implement regular eco-driving programmes (2021-2025). c. Institute eco-driving requirement for all drivers (2026 onwards). Enforce driver monitoring system on commercial vehicle drivers. a. Incentivise commercial transport to implement driver monitoring system (2023-2025). b. Implement/enforce commercial driver monitoring system (2026-2030).	x				
Twelfth Malaysia Plan 2021-2025	2021	In addition, an energy-efficient driving programme for all classes of vehicles will be made mandatory.	x				
Electric vehicle readiness requirements for new or refurbished buildings							
Low Carbon Mobility Blueprint 2021-2030	2021	Incorporate requirement for installing EV charging facility in planning permission for all new buildings. a. Establish requirement guidelines for incorporation of EV charging facilities for new buildings subject to minimum criteria (2021-2022).	x				
National Energy Policy 2022-2040	2022	Establish regulations to support EV adoption such as regulation on vehicle, battery and infrastructure attributes.	x				
Emissions trading and carbon pricing							

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Green Technology Master Plan 2017-2030	2017	MITI/MAI is in the midst of conducting research on the suitability of introducing EEV Labeling and Carbon Emission Tax Structure in Malaysia. Further on, the Government will explore the feasibility of implementing a carbon tax or green tax and its effectiveness in embedding sustainability as a business norm in Malaysia.					
National Transport Policy 2019-2030	2019	Implement a Global Market-Based Measure (GMBM) scheme in the form of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) to address any annual increase in total CO2 emissions from international civil aviation				x	
Twelfth Malaysia Plan 2021-2025	2021	In addition, a feasibility study will be conducted on carbon pricing, such as carbon tax and the Emission Trading Scheme.					
Employment in transport, communication, and storage							
National Physical Plan_Chapter 7 (Implementation)	2020	Create employment centres near Public Transport Transit Centres	x	x			
EV charging infrastructure							
Green Technology Master Plan 2017-2030	2017	In this aspect, GreenTech Malaysia, through its ChargeEV initiative, has been rolling out charging stations throughout Malaysia, particularly in the Klang Valley region, with a target of having 25,000 charging stations by 2020.	x				
Low Carbon Mobility Blueprint 2021-2030	2021	Provide PHEV support for EV charging infrastructure development fund. - RM5,000 per PHEV (2021-2025) - RM3,000 per PHEV (2026-2030) b. Establish qualifications based on electric range per charge and no engine charging. - >30km at NEDC (2021-2022) - >55km at NEDC (2023-2024) - >75km at WLTP (2025-2027) - >100km at WLTP (2028-2030) Facilitate private EV charging operators. a. Establish Government funding for 2000 AC charging points and 300 DC charging points as an immediate phase (2021-2022). b. Initiate public tender for a national fast charging network (2023-2025). c. Provide tax incentives under Green Income Tax Exemption (GITE) for Services until 2030. Provide EV charging infrastructure in areas not serviced by private operators. a. Ensure fast charger installation for every 100 km and at every R&R stops along major highways (2023-2025). a. Conduct study on battery swapping ecosystem (2022). b. Implement battery swapping system (2024). Provide tariff revision for EV car public charger. a. Conduct specific tariff study and categorisation for public charging facilities set up for operators and users (2022). b. Conduct specific tariff implementation for public charging facilities (2022). a. Conduct specific tariff study and categorisation for bus charging facilities (2021). b. Conduct specific tariff implementation for bus charging facilities (2022).	x				

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National Energy Policy 2022-2040	2022	Conduct strategic planning and support with early stage public-private funding to support charging infrastructure build out and other relevant physical enablers to accommodate EV penetration. Study and implement measures to accommodate greater penetration of variable renewable energy (VRE) and EVs by enhancing grid infrastructure and installing energy storage facilities.	x				
National Transport Policy 2019-2030	2019	Develop sustainable and economically viable infrastructure for EEVs e.g. charging stations for EVs	x				
EV manufacturing							
Low Carbon Mobility Blueprint 2021-2030	2021	An extension of Green Technology incentives until 2025 should be seriously considered. The incentives include those that benefit purchasers; i.e., Green Technology Financing Scheme (for users), Green Technology Financing Scheme (for users and producers of Green Technology), Green Investment Tax Allowance (GITA) Services, GITA Assets, GITA Projects; and one that supports manufacturers through subsidised financing, that is, GTFS. It is proposed that these incentives not only apply to private companies but also include government-owned companies that are involved in public transport such as Prasarana. BEV-specific incentives a. Provide tax incentives (reducing) to bridge price gap, build market trust and catalyse local manufacturing. - BEV CBU Excise Duty and Import Tax Exemption (max 10,000 volume total) (2021-2022) - 50% import duty and excise duty exemption (2023-2025) a. Provide support for local manufacturers of electric cars with R&D and create business matching with investors. b. Introduce a new tax incentive scheme targeted at 'green' industries including companies involved in production, distribution and services related to low-carbon transportation. c. Engage stakeholders and manufacturers; provide necessary support to them; and conduct CEPA to apply for incentives under GTFS and other schemes. a. Provide support for EV bus local manufacturers with R&D and create business matching with investors. a. Provide support to local manufacturers of electric motorcycles with R&D and create business matching with investors.	x				
National Energy Policy 2022-2040	2022	Recognise EVs as the focus of the future in light vehicles to achieve required level of scale in infrastructure and auto-manufacturing. Support with investments, financing and capability building to enhance local EV manufacturing and supply chain ecosystem.	x				
National Transport Policy 2019-2030	2019	Provide incentives for EEV manufacturers and users, and consider different models of EEV	x				
Twelfth Malaysia Plan 2021-2025	2021	Incentives provided to local manufacturers to produce green vehicles and the purchase of these vehicles by consumers will be reviewed.	x				
Express lanes/ public transport priority							

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National Land Public Transport Master Plan	2013	For optimal use of the roads and land public transport infrastructure, buses should get right of way on roads, as they transport a larger number of people compared to private vehicles.	x				
Financial instruments to support decarbonisation							
Green Technology Master Plan 2017-2030	2017	Financing is one of the biggest challenges facing GT development, not only in Malaysia but also in other countries. The Government, together with financial institutions, has collaborated to provide financing to both GT producers and users via the Green Technology Financing Scheme (GTFS). The GTFS was introduced in 2010, and is the key channel for the disbursement of green finance in Malaysia. To address the challenges in green incentives, new tax incentives were announced in Budget 2014 and will be implemented until 2020. This is accompanied by an improved process of obtaining the incentive approval according to compliance with the MyHijau criterion. The revised green incentives (Figure 8.9) cover an extensive scope of GT activities in EE, RE, transportation, building, integrated waste management and supporting service activities.					
Green Technology Master Plan 2017-2030	2017	As GT is at the stage of market formation, the Government will undertake studies to assess the expansion of the new incentives framework to cover other types of business entities which are not registered under the Companies Act.					
National Energy Policy 2022-2040	2022	Continue Green Technology Financing Scheme (GTFS), enhance awareness and ability of banks to evaluate energy efficiency projects to unlock private financing. Push towards sustainable private sector led financing for energy efficiency investments, by building strong banking sector support for ESCO EPC.					
National Transport Policy 2019-2030	2019	Develop green index and incentives to encourage transport operators to go green					
Twelfth Malaysia Plan 2021-2025	2021	The private sector will also be encouraged to invest in research-driven activities related to biomass through financial assistance and advisory services. Additionally, existing incentives, such as the Green Technology Financing Scheme, Green Investment Tax Allowance, and Green Income Tax Exemption will be enhanced to attract more investors including MSMEs. Mandatory adoption of environmental standards such as the National Green Standards for transport operators will be imposed to expedite the implementation of green practices in the transport and logistics sectors. Incentives will be provided to encourage the adoption of these standards.					
Fiscal incentives for EVs and components							
Green Technology Master Plan 2017-2030	2017	A revised road tax mechanism has been put in place for hybrid and EVs which charges these vehicles at a lower rate.	x				

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Green Technology Master Plan 2017-2030	2017	To bridge the higher cost of ownership for private purchase or running relevant programs with EV, incentives such tax exemption, purchase subsidy, tax incentive or special program execution fund or grants should be introduced as a catalyst.	x				
Low Carbon Mobility Blueprint 2021-2030	2021	An extension of Green Technology incentives until 2025 should be seriously considered. The incentives include those that benefit purchasers; i.e., Green Technology Financing Scheme (for users), Green Technology Financing Scheme (for users and producers of Green Technology), Green Investment Tax Allowance (GITA) Services, GITA Assets, GITA Projects; and one that supports manufacturers through subsidised financing, that is, GTFS. It is proposed that these incentives not only apply to private companies but also include government-owned companies that are involved in public transport such as Prasarana. Provide tax incentives under Green Investment Technology Assets (GITA) scheme for purchase of Green Technology Assets until 2030. Establish EV procurement for taxi fleet. Provide incentives for EV purchase of taxis and income tax exemptions to offset higher capital cost of electric vehicle (2022-2030). Provide tax exemption for qualified CKD PHEV. - 100% exemption (2021-2022) - 75% exemption (2023-2025) - 50% exemption (2026-2030) Provide tax incentives under Green Investment Technology Assets (GITA) scheme for purchase of electric motorcycles for delivery service.	x				
National Transport Policy 2019-2030	2019	Provide incentives for EEV manufacturers and users, and consider different models of EEV	x				
Twelfth Malaysia Plan 2021-2025	2021	Incentives provided to local manufacturers to produce green vehicles and the purchase of these vehicles by consumers will be reviewed.	x				
Fossil fuel subsidy elimination							
National Energy Policy 2022-2040	2022	Rationalise transport fuel subsidies, with only targeted exception-based for low-income households.					
Freight consolidation							
National Land Public Transport Master Plan	2013	To improve the situation in the large urban areas, a comprehensive city logistics model should be developed to ensure that urban freight transport is efficient and optimizes the flow of goods into the dense urban centres. One way to operationalize this policy effectively is by setting up consolidation points where goods are pooled from different transportation providers and then jointly distributed in the city. T	x				x
Freight rail infrastructure improvement							
Logistics and Trade Facilitation Master Plan 2015-2020	2015	Upgrade rail link between Westport and Northport Improve yard capacity at the terminal Increase efficiency of cargo handling and number of train services		x			

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Freight transport shifting to rail or inland waterways (IWT)							
Low Carbon Mobility Blueprint 2021-2030	2021	a. Embark on a specific detailed study to explore possibility of expanding existing rail network to cater for freight transportation. b. Encourage KTMB to consider the possibility of catering for more freight to be transported by rail (apart from the ECRL which will also caters for freight transport).		X	X		
Twelfth Malaysia Plan 2021-2025	2021	The use of green vehicles, particularly for public transport as well as logistics and delivery services will be expanded, while the shift of freight transport mode from road to rail will be further encouraged.		X	X		
Fuel quality							
National Transport Policy 2019-2030	2019	Develop cleaner fuel or improved fuel standard	X				
General active mobility							
Clean air action plan	2010	promoting use of non-motorized transport with zero emissions	X				
Green Technology Master Plan 2017-2030	2017	Meanwhile, MyRapid has launched the Bike N Ride programme, where travellers who cycle and wish to take their bikes with them are welcome to board the trains during off-peak hour, without any additional fare charges.	X				
National Land Public Transport Master Plan	2013	Pedestrian facilities improvement to bus stops and railway stations will be encouraged as part of the local authority development plans. Walking structures should be defined around transit stops to increase the convenience of those locations In addition to ensuring ease of access to the major transport nodes for pedestrians, fitting in cyclist-friendly infrastructure such as bicycle parking facilities and bicycle lanes will make it easier and more attractive for people to ride to the stations or interchanges.	X				
National Low Carbon Cities Masterplan	2021	Provide facilities for pedestrians and cyclists in urban areas. Develop a comprehensive interconnected network of pedestrian and cycling facilities in order to connect to any of the key locations within urban areas as well as to transit stations. Provide walking and cycling facilities to support access and mobility to/from public transit nodes.	X				X
National Physical Plan_Chapter 7 (Implementation)	2020	Improve pedestrian and cycling facility and accessibility	X				
National Policy on Climate Change	2009	Property and township development that allows movement by cycling, walking and public transport	X				
National Transport Policy 2019-2030	2019	Enhance active mobility as a major facet in transport modes and enable requirements and regulations prioritising active and non-motorised transport Prioritise movement of vulnerable users (e.g. pedestrian, active and non-motorised users) at pedestrian areas and within public transport nodes Move towards a more systematic, holistic and sustainable practice of prioritising active mobility and public transport modes	X				

General adaptation measures

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National Policy on Climate Change	2009	Facilitate the harmonisation of existing policies to address climate change adaptation and mitigation in a balanced manner					
Twelfth Malaysia Plan 2021-2025	2021	In strengthening resilience against climate change and disasters, a number of adaptation and risk reduction measures were undertaken, especially in the vulnerable sectors. By the end of 2020, 1.6 million people were protected from the impact of floods through the implementation of flood mitigation projects.					
General alternative fuels							
Clean air action plan	2010	To encourage wider usage of cleaner or green fuels					
National Energy Policy 2022-2040	2022	Conduct targeted feasibility studies to identify the potential of alternative energy supply sources in Malaysia, focusing on high potential energy sources such as waste-to-energy, third-generation bioenergy, solar thermal, and ocean thermal energy conversion (OTEC).					
National Policy on Climate Change	2009	R&D on higher fuel efficiency and alternative fuel.					
General aviation improvements							
National Physical Plan_Chapter 7 (Implementation)	2020	Enhance existing airport facilities and infrastructure Improve rural air services				X	
National Transport Policy 2019-2030	2019	Facilitate the growth of Digital Free Trade Zone (DFTZ) and aviation support services, such as maintenance, repair, overhaul (MRO) Position KLIA (KLIA Aeropolis) as the main cargo hub, Senai as southern regional hub and KKIA, Kota Kinabalu and KIA, Kuching as eastern regional hub Enhance air connectivity by promoting all international airports as passenger hubs				X	
Twelfth Malaysia Plan 2021-2025	2021	Among the projects implemented included the upgrading of Langkawi international Airport and the installation of the simple approach light system for Kuching international Airport, which was completed in 2018. In addition, the completion of the new Kuala Lumpur Airport Traffic Control Centre in August 2021 is forecasted to increase the number of aircraft movements per hour from 68 to 108. The construction of the new airport in Mukah, was completed in April 2021. Meanwhile, the upgrading of the Kota Kinabalu international Airport Traffic Control Center, which started in 2019 is expected to be completed by 2023.				X	
Twelfth Malaysia Plan 2021-2025	2021	In the aviation sector, outdated systems and obsolete equipment will be replaced and infrastructure will be upgraded. A mechanism will be established for proper maintenance of infrastructure and assets to ensure that airports and air traffic management systems comply with the International Civil Aviation Organisation (ICAO) standards. A centralised system will be developed to improve transmission of data and communication to ensure operational efficiency.				X	
General capacity building							

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Green Technology Master Plan 2017-2030	2017	In support of mainstreaming green technology in the automotive sector, several initiatives have been put in place to enhance human capital development. On the industrial front, MAI has been active in organising technical talks as platform for engaging automotive industry players to keep them updated on the industry’s direction matters especially on EEVs including EV. Furthermore, MAI also functions as the Industry Lead Body (ILB) for the training and development of human capital in the automotive industry. MAI is collaborating with Department of Skills Development (DSD) to develop the National Occupational Skill Standard (NOSS). Several research centres in the local universities have also been working on the transport GT research, such as the Proton Future Lab (UTM), UM Power Energy Dedicated Advanced Centre (UMPEDAC, UM), Malaysia Institute of Transport (UiTM) and Research Centre for Applied Electromagnetics (UTHM).					
Green Technology Master Plan 2017-2030	2017	In order to support the growth and development in the transport sector, it is crucial to ensure that due attention is given to the development of human capital in the related sectors.					
Logistics and Trade Facilitation Master Plan 2015-2020	2015	Introduce accreditation for logistics service providers Intensify on-the-job training for the professionals in logistics Universities and training centers to offer upskilling programmes to the existing workforce Review the requirements of vocational license such as age limit, application procedures, and renewal processes Implement basic and advanced training initiatives according to the drivers’ skill levels					
Low Carbon Mobility Blueprint 2021-2030	2021	Provide support for the development of professionals in the transport planning and urban planning fields. These professionals will be involved in designing road networks and a public transportation transit system that promote low carbon mobility at state and local government levels. Provide support for the development of institutional capability of agencies/organisations in both public and private sectors. These agencies will be responsible for the planning, supervision and promotion of energy conservation implementation and low carbon mobility measures.	x				x
Malaysia Rail Supporting Industry Roadmap 2030	2014	Strengthening SPAD in regulating, design, operation, maintenance, safety, and security aspects of the Malaysian rail systems i.e. (rolling stock, electrification, signalling, track and automatic fare collection (AFC). Develop institutions to deliver rail-ready professionals based on the demand of the industry, offering generic technical training programs for blue collar tradesmen, bridging programs for graduate engineers and short courses for refresher/upgrading of the current workforce Develop comprehensive capability to undertake rolling stock MRO up to modification/upgrade of systems and subsystems		x			
National Automotive Policy 2020	2020	Continuation of fund allocation under Automotive Industry Development Programme (AIDP).					

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National Automotive Policy 2020	2020	Establish training programmes to lead parts and components suppliers towards smart manufacturing and enhance overall competitiveness Promote establishment of Industry 4.0 Academy for automotive sector Continuation of Automotive Apprenticeship Programme to accelerate the intakes of graduates into the industry. Uniformise, review and promote the creation of new TVET programmes in line with the current industry requirements, especially elements under IR4.0 Improve existing automotive related education programme in line with current trend and industry needs. Enforce mandatory accreditation for automotive and mobility ecosystem workforce by January 2021. empower technical research activities on the application of biodiesel in the automotive sector.					
National Transport Policy 2019-2030	2019	Strengthen the capability and expertise of transport industry Ensure respective transport agencies develop relevant training, upskilling and competencies through training schemes, qualification courses and certification Enhance public awareness on career in transportation as an attractive choice which offers a wide range of job and business opportunities Strengthen Big Data capabilities at MoT, other transport agencies and local authorities.					
Twelfth Malaysia Plan 2021-2025	2021	Capacity building of the agency will be enhanced to ensure efficient enforcement of the regulations. The introduction of this mechanism will ensure fairer charges for services rendered and discourage anti-competition practices.					
General data repositories and data collection							
Logistics and Trade Facilitation Master Plan 2015-2020	2015	Enforce quarterly data collection exercise to gather data such as origindestination pairs from each transportation mode					

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Low Carbon Mobility Blueprint 2021-2030	2021	Establish detailed data sources with respect to energy consumption and GHG emission to facilitate monitoring and planning future policy directions. A repository of all relevant data related to the transport sector, energy consumption and GHG emission needs to be established and made accessible to all related government agencies for the purpose of facilitating the implementation and monitoring of LCMB Provide a transport sector section in survey as a way to improve transport-related data. One of the best ways is through a national Household Survey to be conducted by the Department of Statistics Malaysia (DOSM). a. Conduct survey on household members travel characteristics and patterns for all household trips. Through this comprehensive household survey, a more meaningful and more complete understanding of household travel patterns can be gained. b. Conduct regular household surveys with an interval of 4 or 5 years, particularly for the transport section. c. Pre-test questionnaire by November 2019. Prepare a survey to identify specific household travel behaviour as part of the transport master plan in cities. This is done in London and Singapore where it is called the National Travel Survey and Household Travel Survey. a. Develop a National Household Survey as a means to complement gaps and for future reference for the national transport master plan. b. Set survey development at the national level under the Ministry of Transport (MOT) and its agency, the Land Public Transport Agency (APAD). c. Include household travel survey (by Local Authorities) as a requirement in the transport master plan at state or municipal level.					x
National Automotive Policy 2020	2020	Implementation of Franchise AP Policy will be continued for the purpose of monitoring and data collection. This policy will be implemented in line with the improvements proposed for the automotive industry as a whole, by promoting and opening larger opportunities for participation of Bumiputera in the automotive supply chain and not only focusing on being an importer					
National Transport Policy 2019-2030	2019	Create a centralised transport database, geo-spatial data and modelling to support evidence based and strategic planning by government agencies Establish a centralised, commonly accessible database to allow more and better analytics, monitoring and evaluation					
Twelfth Malaysia Plan 2021-2025	2021	A centralised database for the transport and logistics sectors will be established. The database will comprise a comprehensive layered map and statistics related to roads, rail, aviation and maritime services. This database will also contain information on greening the transport sector. The Malaysia Urban Observatory (MUO), a multidimensional big data analytics system will be introduced as an integrated policy tool for better planning and decision-making. The MUO will enhance urban data collection and data openness as well as promote data sharing among multiple stakeholders for spatial planning at all levels of government.					x

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General e-mobility							
Green Technology Master Plan 2017-2030	2017	KeTTHA and GreenTech Malaysia has initiated the electric mobility effort. Apart from electric bus, the Government also supported private initiative EV car-sharing programme known as Cohesive Mobility Solution (COMOS), to provide rentable EV at selected locations in Klang Valley area. In terms of electric motorbikes, local company Eclimo Sdn Bhd has been developing electric scooter that can cater local as well as regional markets. Moreover, Eclimo has been working with the Research Centre for Applied Electromagnetics (UTHM) and UM Power Energy Dedicated Advanced Centre (UMPEDAC, UM) to develop electric drive train for its electric scooter, as a move to localise the EV technology. MAI has also collaborated with Excellerate Australia (formerly known as AutoCRC) through the Economic and Technical (ECOTECH) platform of Malaysia-Australia Free Trade Agreement (MAFTA). Through the projects in 'Breakthrough Battery' of 'Vehicle Electrification Program', MAI has developed Intellectual Property (IP) in the area of Lithiumion Battery (LiB) electrodes and electrolyte, LiB packaging and management system as well as LiB material production scale-up. These LiBs can be used for EVs, hybrids, energy storage, etc. The first locally manufactured LiBs are expected to roll out in 2018.	x				
Low Carbon Mobility Blueprint 2021-2030	2021	Establish EV procurement for government fleet via open tender. a. Implement EV procurement for government fleet (2021 – 2030). b. Create additional scoring for local content (2021 – 2025). e. Establish local product qualification for tender participation (2025 – 2030). a. Consider a holistic EV ecosystem while developing regulatory agenda. b. Establish a holistic EV ecosystem. c. Further develop EV ecosystem towards maturity. establish e-bus central procurement agency. a. Revolving fund of RM450 million for e-bus competitive leasing. b. Annual RM100 million fund. c. Ministries and state government subscription to e-bus as part of government led by example. procure electric motorcycles for government enforcement fleet.	x				
National Automotive Policy 2020	2020	EV Charging Protocol Energy management system for EV ecosystem Safety usage of the critical components Revise definition of Energy Efficient Vehicle (EEV) and Next Generation Vehicle (NxGV) for wider scope - all vehicle categories Motorcycle EEV specification for engine capacity above 250 cc • Develop standards for Battery Swapping technology • Develop standards for motorcycle NxGV • Conduct research and study to promote R&D in the aspect of motorcycle safety Apply well -to-wheel concept in the calculation of emission from EV	x				

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This table lists the policy measures that relate to climate change mitigation and adaptation in the transport sector that had been identified in the transport policy documents of Malaysia

Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
National Energy Policy 2022-2040	2022	Thrive domestic EV ecosystem, with at scale EV penetration. Continuously promote energy efficiency by enhancing public transport modal shares, shared mobility, alternative carbon free mobility and facilitating the entry of digitally enabled carpooling. Establish regulations to support EV adoption such as regulation on vehicle, battery and infrastructure attributes.	x				
National Low Carbon Cities Masterplan	2021	Promote low carbon and environmentally friendly buses. Promote low carbon and environmentally friendly vehicles through policies and incentives provision. Provide suitable infrastructure for cleaner vehicles and fuels.	x				
National Policy on Climate Change	2009	Increase usage of hybrid engines and electric vehicles	x				
National Transport Policy 2019-2030	2019	Study current regulation in Act 333 to support the growth and the use of EEVs/electric vehicles (EVs) in Malaysia. Mandatory requirement for purchase of low carbon emission vehicles in Government Green Procurement	x				
Twelfth Malaysia Plan 2021-2025	2021	Alternative fuel sources, including compressed natural gas, hydrogen energy and fuel cell will also be expanded. The use of green vehicles, particularly for public transport as well as logistics and delivery services will be expanded, while the shift of freight transport mode from road to rail will be further encouraged.	x	x			
General education and behavior change							
Clean air action plan	2010	To widen outreach programmes on solving air pollution issues involving politicians (Members of State Assembly and Parliament), decision makers, local government and other relevant agencies.					
Green Technology Master Plan 2017-2030	2017	In line with the Government's aspiration to go green and reduce carbon emission, the public transport operators have conducted several green initiative programs. For example, Express Rail Link Sdn Bhd (ERL) has embarked on the Go Lo-CO2 program (a campaign to raise public awareness on reducing carbon emissions) which is estimated to save 44,800 ktCO2 eq each year when the commuters choose to travel by KLIA express.	x	x			
Low Carbon Mobility Blueprint 2021-2030	2021	Develop effective CEPA activities that create behavioural modification towards practices of sustainable transport through use of 'green' vehicles (such as electric cars, e-buses, FCEV and B100 buses). Strengthen CEPA for companies to opt for low-carbon transportation assets and services. These include communication of tax incentives and subsidised financing, and organising 'match-making' platforms or events for companies to connect with local and foreign suppliers. Involve the Ministry of Education in CEPA activities to allow students at all levels to be more aware of the practical aspects of low-carbon mobility options. Plan and execute effective media engagement in CEPA activities to promote LCMB.	x				
Low Carbon Mobility Blueprint 2021-2030	2021	Research institutions (universities, private entities etc.) need to be involved in enhancing research in low-carbon mobility, whether in technology or in behavioural change towards low-carbon mobility options and practices.					

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Malaysia Rail Supporting Industry Roadmap 2030	2014	Incorporate rail engineering modules/subjects into institution of higher learning diploma and degree programs. Promote awareness and public interest on rail industry to increase its attractiveness. Introduce ab initio 'licensed train driver' program based on EMU operation through the use of simulators.		x			
National Land Public Transport Master Plan	2013	The driver enhancement programme strengthens this effort by providing training programmes to ensure drivers are adequately equipped with the right sets of skills to provide good service while carrying out their jobs effectively. It will also put in place a driver incentive and demerit system tied to incentivise responsible behaviour To complement the efforts in building land public transport systems that enhance accessibility, connectivity and speed, travel awareness campaigns will keep the public in the know about the latest land public transport developments. These campaigns should emphasize the benefits of taking public transport and emphasize how passengers can, on a daily basis, contribute to a more environmentally-sustainable future by taking the bus or train					
National Policy on Climate Change	2009	Increase awareness and community participation to promote behavioural responses to climate change.					
National Transport Policy 2019-2030	2019	Increase safety mobility awareness and behaviour change through effective and comprehensive user behaviour improvement programmes and innovative ideas and techniques Develop communication mechanisms to increase awareness on benefits of using public transport to increase utilisation Implement programs to promote behavioural change Strengthen collaboration with Ministry of Education (MOE) to increase awareness and inculcate green behaviour among school students					
Twelfth Malaysia Plan 2021-2025	2021	To support environment-related education and awareness programmes, the Amanah Lestari Alam was established in July 2020.					
Twelfth Malaysia Plan 2021-2025	2021	Measures will be undertaken to ensure integrated, affordable, reliable and seamless people mobility. These include improving the overall accessibility to public transport and encouraging the behavioural shift from private to public transport. Programmes to promote behavioural change are crucial to increase sustainable practices in the transport and logistics industry. CEPA programmes will be intensified, targeting transport operators, manufacturers, service providers and users of transport and logistics services. Therefore, collaboration among stakeholders will be strengthened in implementing CEPA to induce green behaviour among users.					

General freight and logistics improvements

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Logistics and Trade Facilitation Master Plan 2015-2020	2015	Regulate and monitor warehouses and off-dock depots to reduce the cost of transportation, storage and improve freight flow Strengthen joint control between customs and PIAs Drive paperless trading Review the elimination of packaging list Review and shorten procedures and time taken to issue heavy vehicle license Shorten processing time for issuance of landing permits to charter flights Increase compliance levels with trading partner market regulations Increase and standardise the axle-load limit for container hauliers and conventional trucks Review the interchangeability of prime movers for different trailers, focusing on non-container cargo Establish a virtual selling platform Promote the use of online marketplace for logistics service providers to connect with shippers and publish real-time rates for small and medium-sized end users Drive implementation of urban logistics solutions such as: • hub and spoke distribution • polarised fleet • expanded delivery windows • last-mile delivery Benchmarking with best practices and continuous improvement to enhance logistics performance Intensify R&D research to enhance knowledge and innovate Promote global convergence of crossborder transportation, customs processes and regulation to enhance efficiency of trade Focus on security measures and enforcement to mitigate risk in the supply chain					x
Low Carbon Mobility Blueprint 2021-2030	2021	Exploring low emission vehicle technologies. a. Explore and evaluate various low emission vehicle technologies in freight and goods transport. b. Encourage for adoption of identified low emission vehicle technologies. b. Propose better route optimisation technologies which to help reduce woes over last mile capacity.	x				
National Energy Policy 2022-2040	2022	Support timely execution and shifts to alternative modes of transport for freight.		x	x		
National Land Public Transport Master Plan	2013	SPAD will lead the effort to build up a monitoring framework to enhance the scanning of land freight flows throughout Malaysia Delivery-time standards can be imposed across the industry to ensure a minimum service level across the board. This may be enforced proactively through audit checks and through a formal complaint investigation mechanism.					
National Physical Plan_Chapter 7 (Implementation)	2020	Improve logistics and the supply chain management					

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
National Transport Policy 2019-2030	2019	Promote and facilitate transparent, free and competitive market principles Push for smarter regulations for e-commerce to increase the efficiency and ease of doing business Streamline non-tariff measures for export, transshipment and imports of goods across borders and differentiate the customs procedure for transshipment and normal cargo Progressive liberalisation of rail services to enable multi-operator environment Encourage the development of urban logistics distribution to cope with urbanisation and facilitate e-commerce activities Improve the accessibility and affordability of delivering goods to the rural and remote areas Impose track and trace requirement on logistics services providers Develop freight villages (e.g. with parking, maintenance, loading & off-loading, resting place facilities) at strategic locations Strengthen the monitoring system for container and trailer for efficient movement of containers Institutionalise green port, green airport, green transport terminals and green logistics Streamline transport rules and processes such as custom clearance to improve utilisation of rail					x
Twelfth Malaysia Plan 2021-2025	2021	Measures have been taken to digitalise logistics services to further improve efficiency and competitiveness as well as ensure seamless movement of goods. The Digital Free Trade Zone (DFTZ) was launched in 2017 to provide physical and virtual zones to facilitate small and medium enterprises (SMEs) in capitalising the growth of the digital economy and cross-border eCommerce activities.					
Twelfth Malaysia Plan 2021-2025	2021	Industry players will be encouraged to form alliances, including through M&A to become fourth-party logistics (4PL) providers to manage and control all activities within the supply chain network and serve as a single point of contact for customers. Ranking in the World Bank Logistic Performance Index = Top 30 by 2025					
Twelfth Malaysia Plan 2021-2025	2021	Digitalisation in logistics services is essential to increase productivity and efficiency as well as deliver quality services. The industry will be encouraged to digitalise its operations and connect to an integrated platform in establishing a smart and highly efficient supply chain. This initiative will facilitate seamless information sharing and improve cost efficiency, which will eventually benefit end users and drive competitiveness of the logistics industry. In keeping up with increasing demand from eCommerce channels and meeting expectations of consumers, logistics services providers will be encouraged to increase investment in warehousing and distribution centres to enhance efficiency. This will assist in accelerating development of the advanced supply chain. The uCustoms, a single-window transaction platform, will be fully operationalised to further improve the ease of doing business by providing a web based, electronic end-to-end solution.					
General infrastructure improvements							
Low Carbon Mobility Blueprint 2021-2030	2021	d.Upgrade FLM infrastructure with walkways, crossings, cycle lanes, cycle parking, traffic controls, signages, etc.					

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National Physical Plan_Chapter 7 (Implementation)	2020	Enhance the role of airports, seaport, and inland ports Developing Road Networks and Connections - Prioritise regional inter-connectedness	x	x	x	x	
National Transport Policy 2019-2030	2019	Greening the transportation infrastructure to restore damaged urban environment in urban renewal infrastructure effort for sustainable city Minimise noise pollution from transportation infrastructure	x	x			x
General inland waterways (IWT) improvement							
National Physical Plan_Chapter 7 (Implementation)	2020	Improve ferry services Develop water taxi services			x		
National Transport Policy 2019-2030	2019	Provide facilities and services for water transport			x		
Twelfth Malaysia Plan 2021-2025	2021	Connectivity and mobility between rural and urban areas will be improved to bridge the development gap and foster greater economic integration. Transportation services, such as buses, e-hailing and water transportation in rural areas will be enhanced.			x		x
General innovations and digitalization							
Low Carbon Mobility Blueprint 2021-2030	2021	Develop smart applications to enhance public transport patronage. a. Establish initiatives for public transport operators (for bus and rail) to provide online information on public transport services, timetables and real-time location information through real-time mobile apps. b. Establish initiatives to educate the public on these apps for PBTs and public transport operators to enhance public transport patronage. c. Add special features for users on personal energy savings, cost savings and emission reduction by using PT (low emission bus and rail). d. Add options for destination travel, cost estimates, and notification on major disruptions in service.					
National Automotive Policy 2020	2020	Encourage the utilisation of eCommerce platform to market products for domestics and export.					
National Transport Policy 2019-2030	2019	Optimise existing infrastructure and assets, as well as accelerate usage of automation through adoption of technology and digitalisation in transport Intensify the use of technology in enforcement Improve regulations for enforcement agencies, and use high technology in promoting road safety					
General international conventions							
Malaysia Road Safety Plan 2022-2030	2022	As of 2020, 114 UNRs had been gazetted out of the total of 157 UNRs ¹⁵ . The adaptation of UNR is one of the recommendations of Stockholm Declaration and UN Conference Resolution 74/299 that have been implemented by the Malaysian government.					
National Transport Policy 2019-2030	2019	Ensure compliance to international safety standards with a proper monitoring mechanism and certification					
General IPT/ paratransit measures							

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National Land Public Transport Master Plan	2013	There are plans by the State Commercial Vehicle Licensing Board (CVLB) to offer public service vehicle licenses to qualified pirate taxis in a bid to regularize the service and to raise the standard and reliability of the service provision	x				
National Low Carbon Cities Masterplan	2021	Provide feeder systems to/from public transport stations and stops.	x				
General land use							
Low Carbon Mobility Blueprint 2021-2030	2021	Encourage Local Authorities to consider urban transport planning as a fundamental component of city planning especially for traffic management when revising Local Plans.					x
National Transport Policy 2019-2030	2019	Integrate transport infrastructure development with land use planning and prioritising public transport connectivity. Continuously ensure that development guidelines integrates land use and public transportation					
Twelfth Malaysia Plan 2021-2025	2021	In addition, public and private development projects will be required to adhere to the land use policies in designated development areas as prescribed in the National Physical Plan, State Structure Plan, Local Plan or Special Area Plan.					
General micromobility							
Malaysia Road Safety Plan 2022-2030	2022	Leveraging various mediums of communication to foster awareness of safe micromobility vehicle usage. Awareness campaigns can be organised using various mediums of communication so that the safety message can reach all road users regarding the best practices for safe micromobility vehicle usage. Developing the infrastructure and designated lanes for micromobility vehicles at identified locations	x				
Twelfth Malaysia Plan 2021-2025	2021	Simultaneously, micromobility services for first- and last-mile connectivity, which enable seamless movement, will be expanded to increase access to public transport.	x				
General parking measures							
Low Carbon Mobility Blueprint 2021-2030	2021	Implement parking control in CBD and within city limits. a. Restrict parking on certain periods of the day in specified areas. b. Reduce parking space in CBD and in specified areas within city limits. c. Reduce to a minimum on roadside parking in CBD and specified areas within city limits. e. Provide only short-term parking for roadside parking within city limits.	x				x
General public transport							
Clean air action plan	2010	To provide varieties of modal choice by promoting the use of public transports that will reduce use of private vehicles. To improve traffic management by encouraging mass transit options that have low emissions rate per passenger					

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Green Technology Master Plan 2017-2030	2017	An additional 470 new buses were provided for Rapid KL, Rapid Kuantan, and Rapid Penang. This led to a significant increase in passenger ridership from 10.7 million in 2012 to 17.9 million in 2014. For bus transportation, Go KL, a free bus service in the Kuala Lumpur Central Business District area was introduced to offer a viable and economical alternative for commuters to travel within the area. The existing bus network has been revamped, where current bus corridors were reorganised into smaller corridors based on the main trunk roads connecting Kuala Lumpur’s city centre. In addition, Performance Monitoring Hub System (PMHS) has been implemented to improve public transportation’s reliability, journey time, comfort, convenience, accessibility and connectivity by monitoring and tracking the public transport performances beginning with stage bus routes in the GKL/KV. Besides that, the stage bus service transformation, myBAS, has been rolled out in several key cities in Malaysia, namely Seremban, Ipoh and Kangar. myBAS is designed to help in sustaining stage bus service to ensure connectivity and at the same time provide scheduled trips for local commuters across Malaysia to travel around.					x
Green Technology Master Plan 2017-2030	2017	New land public transport development will be required to undergo thorough environmental impact assessments; and . Economic and environmental impact assessment which will estimate GT development impact with the involvement of both public and private sectors; and					
Green Technology Master Plan 2017-2030	2017	Figure 4.3 Automated Fare Collection Bus Stop Info Panel Journey Planner Integrated Common Payment System					

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Low Carbon Mobility Blueprint 2021-2030	2021	Increase the number of Stage Buses in GKL and main cities. a. Conduct assessment on the number of stage buses necessary for GKL and other main cities based on population size. b. Acquire extra buses to better serve the needs of public transport users. Increase the number of Feeder Buses in GKL and main cities. a. Conduct assessment on the number of feeder buses necessary for GKL and other main cities based on the number of transit stations and transport terminals. b. Determine type of feeder buses that suit area to be served. Use mini buses for lower cost and efficiency in areas with smaller road space such as compact housing areas. c. Acquire extra buses to better serve the needs of public transport users. Increase routes for public transport (road and rail) in urban areas. a. Identify new public transport routes (road and rail) including extension of existing routes for stage buses, feeder buses and rail-based transit for increased public accessibility. b. Plan and implement public transport services on those identified routes including necessary infrastructure and feeder services. Improve frequency of public transport (road and rail) especially during peak hours. a. Identify public transport routes which have low service frequency and plan for higher frequency especially during peak hours. Improve public transport stations (road and rail) and stops. a. Conduct assessment of public transport stations (bus and rail) including bus stops and determine adequacy of facilities and amenities to needs of public transport users. b. Improve selected stations to better serve the needs of public transport users.					x
Malaysia Road Safety Plan 2022-2030	2022	Promoting investment in public transport chain development					

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National Land Public Transport Master Plan	2013	Malaysia must transform its public transport system to achieve this vision of “Public transport as the rakyat’s choice for mobility. a comprehensive passenger information system will be developed and embedded into upgrading efforts such as the bus stop enhancement measures. Public transport systems must also support national safety and security initiatives, particularly in high-traffic areas such as transport interchanges. This includes security-enhancements through extensive CCTV surveillance network, and providing CCTV feeds to relevant public security agencies to assist in surveillance, monitoring and investigations. The serviceability and safety of public transport vehicles must be maintained at high levels through a comprehensive and robust framework of vehicle standards for both buses and taxis. These standards and specifications should be reviewed on a regular basis to ensure that the standards remain relevant. All public transport operators must comply with high standards of safety which are embedded within their licensing frameworks. These standards will be coded into the relevant legislation and regulations formally under the safety and security regulatory enhancement effort undertaken by SPAD Standards of safety for vehicles and operators will be tightened and will include mandatory requirements for regular maintenance. These standards will be enforced through regular audits and will be tied to the operator licenses. To ensure that both the drivers and the operators that employ them are held accountable for their safety, their respective licensing frameworks will be tightened, and licenses will be contingent upon them maintaining a good safety record. In particular, operators will be required to ensure that drivers comply to requirements by taking adequate rest between driving shifts to minimize the occurrence of accidents. Mandating and enforcing emissions and noise standards for goods vehicles will ensure that pollution is minimized.					
National Low Carbon Cities Masterplan	2021	Develop modes of public transportation services in urban area. These modes of public transportation include city buses, trams, rapid transit (MRT/LRT/Commuter/Monorail) and BRT. Expand the existing transit service coverage in urban areas. Improve public transit system accessibility and expand the coverage area in urban areas. Provide public bus services in urban areas. Increase public bus efficiency and coverage in urban areas.					X
National Physical Plan_Chapter 7 (Implementation)	2020	Improve urban public transportion Provide support facilities, public transport systems and access in public areas and new attraction areas					X
National Policy on Climate Change	2009	Development of an effective, efficient, integrated affordable public transportation system					
National Transport Policy 2019-2030	2019	Ensure proper planning and implementation of sustainable public transport fares for general public for it to be the first choice as a transport mode Move towards a more systematic, holistic and sustainable practice of prioritising active mobility and public transport modes					

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Twelfth Malaysia Plan 2021-2025	2021	in addition, the MRT feeder bus service was introduced as the first- and last-mile connectivity for passengers. Another major effort undertaken to increase public transport modal share was the introduction of the My100 and My50 unlimited passes as incentives for train and bus passengers in 2019.					
Twelfth Malaysia Plan 2021-2025	2021	Accessibility, connectivity and efficiency of public transport will be improved, including through TOD and first- and last-mile connectivity to attract people to shift from private vehicles to public transport. Connectivity and mobility between rural and urban areas will be improved to bridge the development gap and foster greater economic integration. Transportation services, such as buses, e-hailing and water transportation in rural areas will be enhanced. To minimise waiting and travelling time, the frequency of feeder buses will be increased and the routes will be realigned, while e-hailing services will be integrated with MRT and other transport services.					x
General rail improvement							
Malaysia Rail Supporting Industry Roadmap 2030	2014	Introduce ab initio ‘licensed train driver’ program based on EMU operation through the use of simulators. Acquire rail systems with due consideration given to the total cost of ownership apart from technical, commercial and offset assessment, and to ensure a thorough evaluation of all available options. Maximize the use of locally sourced materials & supplies in both manufacturing and MRO activities. Source subsystems and noncritical parts and components from capable local suppliers based on ‘risk sharing’ principles endorsed by regulators. Outsource industry wide common MRO services by means of performance based contracts (PBC) and long term ‘rolling-wave’ extension to capable local MRO providers. Employ offset as a means of securing contract manufacturing and designbuild work packages from foreign companies Secure foreign contracts by jointly participating in international tender bids – led by the anchor player and supported by its lower tier suppliers. Collaborate with MITI, in marketing Malaysia’s rail products and services through specific marketing mission abroad.		x			
Malaysia Rail Supporting Industry Roadmap 2030	2014	Integrate all rail services for seamless connectivity by spinning off the ‘transit acquirer’ company to facilitate revenue apportionment based on a common AFC system Invest in the capability to design, manufacture, integrate and test rail vehicles with design speed of less than 200 km/h, signalling, electrification, track and AFC systems. Invest in the capability to design, manufacture, integrate and test strategic sub-systems and components of the above product segment		x			
National Land Public Transport Master Plan	2013	Supporting this effort will be the rail maintenance programme which will ensure that the rolling stock and facilities remain of the highest operating standards. The programmes would also assess the vehicles mechanical status and put the performance of the vehicle against a number of quality checks.		x			

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Twelfth Malaysia Plan 2021-2025	2021	Two major rail projects, namely the Electrified Double Track Gemas-Johor Bahru (GJB) and East Coast Rail Link (ECRL) were under different stages of construction in 2020. For GJB, the final stretch of the electrified double-track from Padang Besar, Perlis to Johor Bahru, Johor, which will offer Electric Train Services (ETS), is projected to be ready by 2023. Meanwhile, the ECRL which re-commenced work in 2019, is currently under construction for the alignment from Dungun to Mentakab and is expected to be completed by 2026.		x			
General regulations for app-based mobility							
Malaysia Road Safety Plan 2022-2030	2022	Strengthening legislative provisions, implementation, and enforcement for e-hailing services Establishing legislative provisions, implementation, and enforcement for p-hailing and other gig economy services Improving the legal framework for micromobility vehicle usage. In developing the regulatory and legal framework, aspects such as permitted routes for micromobility vehicle usage according to the micromobility vehicle category must be considered. Implementing enforcement towards users of micromobility vehicles Continuous enforcement must be implemented for the use of micromobility vehicles when its legislation has been gazetted.	x				
General shared mobility							
National Energy Policy 2022-2040	2022	Continuously promote energy efficiency by enhancing public transport modal shares, shared mobility, alternative carbon free mobility and facilitating the entry of digitally enabled carpooling.	x				
Twelfth Malaysia Plan 2021-2025	2021	Connectivity and mobility between rural and urban areas will be improved to bridge the development gap and foster greater economic integration. Transportation services, such as buses, e-hailing and water transportation in rural areas will be enhanced. To minimise waiting and travelling time, the frequency of feeder buses will be increased and the routes will be realigned, while e-hailing services will be integrated with MRT and other transport services. Innovative and non-traditional public transport options will be considered in rural areas. An alternative community based public transport system that offers affordable services will be introduced. One of the options that will be considered is a 'dial-a-ride system', a phone call-based facility, providing door-to-door service for people who do not have access to conventional public transport amenities.	x				x
General shipping improvement							
Logistics and Trade Facilitation Master Plan 2015-2020	2015	Improve the overall registry structure in order to increase the number of vessels registered under Malaysian flag • Introduce fee structure based on tonnage and industry practices by major flag states • Review the entry requirement for Malaysian ship managers and ship registration Position Port Klang as a regional maritime centre			x		

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National Energy Policy 2022-2040	2022	Optimise fuel mix and encourage investments in refineries for residue desulphurisation and low-sulphur crude topping units to enhance domestic supply of Low Sulphur Fuel Oil (LSFO) to meet IMO requirements and encourage take-up of LSFO in domestic ports.			x		
National Policy on Climate Change	2009	Promotion of water transportation			x		
Twelfth Malaysia Plan 2021-2025	2021	The accessibility and capacity of ports were improved, to meet industry demand and to facilitate trade. The Port Klang Authority (PKA) deepened the south channel from 16.5 metres to 18 metres in 2016 to cater for bigger vessels of up to 18,000 twenty-footer equivalent units (TEUs). Capacity expansion works undertaken include the refurbishment of three wharves at the Northport and one new berth at Westports in Port Klang, Selangor. Meanwhile, an additional 12 new cranes were installed at Port of Tanjung Pelepas (PTP) in Gelang Patah, Johor to improve the efficiency of cargo handling.			x		
Twelfth Malaysia Plan 2021-2025	2021	Port operators will be urged to provide better services for maintenance, repair and overhaul services (MRO) for ships under the guidance of port authorities. The port operators will continue to enhance the capacity of ports infrastructure and services to handle larger vessels as well as provide efficient cargo handling facilities. Proper parking facilities for prime movers will be provided to ease congestion during peak hours in the ports. Facilities and equipment of ports will be upgraded while processes will be reviewed to increase overall efficiency and competitiveness.			x		
General transport asset management							
Logistics and Trade Facilitation Master Plan 2015-2020	2015	Upgrade critical roads connecting Port Klang	x				
National Transport Policy 2019-2030	2019	Adopt best practices for all transport infrastructure maintenance, particularly rail and road. For e.g. usage of high grade and low maintenance materials, practice risk assessment and life cycle asset management	x				
General transport demand management							
Clean air action plan	2010	To reduce travel demand effective traffic management that reduces congestions and shorten vehicles running times					
Green Technology Master Plan 2017-2030	2017	Reinvigorating Demand Side Management (DSM) in electricity thermal and transport					
General transport finance							

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National Automotive Policy 2020	2020	Continue to maximize the use of Free Trade Agreements: • Import Duties • Economics and technical collaboration Expand soft loan scheme to promote new export areas such as NxGV, MaaS and IR4.0 related services To expand and continue the soft loan scheme to support supply chain activities Review incentives to enhance participation of local companies in value added activities in the supply chain					
National Policy on Climate Change	2009	Incorporate measures, including mobilising financing and technical assistance, into Transportation					
General transport institutional reform							
Green Technology Master Plan 2017-2030	2017	Various reform initiatives have been undertaken to streamline and strengthen the institutional structure and governance of the transport sector. These among others include the establishment of Land Public Transport Commission (Suruhanjaya Pengangkutan Awam Darat - SPAD) and Malaysian Aviation Commission in 2015.	x	x	x	x	
Green Technology Master Plan 2017-2030	2017	In addition, plans are underway to corporatise the Civil Aviation Department. The existing governance framework in transportation will be reviewed and enhanced to entrust collaboration of Government agencies to advocate green transportation in the country.				x	
Logistics and Trade Facilitation Master Plan 2015-2020	2015	The successful execution of the Masterplan requires a mechanism that can spearhead and monitor the implementation process. In this regard, the National Logistics Taskforce, chaired by the Minister of Transport will be set up.					
Low Carbon Mobility Blueprint 2021-2030	2021	A council should be established as the national focal point on low carbon mobility policy, strategy and programme formulation. The council plays a coordinating role among sectorial agencies. It should have an institutional structure composed of an operating secretariat and several working groups to formulate and coordinate policy implementation with nationwide responsibility to support low carbon mobility agendas and programmes.					
Malaysia Rail Supporting Industry Roadmap 2030	2014	Introduce an organizational level certification scheme to substantiate the capability of each and every industry player. Provide non-fiscal incentive by simplifying customs regulations and processes. Migrate and upgrade current workforce into contract and supply chain management.		x			
Malaysia Road Safety Plan 2022-2030	2022	Evaluation of the acts and laws must be carried out more systematically and periodically involving stakeholder agencies by establishing a national committee. A national committee will be established to coordinate the review of all legislative instruments on road safety					
National Energy Policy 2022-2040	2022	Establish a National Energy Council as a forum chaired by the Prime Minister for executive decisions related to energy policy, given the cross-cutting impact of energy policy decisions on the overall economy					

XIV. Transport and Climate Policy Measures

This table lists the policy measures that relate to climate change mitigation and adaptation in the transport sector that had been identified in the transport policy documents of Malaysia

Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
National Land Public Transport Master Plan	2013	To ensure certain minimum levels of reliability, clear standards should be documented, communicated transparently, and tied to the operator license. These standards should evolve over time to keep pace with the changing demands of the locale being served. It will therefore be necessary to undertake enforcement strengthening to make the licensing and regulatory regime effective in raising service standards across the board. To build a people-centric public transport system, a series of passenger charters will be established to define the baseline standards that passengers expect for each mode of transport. A comprehensive feedback mechanism to understand the needs of the public should be put in place. Regular national-level customer satisfaction surveys will provide valuable policy and operator feedback across the different modes of public transport. a senior national multi-agency steering committee should be set up with representation from the highest offices of the key implementing ministries and agencies. This steering committee will set national-level KPI targets and facilitate coordination at the highest levels to deliver the transformation. They will also meet periodically to discuss the status of the transformation.					
National Transport Policy 2019-2030	2019	Undertake a comprehensive review of current governance structure of management of inland and coastal waterways Strengthen LPKP (Lembaga Perlesenan Kenderaan Perdagangan) as a dedicated land transport authority for Sabah and Sarawak Establish Centre of Excellence (CoE) agency for transport sector to cater for transport training programmes and R&D Establish Transport Centre of Excellence (CoE) at existing learning institutions to cater for transport related programmes and R&D					
Railways Act 1991	2012	There shall be established a body corporate by the name of “Railway Assets Corporation” (hereinafter referred to as “the Corporation”) with perpetual succession and a common seal and may sue and be sued in its name and subject to and for the purposes of this Act, may enter into contracts, and may acquire, purchase, take, hold and enjoy movable and immovable property of every description and may convey, assign, surrender, yield up, charge, mortgage, demise, reassign, transfer or otherwise dispose of, or deal with, any movable or immovable property or any interest therein vested in the Corporation upon such terms as it deems fit. The Malayan Railway Administration in existence under the repealed Ordinance is dissolved.		x			
Twelfth Malaysia Plan 2021-2025	2021	The Climate Governance Malaysia initiative was set up in 2019 and the Malaysia Climate Action Council in December 2020, to improve the coordination of climate change actions by the government and private sector.					

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
Twelfth Malaysia Plan 2021-2025	2021	A national port committee, which comprises representatives from port authorities and operators, will be established to coordinate the planning of ports development and develop standard operating procedures (SOPs) for port operations. The committee will also harmonise regulations and share best practices to increase operational efficiency and create a more conducive port environment. Measures will be implemented to enhance the institutional and regulatory framework. The measures include strengthening governance and promoting the green agenda. The implementation of these measures will improve service delivery and enable the formulation of the Green Transport Index. The role of NLTF will be strengthened to ensure effective implementation of policies, strategies and initiatives. Key performance indicators will be set for NLTF to improve delivery as well as garner cooperation and collaboration among agencies and industry players. The capacity and capability of the taskforce will be fortified to ensure achievement of outcomes. A study is being undertaken to establish a single border agency to oversee, strengthen and raise the standard of operations and security along national borders and entry points including ports and airports. Efforts will be undertaken to introduce a governance mechanism to facilitate the development of the maritime economy. The roles and functions of the existing maritime-related agencies will be reviewed to include governance for commercial and economic activities by amending the Merchant Shipping Ordinance.					
General transport labels							
National Transport Policy 2019-2030	2019	Ensure highway developments to be based on Malaysia Green Highway Index (MyGHI)					
Twelfth Malaysia Plan 2021-2025	2021	The adoption of green certification tools during the construction and operation phases, such as the Sustainable INFRASTAR, Malaysian Carbon Reduction and Environmental Sustainability Tool (MyCREST) and Malaysia Green Highway Index, will be expanded to more government buildings and infrastructure projects. In addition, the Renewable Energy Certificate will be promoted to enable procurement and trading of RE.					
General vehicle improvements							
Green Technology Master Plan 2017-2030	2017	For technology development, MAI is in collaboration with Excellerate Australia (formerly known as AutoCRC) to conduct a research known as Market Intelligence and Technology Assessment 2030 (MITA2030). The research will cover the critical roles of vehicle technologies, policies, regulations, standards and energy market in the success of clean vehicle technology in ASEAN and Australian marketplaces.	x				

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Green Technology Master Plan 2017-2030	2017	As outlined in the NAP, the effort towards encouraging the development of EEV should be continued. While waiting for the EV ecosystem to mature, technology on improving the efficiency of existing internal combustion engine (ICE) based vehicles should be developed. Technology such as automated engine shut down, improved vehicle aerodynamics and reduced tyre rolling resistance, can provide improvements in terms of energy usage of existing vehicles. For freight vehicles, additional efficiency improvement measures such as installation of maximum speed limiter and scrubber (on freight ships) will also be positive steps towards greener transportation.	x				
Low Carbon Mobility Blueprint 2021-2030	2021	a. Formulation of necessary improvement on regulation for rebuild vehicles (2021). b. Implementation of improved regulation (2024).	x				
Malaysia Road Safety Plan 2022-2030	2022	Activities related to studies, development, and improvement of vehicle technical standards will be boosted through the implementation of this strategy. The need for new legislation and standards will also be studied based on local issues such as road conditions, mixed traffic, and driver behaviour.	x				
National Automotive Policy 2020	2020	Implementation of policy standard for used parts and components will be introduced. The New Open AP Policy also requires that company granted with the AP must provide buyers with at least one-year warranty and maintenance service or in cooperation with the Original Equipment Manufacturer (OEM) for the maintenance service.	x				
National Transport Policy 2019-2030	2019	Improve safety and security features of vehicles to enhance drivers' experience. Impose safety requirement for land transport facilities especially for heavy goods vehicles (HGVs)	x				
High-speed rail (HSR)							
Green Technology Master Plan 2017-2030	2017	The Malaysia-Singapore Rapid Transit System (RTS) and the High Speed Rail (HSR).		x			
National Physical Plan_Chapter 7 (Implementation)	2020	The high-speed rail proposal in the NPP-2 linking Kuala Lumpur and Singapore is one of the policies being studied in further detail by the Federal Government for implementation. Promote high-speed rail systems as part of integrated transportation system		x			
Hydrogen							
Low Carbon Mobility Blueprint 2021-2030	2021	Engage with pilot project in Kuching for further exploration of hydrogen economy. a. Engage with pilot project in Sarawak.					
National Automotive Policy 2020	2020	Conduct feasibility study on Hydrogen Fuel Cell technology					

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National Energy Policy 2022-2040	2022	Implement pilot and market entry programmes of hydrogen as well as next generation bioenergy. Establish globally competitive hydrogen export hub in Sarawak. Sub-focus areas will also be identified in hydrogen technologies such as reducing electrolyser capital costs, increasing electrolyser conversion efficiency and utilisation potential. Nominate a lead government entity to spearhead and oversee the end-to-end development of hydrogen economy roadmap for Malaysia. Build up a domestic hydrogen ecosystem supported by research and development (R&D), technology deployment and commercialisation capabilities across targeted areas along the hydrogen value chain of production, distribution and end-use application. Develop regulation to ensure safe, secure and equitable roll-out of hydrogen production, transport and end-use applications.					
Twelfth Malaysia Plan 2021-2025	2021	Alternative fuel sources, including compressed natural gas, hydrogen energy and fuel cell will also be expanded.					
Intelligent transport systems (ITS)							
Green Technology Master Plan 2017-2030	2017	IoV can be considered as a large scale distribution system where information is exchanged between vehicle, road, human and internet, to achieve better intelligent traffic management, vehicle control, and dynamic information services, towards the realisation of an intelligent transport system that is more efficient, safe and green. IoV will also be an enabling infrastructure to support the development of autonomous driving, to achieve better transportation efficiency. The use of IoV concept in freight is also an important direction to improve the energy usage and efficiency in freight industry. With IoV, the activities and conditions of the freight fleet can be monitored in real time, and logistic planning can be improved to reduce travel time as well as unnecessary movements or “empty miles” in order to cut down GHG emissions and energy consumption. Transportation systems such as the Advanced Transit Networks (ATN) provide alternative solution to a more environmentally sustainable transportation.					
Low Carbon Mobility Blueprint 2021-2030	2021	a. Employ an appropriate intelligent transport system (ITS) to optimise traffic signal operations for optimised traffic flow, and, to a certain extent, in the road network. b. Conduct a feasibility study on traffic conditions and locations/zones before implementing ITS. c. Require PBTs to decide on an appropriate ITS to be used for the city or township. d. Establish concerted efforts to ensure ITS usefulness in performing tasks that it is supposed to perform. (For KL and other cities that already have ITS.)					x
Intermodality measures							

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Logistics and Trade Facilitation Master Plan 2015-2020	2015	Enhancing domestic connectivity from key airports to KLIA to generate volume and utilise KLIA cargo handling capacity Develop one-stop freight hubs with transport and logistics facilities such as cargo processing, freight redirection and storage utilising, intermodal transportation and enhanced value added activity, at strategic locations within the country				X	
Low Carbon Mobility Blueprint 2021-2030	2021	a. Embark on a specific detailed study to explore the possibility of providing first-last-mile (FLM) access to rail freight stations from/to source of freight and terminals. The FLM access could either be rail-based or road-based.	X	X			
National Land Public Transport Master Plan	2013	Synergies between rail services and other transport segments will be explored. To enhance the seamless experience for the user, a set of interchange and integration hub guidelines will be developed to aid in the design and development of future interchange hubs. These principles are already being applied to on-going and new initiatives. Wherever possible, existing hubs will be upgraded so that interchanging between modes of transport is less troublesome for the passenger. The same principles will also be applied when upgrading rail facilities as part of the station enhancement programme. This programme will include a comprehensive assessment of current facilities, feeder services and local access. It is envisaged that usage of the rail services and the stations will increase alongside the development of the local areas around the stations		X			
National Transport Policy 2019-2030	2019	Simplify processes and procedures to encourage multimodal freight movement Upgrade rail facilities to and within ports to ease freight movement Improve, integrate and expand from rail and road links to airport, seaport and inland port, industrial areas and hinterland Expand road and rail transport infrastructure for hinterland logistics connectivity where feasible Facilitate handling transshipment cargo using multi-modal mode of transport by improving facilities, accessibility and affordability Enhancing road-rail intermodal connectivity to promote modal shift from road to rail	X	X			
Twelfth Malaysia Plan 2021-2025	2021	Multimodality will be promoted to establish a well-integrated logistics and communication network to ensure an efficient and advanced supply chain. Logistics connectivity between rail, sea and air will be improved to position Malaysia as a vibrant cargo hub. The logistics industry will be encouraged to adopt the multimodal cargo movement approach to enhance logistics services capability and reduce the cost of distribution.	X	X	X		
Investment required for specific projects							
Low Carbon Mobility Blueprint 2021-2030	2021	Table 7.3					
National Automotive Policy 2020	2020	Increase export promotion programmes & trade investment missions.					
Involvement of subnational government for transport activities							

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Green Technology Master Plan 2017-2030	2017	In addition, a mechanism will be established to align transportation planning at the local Government level to the strategic directions set by the federal Government. This will also support the development of green townships and green cities in Malaysia.					x
Low Carbon Mobility Blueprint 2021-2030	2021	Local authorities need to work closely with public transport planners and companies to help the latter plot feasible business plans and reasonable levels of service to the public. a. Encourage Local Authorities to consider implementing the low carbon city framework (LCCF) component on transport developed by MGTC. b. Incorporate LCCF into planning considerations when Local Authorities develop or review their local plans. c. Review LCCF transport elements to assist PBTs implementation.					
National Land Public Transport Master Plan	2013	To facilitate delivery at the local level, State level implementation committees will be established.					
National Transport Policy 2019-2030	2019	Align the roles of State government and local councils with MOT					
Local authorities have the power to modify national speed limits							
Global Status Report on Road Safety 2018	2018	Yes	x				
Logistics hub							
Logistics and Trade Facilitation Master Plan 2015-2020	2015	Develop LCCT as cargo hub Develop one-stop freight hubs with transport and logistics facilities such as cargo processing, freight redirection and storage utilising, intermodal transportation and enhanced value added activity, at strategic locations within the country					
National Transport Policy 2019-2030	2019	Provide adequate hinterland facilities for port expansion and logistics services					
Twelfth Malaysia Plan 2021-2025	2021	An efficient supply chain management and regional distribution centres will be established to provide comprehensive services to consumers. Cargo hubs at strategic locations adjacent to the ports will be identified to provide integrated logistics facilities.					
Twelfth Malaysia Plan 2021-2025	2021	In the effort to position Malaysia as a regional logistics hub, ease of doing business, including regulatory procedures will be improved to facilitate domestic players as well as attract global players to base their operations in the country.					
Low-emission vehicle zones							
National Physical Plan_Chapter 7 (Implementation)	2020	Encourage use of low carbon private vehicles in cities	x				x
LPG/ CNG/ LNG							

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Low Carbon Mobility Blueprint 2021-2030	2021	Incentivise purchase of NGV. Provide tax incentives under Green Investment Technology Assets (GITA) scheme for operators who purchase NGV for biogas application purposes (2021-2025). Explore viability for LPG of LPG Hybrid Taxi Project. a. Conduct observation of development for LPG Hybrid taxi in Japan post-Olympics (2020-2021). b.LPG Hybrid project (provided that viability study indicates positive results)	x				
Twelfth Malaysia Plan 2021-2025	2021	Alternative fuel sources, including compressed natural gas, hydrogen energy and fuel cell will also be expanded.					
Market entry regulations for app-based mobility							
Green Technology Master Plan 2017-2030	2017	With the recent amendments in the Land Public Transport Act 2010 and the Commercial Vehicles Licensing Board (CVLB) Act 1987, the e-hailing services have been accepted and are expected to transform the landscape of public transport in Malaysia.	x				
Malaysia Road Safety Plan 2022-2030	2022	Currently, companies that provide e-hailing services are regulated by APAD through the issuance of licenses after Public Transport Act (Amendment) 2017 came into force on 12 July 2018.	x				
Mixed use							
National Low Carbon Cities Masterplan	2021	Encourage intensity of land uses via mixed-use zone in development plans. Ensure plot ratio control by limiting the floor area requirements for development types such as: commercial, industrial and mixed-use.					
National Physical Plan_Chapter 7 (Implementation)	2020	Promote mixed land use zones					
National Transport Policy 2019-2030	2019	Encourage self-contained or complete Work-Play-Shop-Stay development concepts to minimise travel needs					
Mobility-as-a-service (MAAS)							
National Automotive Policy 2020	2020	Creation of a new ecosystem known as Mobility as a Service (MaaS) to further strengthen and improve the automotive industry					
National speed law							
Global Status Report on Road Safety 2018	2018	Yes	x				
Road Transport Act 1987	2013	If any person drives a motor vehicle at a speed exceeding any speed limit imposed for such motor vehicle under the powers conferred by this Act he shall be guilty of an offence and shall on conviction be liable to a fine of not less than three hundred ringgit and not more than two thousand ringgit.	x				
Non-urban passenger rail infrastructure improvement							
Green Technology Master Plan 2017-2030	2017	For KTM Komuter, the service was expanded in 2015 with the introduction of the Northern and Southern Sectors.		x			

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Green Technology Master Plan 2017-2030	2017	Gemas-Johor Baharu Double Tracking project; Klang Valley Double Tracking (KVDT); East Coast Rail Link (ECRL); and		x			
Malaysia Rail Supporting Industry Roadmap 2030	2014	Maintain project continuity by expanding existing rail networks and promote development of metro systems in congested cities and economic corridors.		x			x
National Land Public Transport Master Plan	2013	The inter-city rail service enhancement will work holistically towards addressing the quality of service levels, travel times and frequency of service in order to enhance the overall experience of travelling by rail. The completion of electrification of the inter-regional rail network will also allow for significant service enhancements to be made. These service enhancements, which may require public funds, will also include a performance management system to ensure that the investments deliver return by raising reliability and customer satisfaction.		x			x
Twelfth Malaysia Plan 2021-2025	2021	Measures have been undertaken to enhance intercity rail connectivity, among others, by implementing the Klang Valley Double Track Project (KVDT) Phase 1 from Rawang to Salak Selatan. This project is scheduled to be completed in 2021 to shorten service intervals from 15 minutes to 7.5 minutes. Meanwhile, KVDT Phase 2 from Salak Selatan to Seremban and Simpang Pelabuhan Klang to Pelabuhan Klang commenced in 2020 and is expected to be completed by 2026. These upgrading works will improve the KTM Komuter services and increase the transportation of cargo via rail.		x			x
Parking pricing							
Low Carbon Mobility Blueprint 2021-2030	2021	Increase parking charges in city limits, with highest charges in CBD.	x				x
Performance-based transport maintenance contracts							
National Transport Policy 2019-2030	2019	Strictly monitor performance-based contract in maintenance regime and increase the performance of the asset through proper maintenance	x				
Port infrastructure improvements							
National Transport Policy 2019-2030	2019	Optimise facilities at selected ports to increase opportunities and engagement for cruise tourism by private local and international cruise operators			x		
Prevention of construction of roads							
National Transport Policy 2019-2030	2019	Limit the development of new highways in urban centres	x				x
Programs to reduce emissions in logistics							

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Logistics and Trade Facilitation Master Plan 2015-2020	2015	Design incentives to encourage adoption of green practices Provide support to green supply chain initiatives such as: • green design and purchasing • reverse logistics • route optimisation • load optimisation					
Low Carbon Mobility Blueprint 2021-2030	2021	b. Establish system for collecting data, benchmarking performance of green freight technologies and reporting methodologies. Establish national level green freight programme for businesses and industries. a. Promote adoption of energy saving and emission reducing strategies in freight transport. b. Monitor, report and verify.					
Public transit integration							
Green Technology Master Plan 2017-2030	2017	The alignment is from the intra-city rail station Setia Jaya to Kelana Jaya LRT Line Extension Station in USJ6, connecting seven stations with one Park-n-Ride facility with universal access features. Drop off, Park 'n' Ride Meanwhile, MyRapid has launched the Bike N Ride programme, where travellers who cycle and wish to take their bikes with them are welcome to board the trains during off-peak hour, without any additional fare charges.		x			x
Green Technology Master Plan 2017-2030	2017	Integrated Transport Terminal (ITT) Gombak Apart from that, SPAD has embarked on First Last Miles Study, which entails analysis and recommendation for GKL bus network and GKL urban rail station's first last mile improvements towards higher public transport usage in GKL, commenced in May 2017 and is projected to be completed by April 2018.					x
Low Carbon Mobility Blueprint 2021-2030	2021	a. Identify and enhance existing park-and-ride facilities near city boundaries to create higher demand for commuting car users to use public transit. b. Embark on a study to identify and develop new park-and-ride facilities near city boundaries to encourage car users to use public transit especially for new rail line (MRT2 and LRT3). c. Improve existing and new P&R to a smart parking system with features such as real-time rail or bus departures, number of parking space availability, and estimated travel time to destinations. The system can reduce parking search time. This directly reduces gas emission of cars. The system can be integrated with a smartphone application for bookings and parking. d. Improve security, lighting, and access to feeder bus service and pedestrian walkways. a. Encourage Local Authorities (which have public transit stations and public transport terminals) to consider upgrading FLM connectivity, access modes and related infrastructure. c. Upgrade FLM access modes with NMT modes, feeder buses, apps based on-demand modes.		x			x
National Land Public Transport Master Plan	2013	An integrated smart ticketing system is envisioned to be used by commuters across different modes of public transport and be accepted by the major public transport operators. The primary objective of such an initiative is to enhance the overall integration of public transport and the seamlessness of the journey experience for the commuter.	x	x			

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National Transport Policy 2019-2030	2019	Establish seamless connectivity between different modes of transport (rail, airports, seaports and roads) Ensure efficient connectivity for first and last mile services through integration and collaboration Ensure ferry/cruise ship terminal and airports integrate land use with public transport Promote and encourage open data platform for greater data integration across all transport sectors and introduce single entry pass/payment method for seamless journey	x	x	x	x	
Twelfth Malaysia Plan 2021-2025	2021	Accessibility, connectivity and efficiency of public transport will be improved, including through TOD and first- and last-mile connectivity to attract people to shift from private vehicles to public transport. The integration of different modes of transport will increase efficiency and improve the ease of travelling in terms of time and cost as well as comfort and reliability. This initiative will be implemented by establishing a platform to coordinate and optimise schedules, whereby minimising the waiting time between different modes. An integrated and reliable journey planner will be developed through this platform. The sharing of real time data among public transport operators will be enhanced to ensure effective utilisation of the platform. Rail and road networks will also be integrated to provide better connectivity between airports, ports, industrial areas and cities. In this regard, the ECRL will be connected to the current rail networks. It will also provide connectivity to existing airports and complement the road networks in the east coast region. The integration will increase land public transport ridership, air passenger and cargo movement.	x	x	x	x	x
Railway electrification							
National Physical Plan_Chapter 7 (Implementation)	2020	Expand Electric Train Service (ETS) and other train services		x			
Reference to finance mechanisms within country							
Green Technology Master Plan 2017-2030	2017	Time-based incentives to encourage private involvement;					
Logistics and Trade Facilitation Master Plan 2015-2020	2015	Establish PPP for rail operations and infrastructure		x			
Malaysia Rail Supporting Industry Roadmap 2030	2014	Provide fiscal incentives on all investment projects (new and re-investment) and award import duty sales tax exemption (valid for a specific time period) to organisations involved in the design/manufacturing/assembly and the MRO activities		x			
National Physical Plan_Chapter 7 (Implementation)	2020	The infrastructure levy is a mechanism introducing a charge to developers as a source to finance the development of new and more comprehensive infrastructure in new development areas. The infrastructure levy may be applied to areas outside development promotion zones or to areas outside zones designated as urban growth boundaries that currently have minimal infrastructure.					x

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National Transport Policy 2019-2030	2019	Strengthen public private partnerships (PPP) and performance-based contracts Establish incentive and penalty framework for public transport services operator to ensure reliability and good quality of service					
Railways Act 1991	2012	For the purposes of this Part, there shall be established a Railway Assets Corporation Fund (hereinafter referred to as “the Fund”). (2) The Fund shall consist of— (a) such sums as may be provided by the Federal Government from time to time for the purposes of the Corporation under this Part; (b) such sums as may be made available from time to time to the Corporation by way of loans; and (c) moneys earned or arising from any sale of property or any other transaction relating to property or investments, mortgages, charges or debentures acquired by or vested in the Corporation.		x			
Twelfth Malaysia Plan 2021-2025	2021	Meanwhile, the Sustainable Development Financing Fund and Public Transport Fund were set up in 2019 to facilitate private sector efforts in implementing sustainable development-related initiatives.					
Twelfth Malaysia Plan 2021-2025	2021	The current model for existing and new highway development will be reviewed to ensure that people will benefit from reasonable toll rates, while ensuring fair returns to investors.	x				
Renewable energy							
Green Technology Master Plan 2017-2030	2017	To drive growth in RE power generation, LSS farms will be promoted. This will increase the overall RE mix in the country and complement the heavy dependence on fossil fuel in horizon years. Large hydro power generation plants will be promoted to drive growth in RE power generation to increase the overall RE mix and complement the heavy dependence on fossil fuel. SEDA is currently providing various professional training courses related to solar PV on topics such as: • Grid-Connected Photovoltaic (GCPV) Systems Design Course; • GCPV for Non-Engineers; • GCPV for Wireman and Chargeman; • Continuous Development Programme (CDP) for Qualified Persons (QPs); • Off-Grid Photovoltaic (OGPV) Systems Design Course; • Solar PV Installation and Maintenance; and • EE & Energy Management (EM) Training Programme.					
Green Technology Master Plan 2017-2030	2017	Exploration of other RE sources Long-term plan for electricity tariff rate for higher renewable mix Large Hydro - By 2025, there will be an additional installed capacity of 1,943MW large hydro dam power plants in Malaysia i.e. in Kelantan (Nenggiri – 300MW), Pahang (Tekai – 168MW), Sabah (Upper Padas – 180MW) and Sarawak (Baleh – 1,295MW).					
Low Carbon Mobility Blueprint 2021-2030	2021	Further enhance renewable energy portion of energy mix.					

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National Energy Policy 2022-2040	2022	Adopt large scale energy storage for RE Apart from utilising efficiency-driven hydro technologies and optimising energy generation, focus will also be given on minimising socioeconomic and environmental impacts of hydroelectric project throughout the lifecycle of a plant. This includes continuous measures in protecting local communities, wildlife species and heritage sites. Investments to develop and adopt technologies in areas such as floating solar will be further explored given the large complementary synergies between solar and hydroelectric resources. Technology development and adoption to harness potentials of rooftop solar and other solar-related technologies should also be focused on, in accordance with local characteristics. Long-term pipeline of Large Scale Solar (LSS) projects to spur industry capability building, with indicative total package and lot sizes, optimised between large solar parks and smaller scale packages. Further explore high potential floating solar, including synergies between hydro and solar resources. Increase availability and competitiveness of private capital for solar investments, with optimisation of equity holding rules and by strengthening due diligence during bid evaluation process. Increase capital access for distributed solar with rooftop solar aggregation and unlock attractiveness of distributed solar with P2P and virtual Power Purchase Agreements (PPAs). Conduct highly selective study of geothermal and wind energy potential in specific high potential targeted regions.					
National Policy on Climate Change	2009	Consolidate the energy policy incorporating management practices that enhances renewable energy (RE) and energy efficiency (EE). Establishment of EE and RE targets/standard Promote RE and EE to reduce GHG emissions in the transportation sector					
Twelfth Malaysia Plan 2021-2025	2021	Efforts to pursue low-carbon energy through RE and EE will be scaled-up to reduce GHG emissions. The development and utilisation of RE sources will be intensified to meet the 31% RE target of total installed capacity. The RE industry will be encouraged to venture into floating solar and waste-to-energy projects. The adoption of new technologies comprising the energy storage system will be further promoted to address the intermittency issue in RE.					
Reporting, transparency, feedback mechanism							
Logistics and Trade Facilitation Master Plan 2015-2020	2015	The functions of the Taskforce include: Provide three times annual updates to the Special Committee on Services Sector chaired by the Prime Minister, to gain top-down oversight to effectively address cross-cutting issues					

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Low Carbon Mobility Blueprint 2021-2030	2021	The council can be in the form of a Steering Committee (SC) to be co-chaired by the ministry in-charge of environment and climate change and the ministry in-charge of transportation. The members of the SC would comprise of representatives from ministries and agencies that have interest and/or stake in the environment, climate change and transportation. The main task of the SC is to undertake the implementation and monitoring of the LCMB. The SC will also be responsible to conduct a mid-term review and propose necessary improvements and/or remedial actions to achieve the desired objectives of the LCMB					
Malaysia Road Safety Plan 2022-2030	2022	All the PA achievements will be monitored using the determined main indicators referring to each strategy and programme implemented and developed. The main indicators identified will be monitored based on the Key Performance Indicators (KPI) using the periodic assessment mechanism and follow-up research. Under this IS, the current achievements and developments of the road safety plan will be reported to the stakeholders periodically through the monitoring mechanisms that will be developed.					
National Low Carbon Cities Masterplan	2021	Conduct performance evaluation on existing low carbon and sustainable target and initiatives: - GHG emission reduction by sectors (energy, transportation, water, waste, agriculture and industry sectors); - Use of public transportation (modal split) by major cities.					x
National Transport Policy 2019-2030	2019	Adopt a centralised system to set a standard/guidelines of monitoring, enforcement and auditing the security and safety of transport hubs. Continuously benchmark and adopt international sustainable indicators for all levels of transport planning in all related agencies					
Twelfth Malaysia Plan 2021-2025	2021	In addition, the Third Biennial Update Report Malaysia to the United Nations Framework Convention on Climate Change (UNFCCC) (BUR 3) was submitted in December 2020 to communicate climate change-related initiatives undertaken at the national level.					
Twelfth Malaysia Plan 2021-2025	2021	The Local Government Star Rating System will be aligned with the 2030 Agenda.					
Request for financial support to develop transport							
Malaysia Rail Supporting Industry Roadmap 2030	2014	Undertake the targeted investment promotion to attract certain foreign companies to fill the current gaps. Employ offset as a means of attracting targeted FDIs.		x			

Road charging and tolls

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
Low Carbon Mobility Blueprint 2021-2030	2021	Identify and implement congestion charging in CBD/city centres. a. Incorporate congestion charge in large cities such as KL, Johor Bahru and Penang. b. Limit duration of charge to peak hours or only during the day. c. Apply no charge between 20:00 – 07:00 on weekdays or on weekends and public holidays. d. Use electronic payment for congestion charge.	x				x
Road infrastructure expansion							
Twelfth Malaysia Plan 2021-2025	2021	The Central Spine Road (CSR), to connect Bentong, Pahang and Kuala Krai, Kelantan, is being constructed in phases. Seven out of 26 subpackages for CSR from Merapoh to Seberang Jelai, Pahang were completed. The work progress was at 58.2% as at the end of 2020 and the construction of the remaining CSR alignment is expected to be completed by 2025. The construction of Kota Bharu-Kuala Krai (KBKK) highway in Kelantan is implemented in phases, where two out of eight subpackages from Pasir Hor to Ketereh were completed in 2019. The work progress was at 37.8% as at the end of 2020 and the remaining alignment from Ketereh to Kuala Krai is expected to be completed by 2025. Preliminary works such as soil investigation, land survey and traffic impact assessment of the Lebuhraya Pantai Timur 3 (LPT3), which started in 2020, is expected to be completed by second quarter of 2022. The proposed LPT3 will connect Gemuruh, Terengganu to Tok Bali, Kelantan and is expected to provide a smoother journey to the east coast while boosting economic activities along the corridor. The Pan Borneo Sabah Highway was initiated in 2016 to provide road connectivity from Sindumin to Tawau. The work progress was at 44% as at the end of 2020, and 281 km of the highway is expected to be completed by 2024. The Pan Borneo Sarawak Highway from Telok Melano to Miri was 59.4% completed at the end of 2020 and is expected to be ready by 2022. Five highways are under construction to improve connectivity and ease congestion in the Greater Kuala Lumpur/Klang Valley (GKL/KV). These highways are Sungai Besi-Ulu Kelang Elevated Expressway (SUKL), Damansara-Shah Alam Elevated Expressway (DASH), East Klang Valley Expressway (EKVE), Setiawangsa-Pantai Expressway (SPE) and Putrajaya-KLIA Expressway (MEX II). All of these highways are scheduled to be completed by the fourth quarter of 2021. Meanwhile, West Coast Expressway (WCE) from Banting, Selangor to Taiping, Perak is expected to be completed by 2024.	x				
Road space repurpose to allow access for other modes							
National Low Carbon Cities Masterplan	2021	Provide dedicated and continuous pedestrian walkways and cycling lane in current and future developments.	x				
Road-side checks on overloading							

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Road Transport Act 1987	2013	It shall be lawful for any police officer authorized in writing in that behalf by a Chief Police Officer or a Commissioner of Police, any traffic warden authorized in writing in that behalf by the Dato Bandar or the Perbadanan Putrajaya, any road transport officer authorized in writing in that behalf by the Director General, any officer of the Public Works Department authorized in writing in that behalf by the Director General of Public Works or the State Director of Public Works, or any officer of the Highway Authority Malaysia authorized in writing in that behalf by the Director General of Highway Authority Malaysia, to require the person in charge of any motor vehicle to allow the motor vehicle to be weighed by such officer or any other person authorized to conduct weighing, either laden or unladen, and the weight transmitted to the road by any part of the motor vehicle in contact with the road to be tested and, for that purpose, to proceed to a weighing machine, and if any person in charge of any motor vehicle refuses or neglects to comply with any such requirement, or removes its load or any part thereof before such motor vehicle is duly weighed, he shall be guilty of an offence and shall on conviction be liable to a fine of not less than two thousand ringgit and not more than ten thousand ringgit or to imprisonment for a term not exceeding one year or to both.	x				
Twelfth Malaysia Plan 2021-2025	2021	The Weigh-in-Motion (WIM) system will be used to improve enforcement of overloaded movers. The system will automatically capture and record gross vehicle weights as vehicles drive over a fixed measurement site, reducing the number of personnel required.	x				
Road-side vehicle technical checks							
Road Transport Act 1987	2013	(1) If any police officer in uniform has reason to believe that the provisions as to construction, equipment and use prescribed by this Act have not been complied with in respect of any motor vehicle, he may require such vehicle to be stopped and may require the driver of such vehicle to drive it to some other place, and the vehicle may, if necessary, be detained by any police officer not below the rank of sergeant or any police officer in charge of a police station for the purpose of inspection by a police officer or a road transport officer or a person licensed to carry out inspection under this Act for the purpose of ensuring that such provisions have been complied with:	x				
Routine transport asset maintenance							
National Transport Policy 2019-2030	2019	Implement preventive maintenance and rehabilitation for all transport related infrastructure assets for cost efficiency	x				
Smart charging							

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
Low Carbon Mobility Blueprint 2021-2030	2021	Conduct study on advanced EV charging technologies. a. Carry out feasibility study on advanced charging technologies (e.g. wireless, ultrafast charger, V2G and smart charging). b. Demonstrate advanced charging technologies (e.g. wireless, ultrafast charger, V2G and smart charging).	x				
National Automotive Policy 2020	2020	Develop EV Smart Grid Interoperability Centre	x				
Speed limit on motorways <= 90 kph							
Global Status Report on Road Safety 2018	2018	110 km/h	x				
Speed limit on rural roads <= 70 kph							
Global Status Report on Road Safety 2018	2018	90 km/h	x				
Speed limits on urban roads <= 30 kph							
Global Status Report on Road Safety 2018	2018	90 km/h	x				x
Stakeholder Involvement							
Green Technology Master Plan 2017-2030	2017	Private sector’s involvement in the planning phase of the project criteria or agreement with private sector prior to collaboration;					
Logistics and Trade Facilitation Master Plan 2015-2020	2015	Direct consultation with transport and logistics stakeholders to assess current policies and regulations based on collected data					
Malaysia Rail Supporting Industry Roadmap 2030	2014	Stakeholders are to be consulted including (but not limited to) SPAD, the rail operators, and the local industry players. Stakeholders are to be consulted including (but not limited to) regulatory agencies such as SPAD, Construction Industry Development Board (CIDB) and others and the rail operators. Prime Minister’s Department Stakeholders to be consulted including (but not limited to) MITI, MIDA, MIGHT, and the industry players		x			
Malaysia Road Safety Plan 2022-2030	2022	As the primary coordination agency, the Ministry of Transport will coordinate the overall plan implementation with all the stakeholders involved. Stakeholder discussions will be held periodically to attain effective implementation of MRSP 2022- 2030. Streamline coordination and cooperation between stakeholders related to road safety					
National Transport Policy 2019-2030	2019	Ensure active involvement of state/local government, industry players and public as an integral part of public transport planning and development Enhance collaboration among government agencies, universities and industries to leverage on research work.					

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Twelfth Malaysia Plan 2021-2025	2021	The private sector will be encouraged to invest in advancing next generation vehicles, technologies and supporting infrastructure, such as energy-efficient, hydrogen-powered and electric vehicles, and their charging stations. In relation to this, triple-helix collaboration will be intensified, while the green-related incentive schemes will be enhanced. Concerted efforts will be undertaken to improve coordination among stakeholders, enhance enforcement and develop a national regulatory framework for warehouses. A governance mechanism will be introduced for the shipping industry and highway development will be restructured to optimise benefits for both customers and industry players. In this regard, the planning and development of logistics hub will be centralised at the Federal Government. Policies and strategies formulated at this level will be cascaded down systematically to ensure comprehensive implementation. Coordination among the various stakeholders, particularly in project appraisal and evaluation will be enhanced to ensure optimisation of resources in infrastructure development.					
Target - Modal shift							
National Land Public Transport Master Plan	2013	To enhance the accessibility of KL’s public transport network, a target has been set of having 75 per cent of the population live within 400 meters of a public transport stop.		x			
Technical standards for general transport infrastructure							
National Automotive Policy 2020	2020	<ul style="list-style-type: none"> Review EEV specifications Establish regulatory framework including standards for: <ul style="list-style-type: none"> NxGV EEV motorcycle over 250cc including interim standards EEV for Commercial vehicles EV AACV test bed Air mobility Enforcement of 4R2S Standard Establish testing centre to verify the vehicle safety based on UN Regulations and Malaysia Standards (MS) Develop standards to encourage battery swapping and wireless charging Develop standards for recycling and disposal of battery 					
Technical standards for rail infrastructure							
Malaysia Rail Supporting Industry Roadmap 2030	2014	Develop a common Malaysian rail system specification to promote commonality and interoperability and adopt the relevant design standards to each specification – to be adhered to in all future acquisition. Maintain passenger transport on Standard gauge systems and retain Metre gauge systems for shared freight and passenger transportation.		x			
Technical standards for road infrastructure							

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Malaysia Road Safety Plan 2022-2030	2022	This strategy emphasises updating on the standards and regulations in accordance with current needs and on par with the global level including road construction, signage, and road infrastructure. In addition, existing standards that have been used for a long time must be reviewed in order to improve the infrastructure designed. Improving the guidelines and standards for micromobility vehicle infrastructure	x				
Technology and knowledge transfer							
Malaysia Rail Supporting Industry Roadmap 2030	2014	Employ offset as a means of acquiring foreign technology and know-how Establish an industry-led platform to coordinate rail-related research and technology (R&T) activities than can sustain Malaysia's competitiveness (quality, cost and delivery) Undertake generic rail related R&T projects (cost to be shared among the industry with matching contribution from the Government) focusing on innovation in Energy efficient and environment friendly, interoperability, speed and comfort, enhanced reliability and asset life cycle		x			
National Automotive Policy 2020	2020	Enhance local engineering capabilities in R&D, testing and technology development Adopt and adapt the latest technology trend through application of IR4.0 technologies					
National Policy on Climate Change	2009	Incorporate measures, including mobilising financing and technical assistance, into Transportation					
Teleworking							
Clean air action plan	2010	telecommuting					
Traffic management							
Logistics and Trade Facilitation Master Plan 2015-2020	2015	Enhance usage of traffic management system	x				
Training of enforcement authorities							
Malaysia Road Safety Plan 2022-2030	2022	Among the main programmes implemented under this strategy were integrated ops for traffic offence enforcement, re-evaluation of speed limit for types of road and vehicle, implementation of speed control techniques (traffic easing), re-evaluation and improvement of laws concerning road safety, and training programmes for enforcement officers.	x				
Transit-oriented development (TOD)							
Green Technology Master Plan 2017-2030	2017	New development to take into consideration the ease of access to public transportation (e.g. BRT), which shows the concept of transit-oriented development.					

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Low Carbon Mobility Blueprint 2021-2030	2021	a. Develop and implement TOD guidelines (by PLANMalaysia) suitable for the Malaysian transport environment. b. Embark on a specific detailed study to explore the possibility of implementing transit-oriented development and/or redevelopment near transit stations. c. Identify transit stations involved and land parcels to be developed or redeveloped into TOD (from detailed study).					
Malaysia Rail Supporting Industry Roadmap 2030	2014	Impose provision in all new urban development projects to include land reserve for rail transportation, transit-oriented development (TOD) and Intelligent Transportation System (ITS).		x			x
National Land Public Transport Master Plan	2013	In existing built-up areas, a coordinated and integrated approach to land public transport planning must take into account the inter-relationships between land-use and transport In order to achieve this integrated approach, land public transport planning must coincide with the planning and operations of relevant federal agencies as well as state and local authorities to ensure that all development plans consider wider transport implications. Additionally, at the local development level, land public transport should be a critical factor in the development control process. To ensure that the impact of a new development on mobility is adequately addressed, local authorities, in consultation with SPAD, should make land public transport assessment a mandatory requirement to support a planning application.					
National Low Carbon Cities Masterplan	2021	Promote TOD within transit nodes and corridors. Review land-use development and re-development policies to incorporate TOD concept. Prioritise development within transit nodes and corridors.					
National Physical Plan_Chapter 7 (Implementation)	2020	Encourage transit-oriented development					
National Transport Policy 2019-2030	2019	Reform towards public transport network-oriented conurbation growth Impose requirement for TOD in urban areas and around public transportation nodes					x
Twelfth Malaysia Plan 2021-2025	2021	Accessibility, connectivity and efficiency of public transport will be improved, including through TOD and first- and last-mile connectivity to attract people to shift from private vehicles to public transport. TOD will be further emphasised to improve accessibility to public transport and provide good connectivity to other amenities.					

Transport law

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Malaysia Road Safety Plan 2022-2030	2022	In addition, operators of buses and goods vehicles are also subject to Section 58(1) and Section 23(1) of the Land Public Transport Act 2010 as one of the conditions for the operator license. MS ISO 39001:2013 is a standard adapted entirely from 39001:2012 to provide a comprehensive method for Road Traffic Safety Management Systems (RTSMS). This standard is general and is applicable to not only vehicle operators but also all organisations that interact on the road. The Road Transport Act 1987 is the pillar of road safety enforcement in Malaysia. Apart from PDRM and the Road Transport Department (JPJ), traffic enforcement is also carried out by the Local Authority for certain offenses.					
Malaysia Road Safety Plan 2022-2030	2022	The Road Transport Act 1987, existing acts and regulations that cover the provisions for the whole country, including Sabah and Sarawak, must be refined and translated to the current situation. Strengthening legislative provisions, implementation, and enforcement pertaining to the management of drivers, vehicles, and commute periodically Developing new legal bills and guidelines for new generation cars Updates to existing laws and regulations must be implemented to support the use of the new generation vehicles in Malaysia.					
National Transport Policy 2019-2030	2019	Streamline penalty for traffic offences and strengthen joint enforcement for land transport Strictly enforce safety regulations for land transport facilities and vehicles Enforce stricter ICOP SHE (Industrial Code of Practice – Safety, Health and Environment) compliance, as part of licensing condition for commercial vehicles					
Twelfth Malaysia Plan 2021-2025	2021	Among the main programmes implemented under this strategy were integrated ops for traffic offence enforcement, re-evaluation of speed limit for types of road and vehicle, implementation of speed control techniques (traffic easing), re-evaluation and improvement of laws concerning road safety, and training programmes for enforcement officers.					
Urban passenger rail infrastructure improvement							
Green Technology Master Plan 2017-2030	2017	Extension of the LRT lines from Kelana Jaya station and Sri Petaling station has also been completed with an integrated station at Putra Heights Terminal. For monorail, capacity expansion was done by upgrading of 2-coach to 4-coach trains. Finally, the commencement of Sungai-Buloh-Kajang MRT in 2017 is expected to boost the integration and efficiency of urban public transport in the GKL/KV area. Table 4.2 The LRT 3 project is set to begin operations in August 2020, covering 37 km with 26 planned stations.		x			x
Green Technology Master Plan 2017-2030	2017	LRT 3 (Bandar Utama to Klang); Mass Rapid Transit line 2 and 3; Subang SkyPark Terminal Extension Project;		x			
Malaysia Rail Supporting Industry Roadmap 2030	2014	Maintain project continuity by expanding existing rail networks and promote development of metro systems in congested cities and economic corridors.		x			x
National Land Public Transport Master Plan	2013	In KL/KV, plans exist to expand the rail network by providing additional MRT and LRT networks.		x			

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Twelfth Malaysia Plan 2021-2025	2021	Two main rail projects were completed, namely the Mass Rapid Transit Line 1 (MRT 1) and the Light Rail Transit Line 2 (LRT 2). MRT 1, from Sungai Buloh to Kajang, which was completed in 2017, was successful in reducing the traffic congestion in the city centre. LRT 2 from Putra Heights to Kelana Jaya and Sri Petaling was completed in 2016, creating a complete circle between the Kelana Jaya Line and Ampang Line. The construction of MRT 2 from Sungai Buloh to Putrajaya, which commenced in 2018, is expected to be completed by 2022.		x			x
Vehicle air pollution emission standards							
Clean air action plan	2010	To introduce stricter emission standards through regulatory measures by improving engine technology and fuel quality.	x				
Green Technology Master Plan 2017-2030	2017	The existing fuel standard is EURO 4M for RON 97 petrol.	x				
Green Technology Master Plan 2017-2030	2017	Land public transport vehicles to comply with existing emissions standards set by the Department of Environment (DoE);	x				
National Automotive Policy 2020	2020	Sustainable development of the automotive industry through application of environmental friendly products and processes which aims to reduce carbon emission etc •Commercial vehicle Interim EEV standards for Euro 5 engine for vehicle with Kerb Weight over 2,500 kg; Upgrade green engine specification from Euro 2 to Euro 5	x				
Twelfth Malaysia Plan 2021-2025	2021	EURO 4M fuel standard for RON95 was implemented in 2020	x				
Twelfth Malaysia Plan 2021-2025	2021	land public transport vehicles must comply with the existing emissions standards set by the Department of Environment (DoE) for land public transport vehicles. Any new land public transport development will be required to undergo a thorough environmental impact assessment. Mandating and enforcing emissions standards for goods vehicles will ensure that pollution is minimized.	x				
Vehicle efficiency standards							
Clean air action plan	2010	To introduce stricter emission standards through regulatory measures by improving engine technology and fuel quality.	x				
Green Technology Master Plan 2017-2030	2017	Moving forward, MAI has outlined plans to enhance the classification of EEVs using carbon emission standards.	x				
Low Carbon Mobility Blueprint 2021-2030	2021	Revision of FE and CO2 emission standards to be accordance to the to be decided test cycles. Develop Fuel Economy Baseline for freight/heavy duty vehicles. a. Finalisation of Energy Efficient definition for larger segment vehicles (heavy vehicles).	x				

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Document	Year published	Measure	Road	Rail	Domestic Navigation	Domestic Aviation	Urban Transport
National Energy Policy 2022-2040	2022	Improve fuel economy standard for vehicle automotive OEMs and enforce vehicle fuel economy labelling to achieve ASEAN fuel economy target. Implement minimum fuel economy standard requirements on automotive OEMs and enforce vehicle fuel economy labelling to complement other demand-side management programmes such as green freight and eco-driving programme.	x				
National Policy on Climate Change	2009	Enforcement of new vehicles engines with higher fuel efficiency;	x				
National Transport Policy 2019-2030	2019	Formulate and implement fuel economy policy	x				
Twelfth Malaysia Plan 2021-2025	2021	Adoption of fuel economy standards to increase fuel efficiency for new vehicles will also be encouraged.	x				
Vehicle import inspections							
Road Safety Opportunities and Challenges: Low- and Middle-Income Country Profiles	2020	Yes	x				
Vehicle inspection and maintenance							
Clean air action plan	2010	To increase in-use vehicles inspection and maintenance programme covering all types of vehicles through regulatory measures.	x				
Low Carbon Mobility Blueprint 2021-2030	2021	Compulsory vehicle inspection policy. a.Formulation of the best possible policy for vehicle inspection policy (2021-2023). b.Implementation of vehicle inspection policy (2024 onwards). c.Continuous monitoring and improvement (2024 onwards). Improve low carbon emission requirement in HDV inspection regulations. a. Finalisation of the best possible policy for low carbon emission requirement in HDV inspection regulations (2021-2023). b. Implementation of improvement in HDV inspection regulations (2024 onwards). c. Continuous monitoring and improvement (2024 onwards).	x				
Malaysia Road Safety Plan 2022-2030	2022	Encouraging periodic personal vehicle inspections Vehicle safety evaluation programmes will continue by upgrading the evaluation criteria for active and passive safety involving automatic emergency break (AEB) technology, blind spot detection system, and Adaptive Cruise Control (ACC). Developing a safety testing mechanism and integrating smart infrastructure in new generation vehicles New generation and autonomous vehicles require real-time data such as road and environmental conditions, traffic flow, movement of other vehicles, road infrastructure data, and weather conditions to be able to function fully and safely.	x				
National Automotive Policy 2020	2020	Develop vehicle road worthiness system and voluntary vehicle inspection	x				
Road Safety Opportunities and Challenges: Low- and Middle-Income Country Profiles	2020	Periodic inspection is in effect	x				

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Road Transport Act 1987	2013	The Minister may by rules specify the class or category of vehicles which is required to undergo periodic inspection under this Part for the purpose of determining that the vehicles comply with the requirements as to construction, equipment and use and the frequency of such inspection in respect of a particular class or category of vehicles.	x				
Vehicle labelling							
Green Technology Master Plan 2017-2030	2017	MITI/MAI is in the midst of conducting research on the suitability of introducing EEV Labeling and Carbon Emission Tax Structure in Malaysia.	x				
Low Carbon Mobility Blueprint 2021-2030	2021	Institute requirement to show GHG emission, FE, and potential savings at point of sales. a. Introduce the best GHG emission & FE labelling to incorporate emission level, fuel economy and potential savings and other aspects such as safety (2021). b. Implement GHG emission & FE labelling (with current driving cycle; i.e., the New European Driving Cycle (NEDC) (2021 onwards). c. Adopt Worldwide Harmonised Light Vehicle Test Procedure (WLTP) driving cycle for GHG emission & FE labelling (2024 onwards).	x				
National Energy Policy 2022-2040	2022	Implement minimum fuel economy standard requirements on automotive OEMs and enforce vehicle fuel economy labelling to achieve ASEAN fuel economy target. Implement minimum fuel economy standard requirements on automotive HDV OEMs and enforce vehicle fuel economy labelling to complement other demand-side management programmes such as green freight and eco-driving programme.	x				
Twelfth Malaysia Plan 2021-2025	2021	In addition, the private sector will also be encouraged to uptake recognised green labelling for next generation vehicles and technologies.	x				
Vehicle manufacturing							
Green Technology Master Plan 2017-2030	2017	Participation from private developers includes private-public engagement to provide targeted support, and facilitate industry growth and possibly demand for exports. Some local industry players have already initiated local GT development in the manufacturing of electric buses and monorail trains.	x				
National Automotive Policy 2020	2020	Enhance local manufacturing of vehicles and components as well as promotion of remanufacturing Promoting local content usage and Next Generation Vehicle (NxGV) market penetration in Malaysia. Continue the issuance of EEV Manufacturing License (ML) • Introduce NxGV ML • Freeze of issuance of non EEV ML Abolish Multi-Sourcing Parts (MSP) scheme by year 2021 to encourage local sourcing and utilisation of FTA Enhance component testing activities by improving existing testing facilities and establish new testing facilities Promote remanufacturing activities	x				

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Twelfth Malaysia Plan 2021-2025	2021	In addition, in line with the National Automotive Policy 2014 (NAP 2014), various programmes were implemented to increase the number of vendors that meet the minimum requirements of original equipment manufacturers (OEMs) and participate in the supply chain.	x				
Vehicle restrictions (import, age, access, sale, taxation)							
Road Safety Opportunities and Challenges: Low- and Middle-Income Country Profiles	2020	Import is banned	x				
Vehicle scrappage scheme							
Green Technology Master Plan 2017-2030	2017	Additionally, MAI has initiated several studies to develop a Scrap Policy to take vehicles off the road in order to control carbon emissions from old vehicles which do not meet the road safety and EEV standards.	x				
Low Carbon Mobility Blueprint 2021-2030	2021	End-of-life vehicle (ELV) policy. a. Formulation of the best possible policy for ELV policy (2021-2023). b. Implementation of ELV policy (2024 onwards). c. Continuous monitoring and improvement (2024 onwards). End-of-life vehicle (ELV) policy for HDV and rebuild HDV. a. Development of the best possible policy for ELV policy for HDV and rebuild HDV (2021-2023). b. Implementation of ELV policy for HDV and rebuild HDV (2024 onwards). c. Continuous monitoring and improvement (2024 onwards).	x				
Malaysia Road Safety Plan 2022-2030	2022	Establishing a disposal mechanism for old vehicles Legislation, standards, and guidelines for the disposal of vehicles must be established to enable every vehicle owner and the industry to implement a disposal process that is more effective, safer, and protects the environment.	x				
National Transport Policy 2019-2030	2019	Develop and enforce regulations for vehicles' end of life (commercial & private vehicle)	x				
Twelfth Malaysia Plan 2021-2025	2021	A study to identify mechanisms in phasing out old vehicles in a sustainable manner will also be undertaken. Existing regulations, master plans and guidelines will be enhanced, while new ones will be put in place. These include the introduction of regulation on household e-waste, master plan on clean air and guidelines for managing end-of-life vehicles as well as green practice modules for chemical and scheduled waste industries.	x				
Vehicle taxes							
Green Technology Master Plan 2017-2030	2017	The Road Transport Department (JPJ) is currently working on enhancing the current road tax system by incorporating a mechanism which considers the Green Engine, carbon emission rate, as well as engine performance and safety. Stakeholders will be engaged by JPJ to design this new road tax mechanism.	x				

References:

- 1) UN Population Database (2022), <https://population.un.org/wpp/>
- 2) World Bank (2022), <https://data.worldbank.org/>
- 3) Global Materials Flow Database (UNEP, 2023), <https://www.resourcepanel.org/global-material-flows-database>
- 4) Emissions Database for Global Atmospheric Research (EC, 2023), <https://edgar.jrc.ec.europa.eu/>
- 5) International Council on Clean Transportation (2023)
- 6) UN Energy Statistics (2021)
- 7) Fossil Fuels Consumption Subsidies 2022 (IEA, 2022), <https://www.iea.org/reports/fossil-fuels-consumption-subsidies-2022>
- 8) Climate Change Dashboard (IMF, 2024), <https://climatedata.imf.org/pages/access-data>
- 9) Ember (2023), <https://ember-climate.org/data-catalogue/yearly-electricity-data/>
- 10) Coalition for Disaster Resilient Infrastructure (CDRI, 2023), <https://giri.unepgrid.ch/facts-figures/building-infrastructures>
- 11) Koks, et al. (2023), <https://iopscience.iop.org/article/10.1088/2634-4505/acd1aa>
- 12) Environmental Vulnerability Indicators (UN, 2018), <https://www.un.org/development/desa/dpad/least-developed-country-category/evi-indicators-ldc.html>
- 13)) Global Status Report on Road Safety 2023 (WHO, 2023), <https://www.who.int/teams/social-determinants-of-health/safety-and-mobility/globalstatus-report-on-road-safety-2023>
- 14) Socioeconomic Data and Applications Center (CIESIN, 2023), <https://sedac.ciesin.columbia.edu/data/set/sdgi-9-1-1-rai-2023>
- 15) Country Official Statistics
- 16) Trademap (ITC, 2024), <https://www.trademap.org/>
- 17) International Organization of Motor Vehicle Manufacturers (OICA, 2023), <https://www.oica.net/production-statistics/>
- 18) ATO analysis of UNEP Index using latest data
- 19) Rapid Transit Database (ITDP, 2022), <https://www.itdp.org/rapid-transit-database/>
- 20) Socioeconomic Data and Applications Center (CIESIN, 2023), <https://sedac.ciesin.columbia.edu/data/set/sdgi-11-2-1-urban-access-publictransport-2023>
- 21) PPI Database (World Bank, 2023), <https://ppi.worldbank.org/en/ppi>
- 22) Organisation for Economic Co-operation and Development (OECD) (2022), <https://stats.oecd.org/Index.aspx?DataSetCode=CRS1#>
- (*) National transport policies



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