



# State of Play: Railways in the ASEAN Region

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High Level Meeting on  
Strategic Plan on Enhancing Rail Interoperability in ASEAN  
July 2025



# Asian Transport Observatory (ATO)

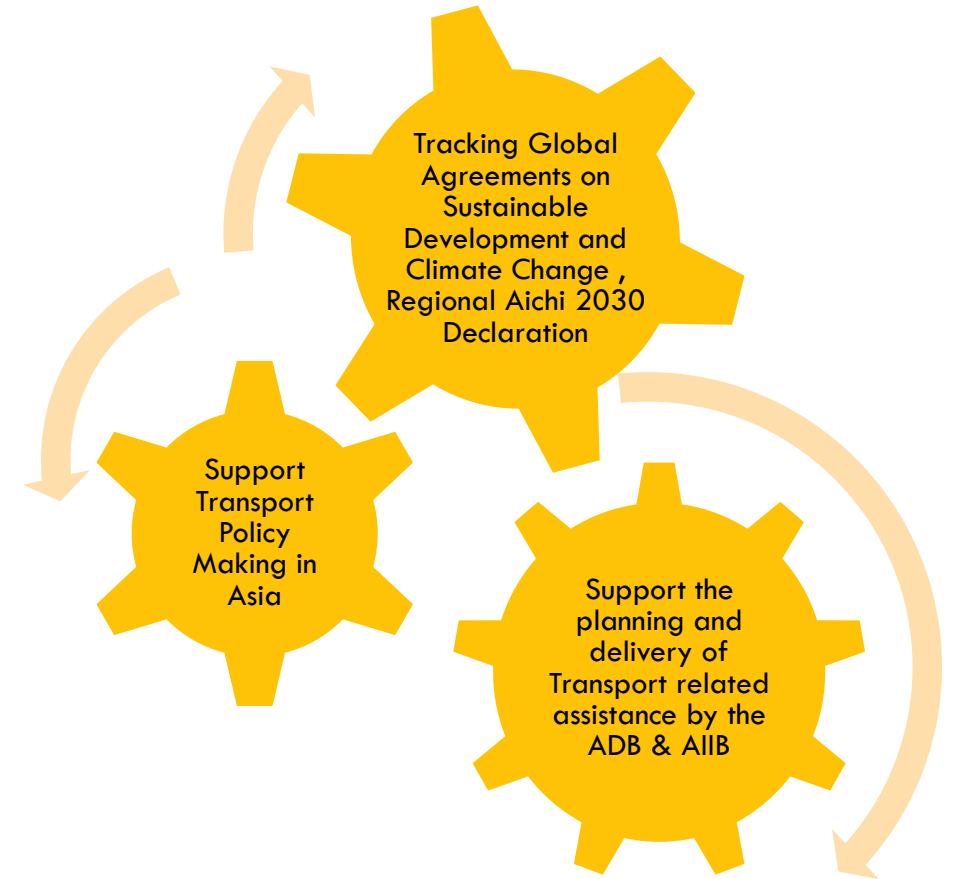
## A Catalyst for Sustainable Transport in Asia



**50+** Economies (ADB Members + Russia and Iran (Islamic Republic of))

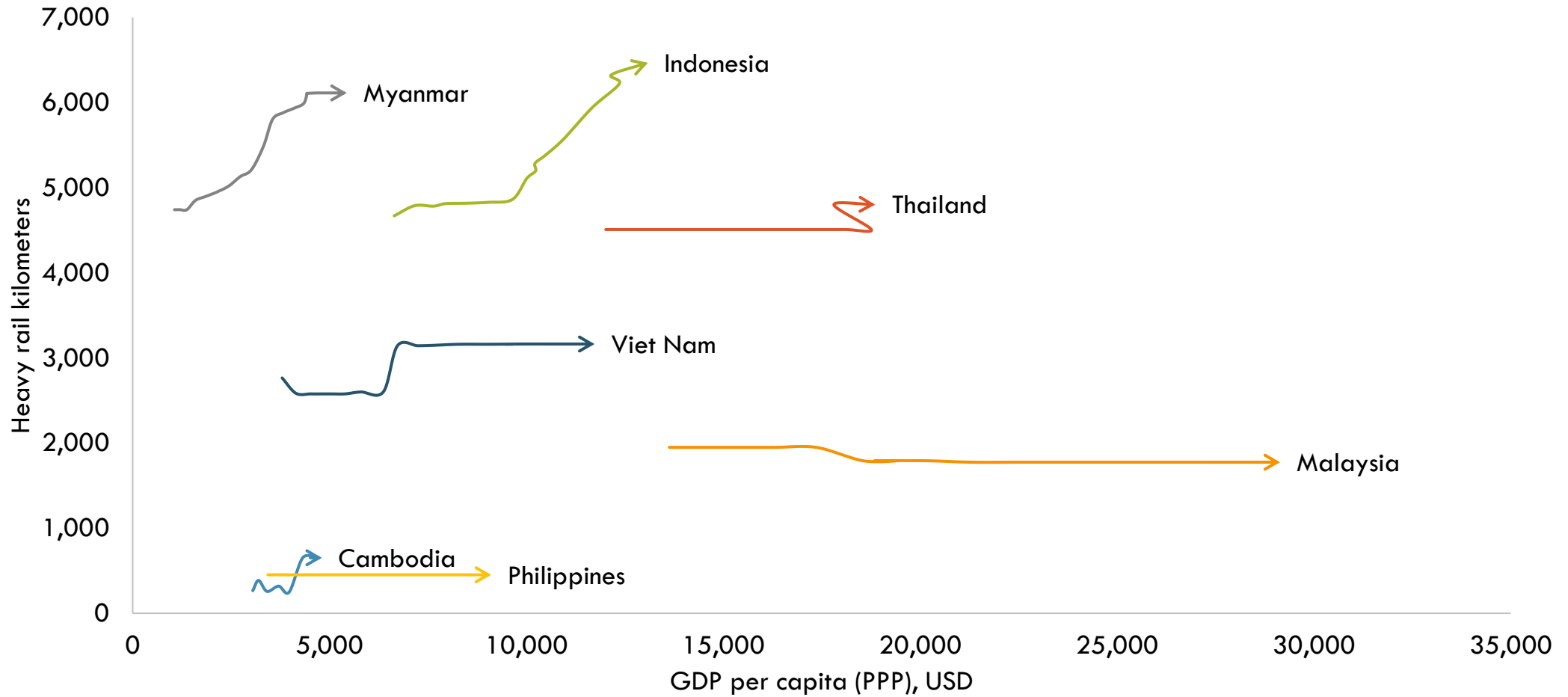
**460** Urban Centers (412 Asia-Pacific, 48 International)

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



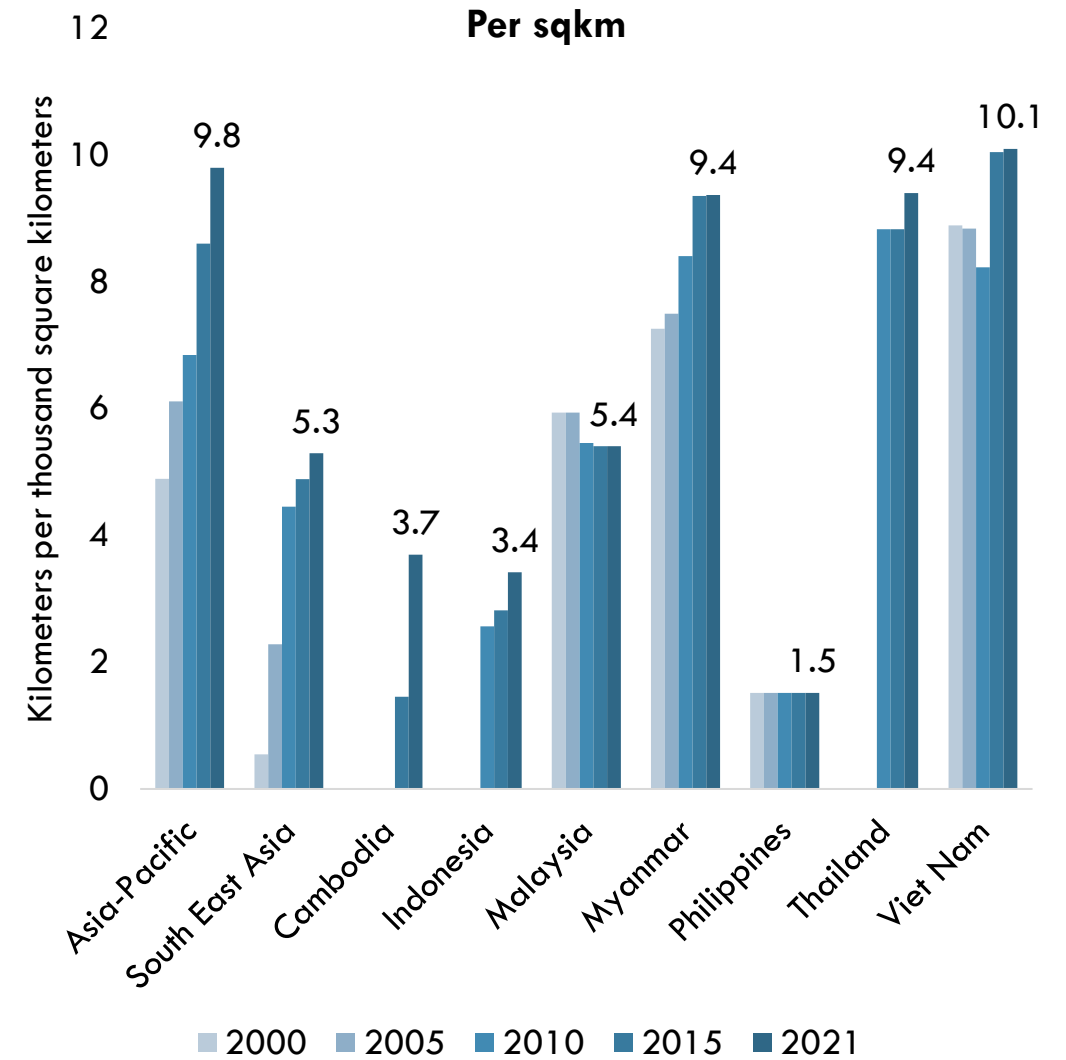
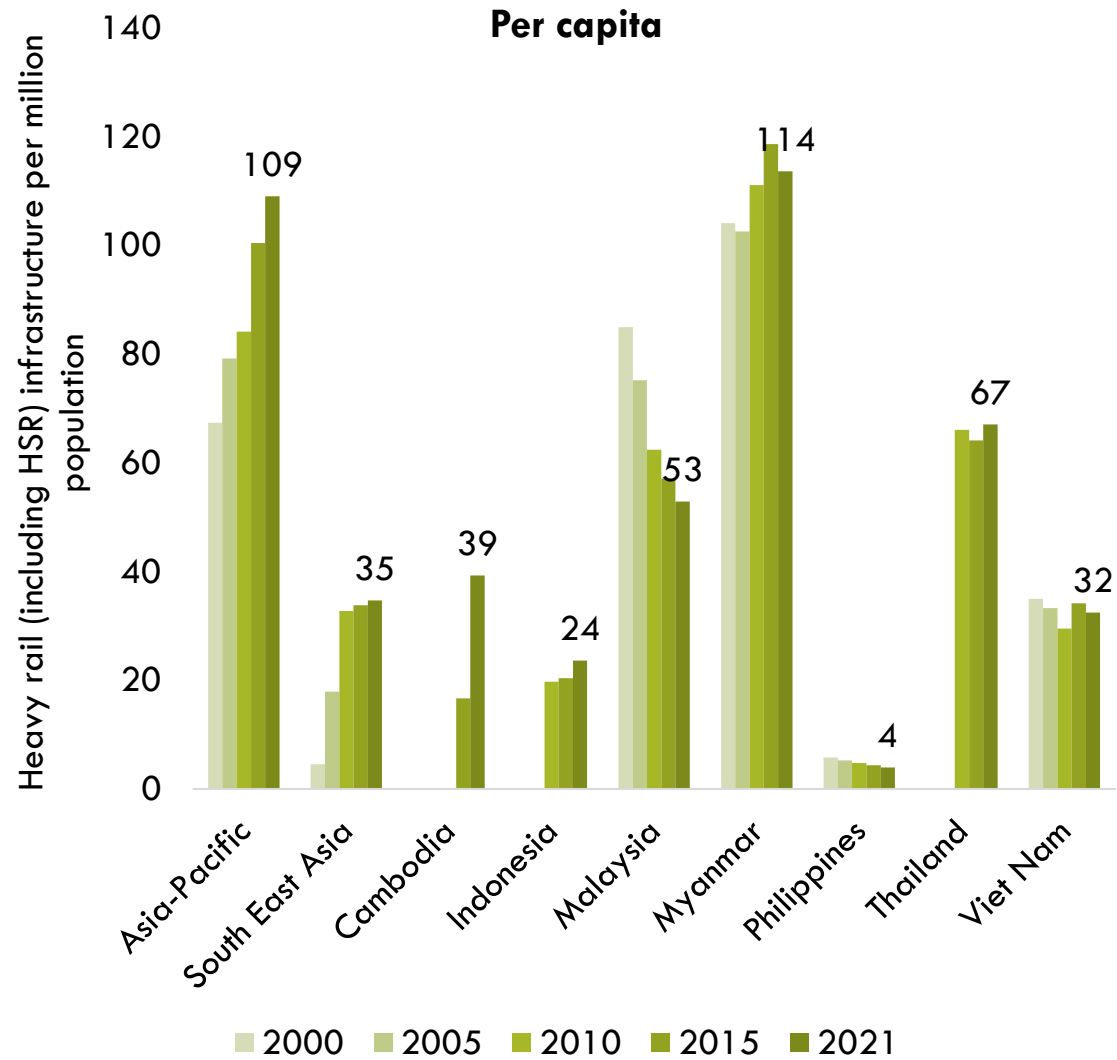
[asiantransportobservatory.org](http://asiantransportobservatory.org)

# Heavy rail (including HSR) infrastructure expansion

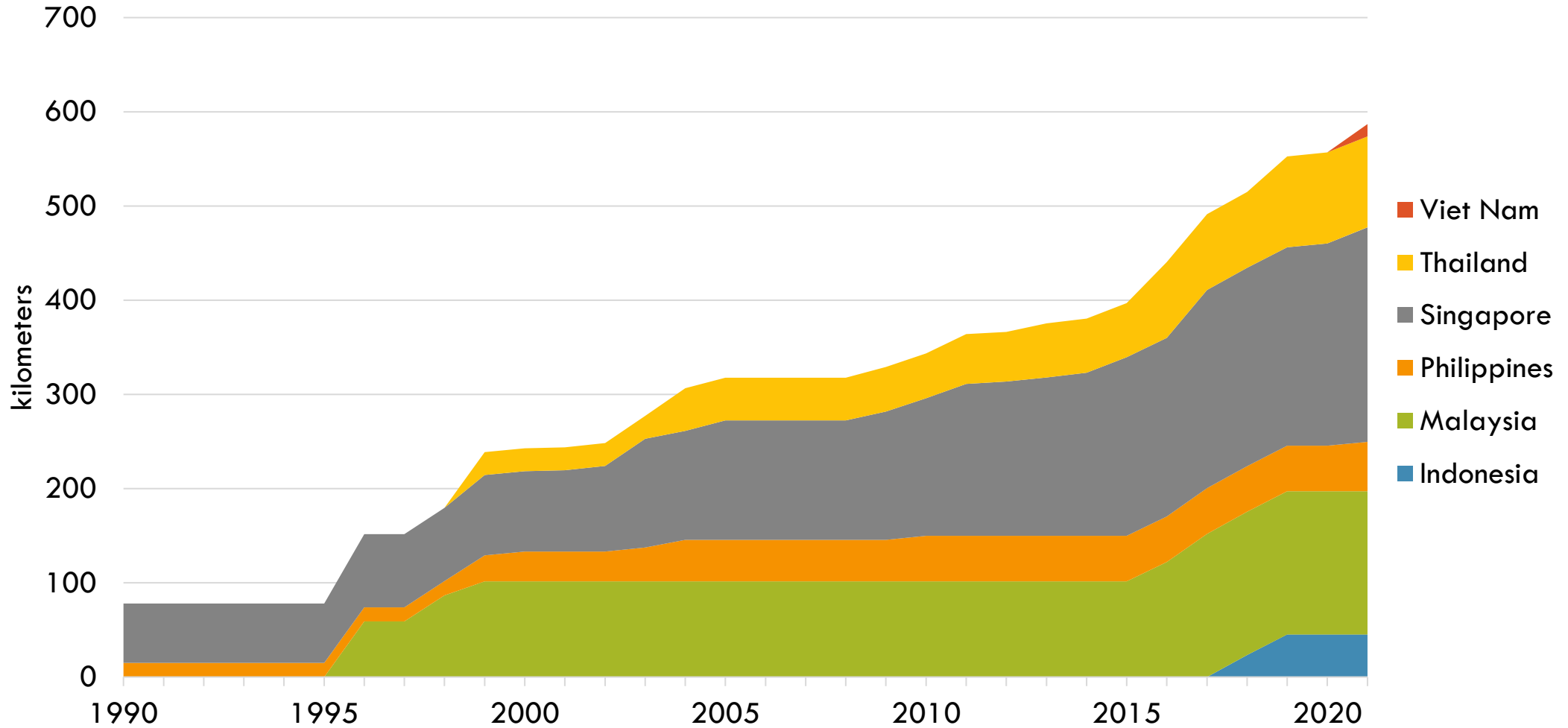


International Union of Railways. (2024). Railisa UIC Statistics. <https://uic-stats.uic.org/>  
 ATO. National Database (2024). <https://asiantransportoutlook.com/snd/>

# Heavy rail availability

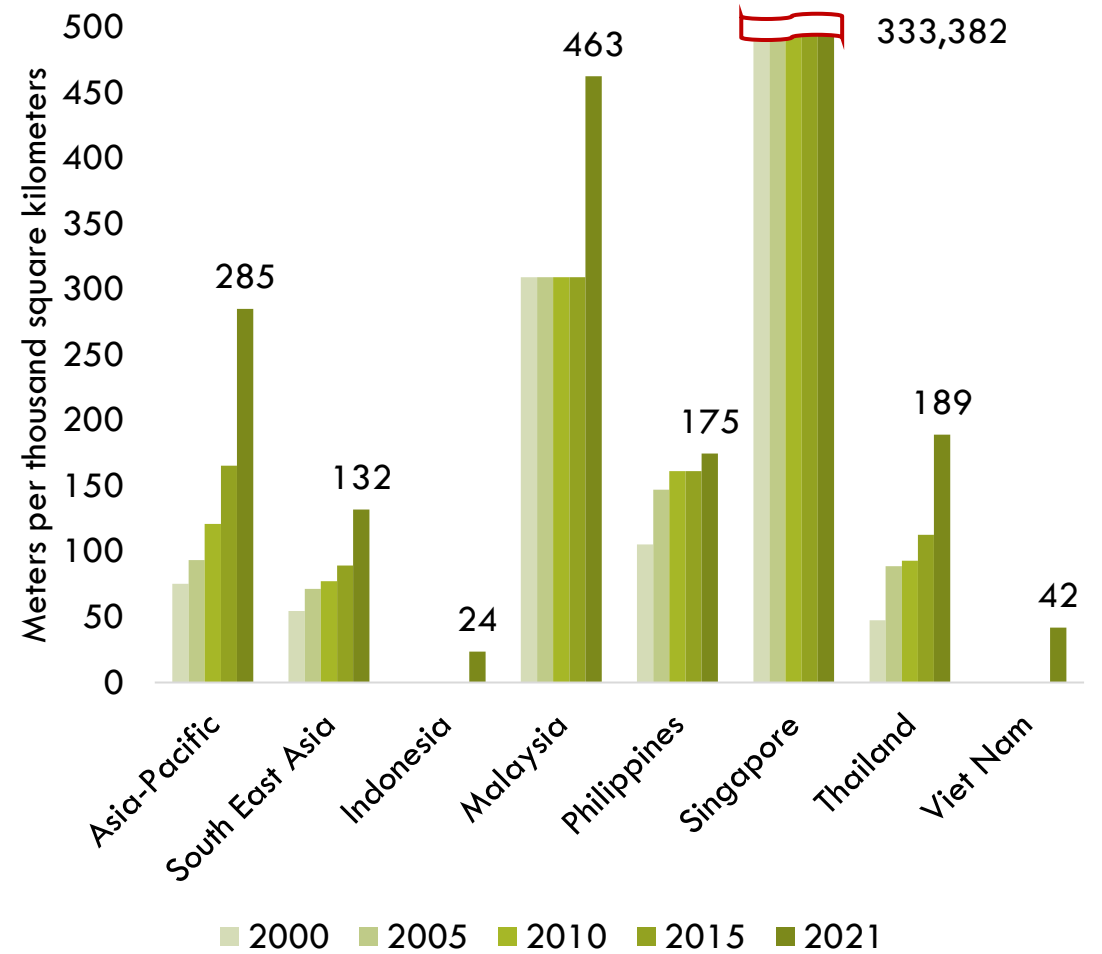
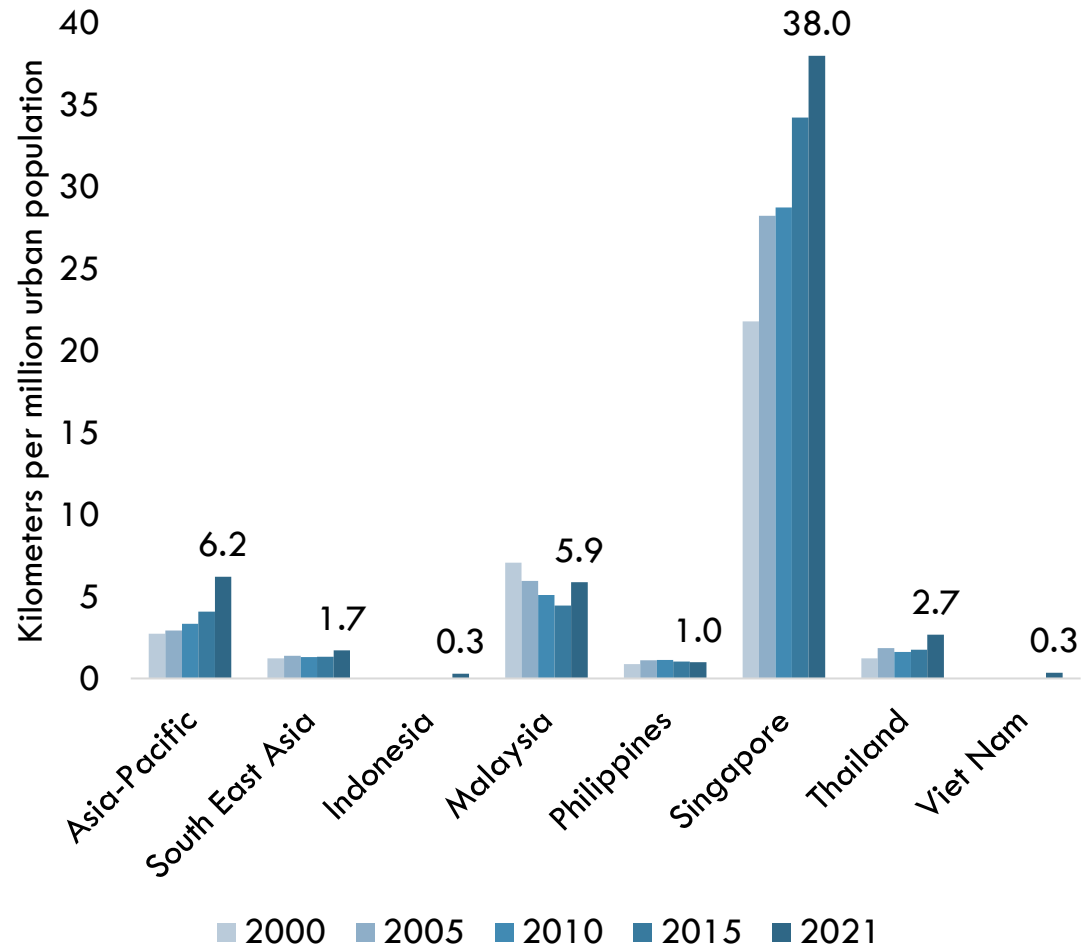


# Urban Rail Network Lengths

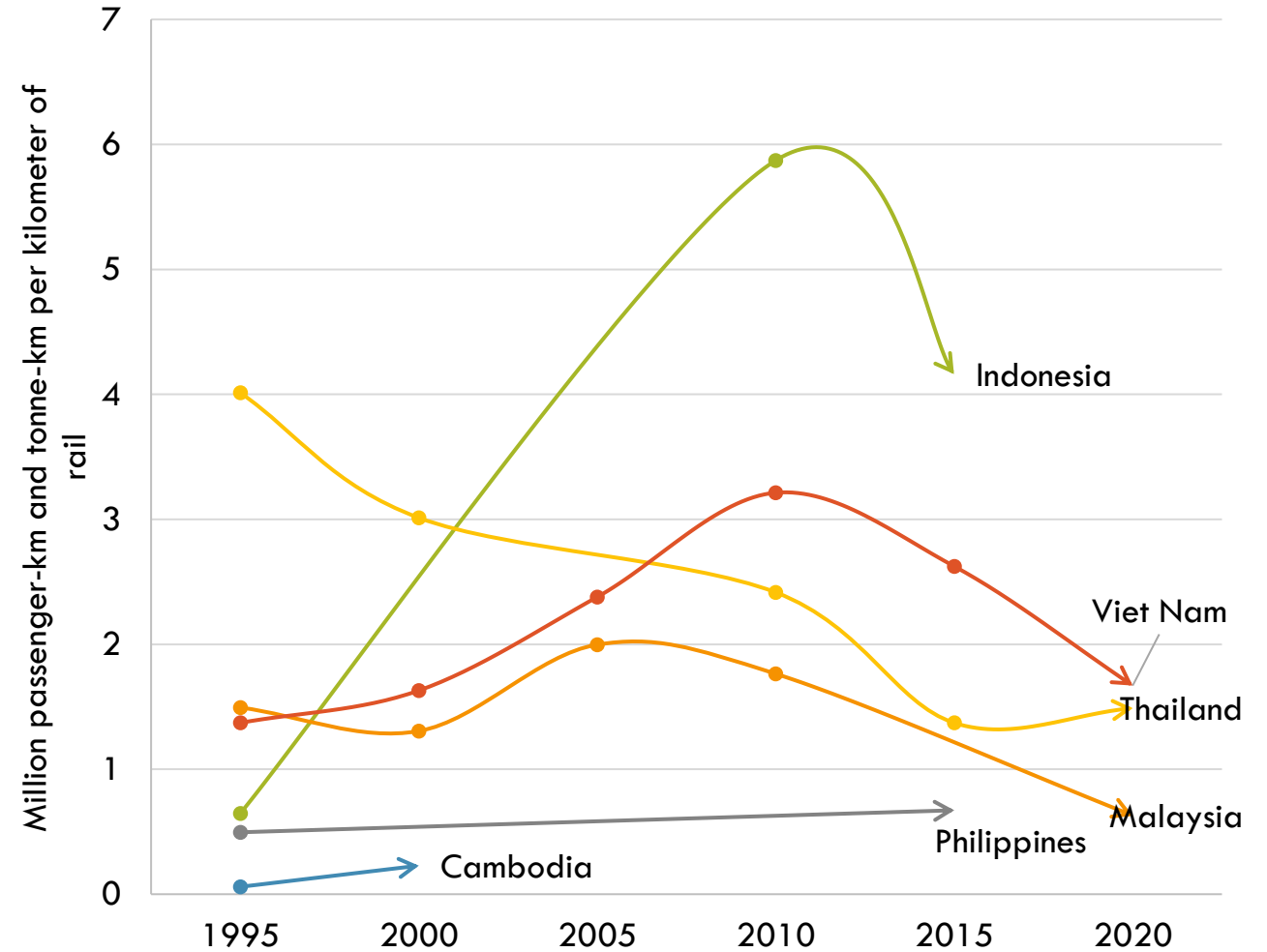
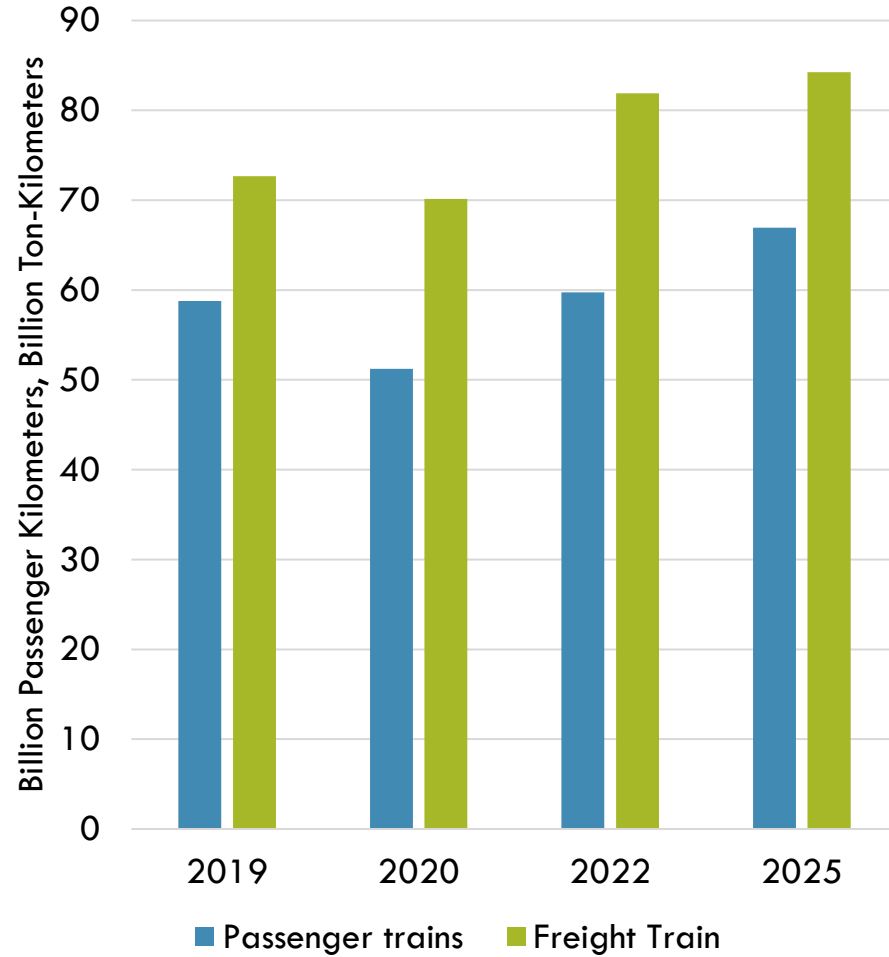


Institute for Transportation and Development Policy. (2020, October 11). Rapid Transit Database. I. <https://itdp.org/rapid-transit-database/>

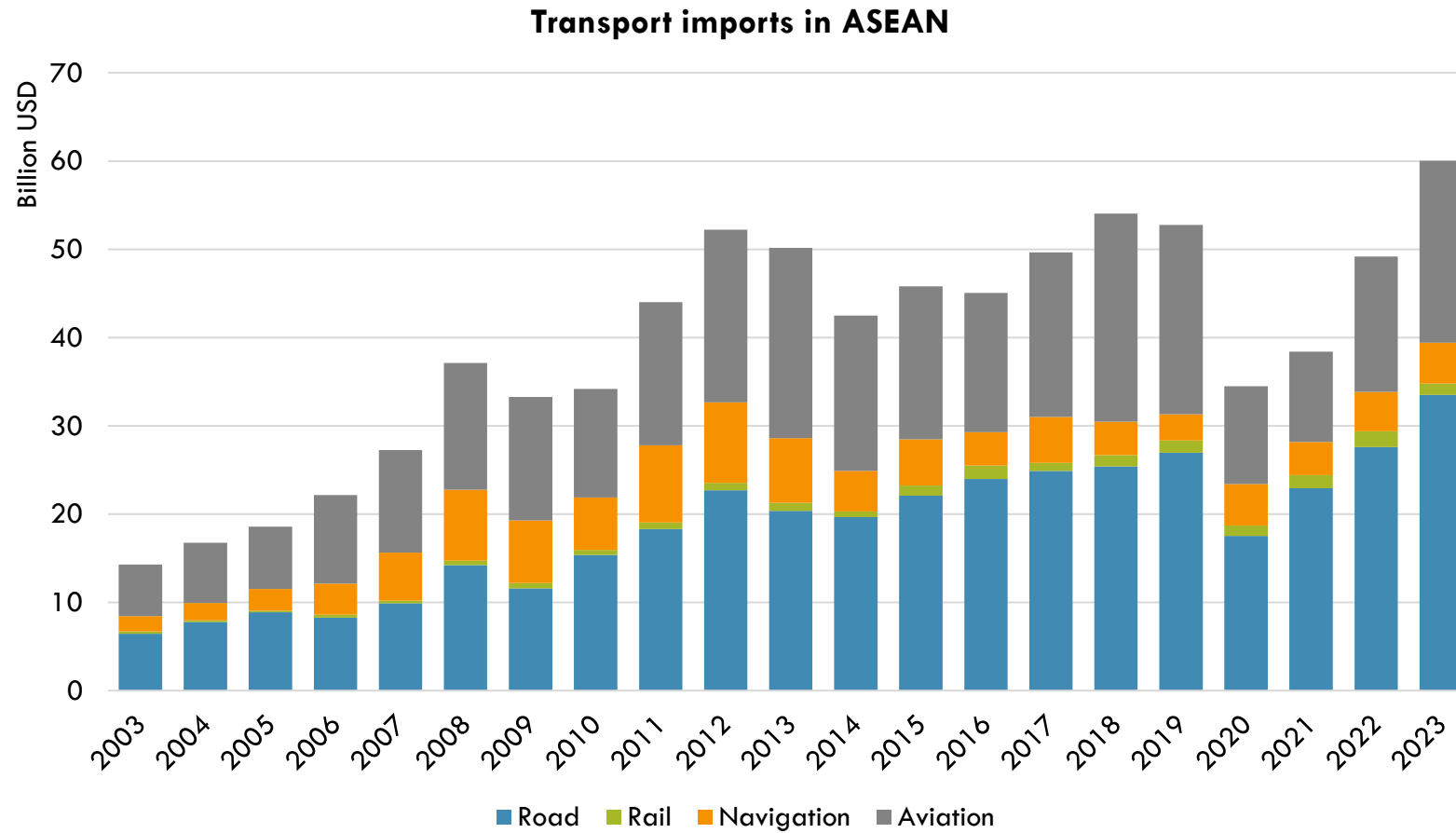
# Urban Rail Availability



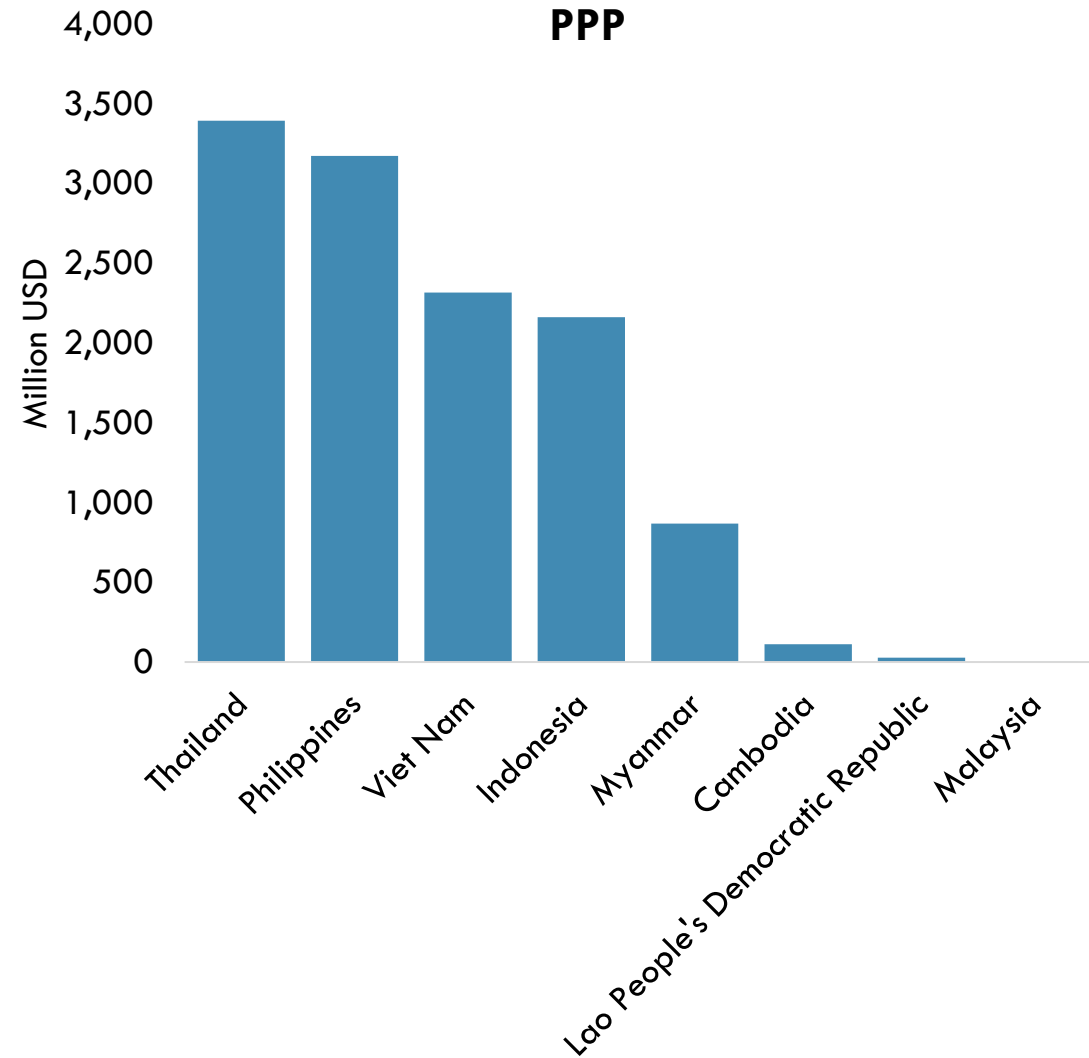
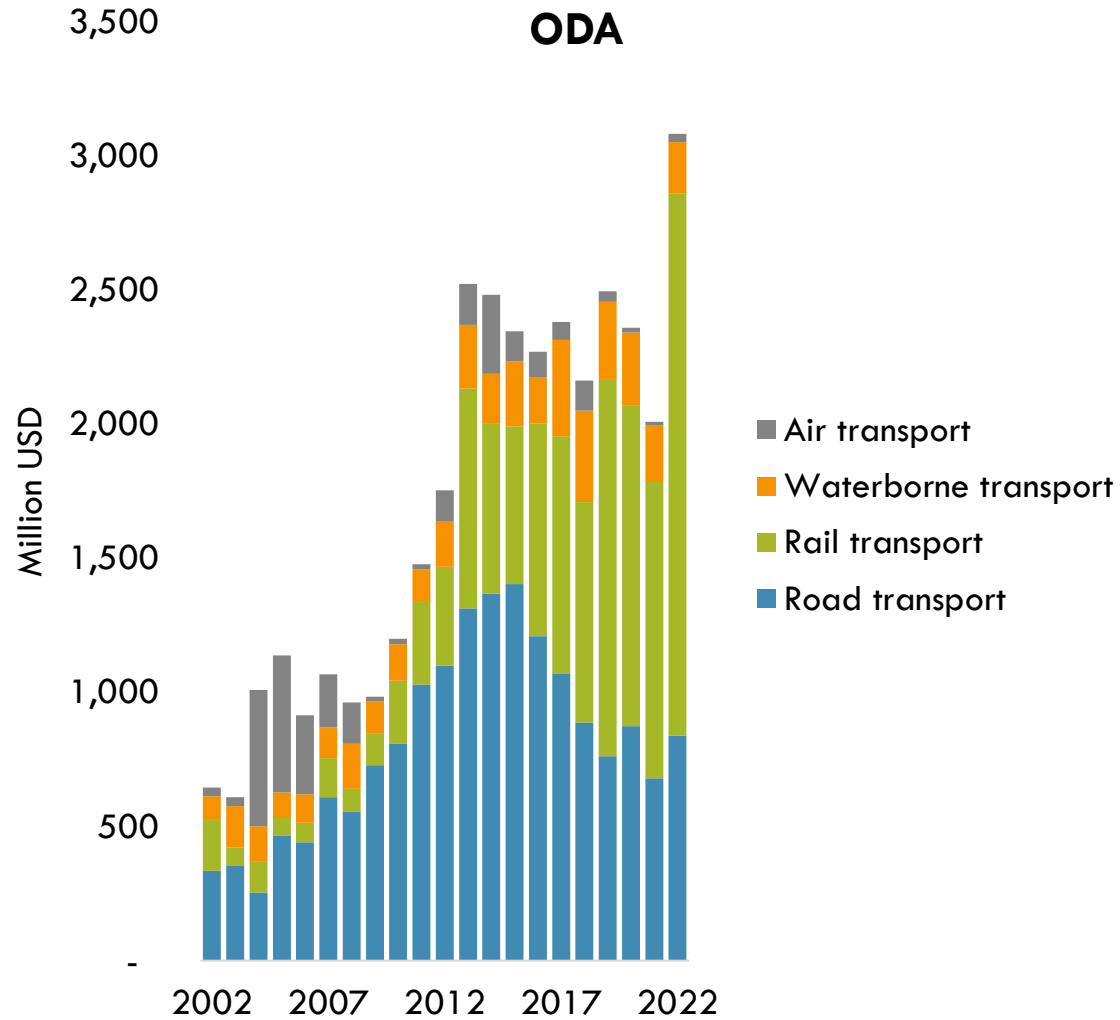
# Utilization Rates for Railways in the ASEAN Region



# Transport related imports in the ASEAN region

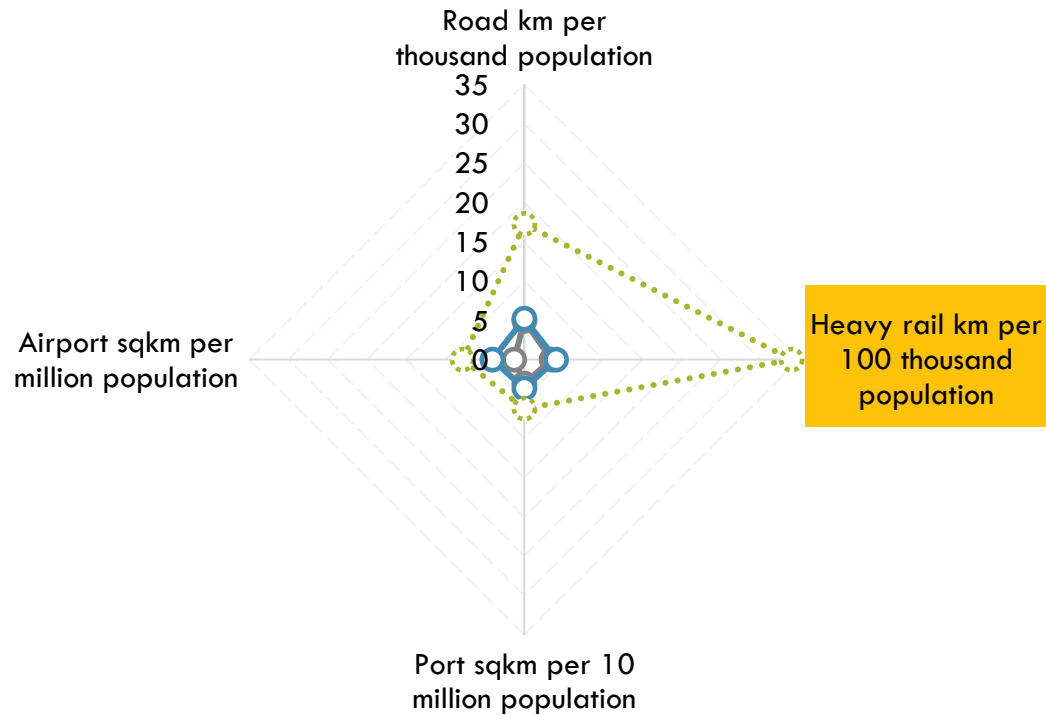


# Investments (ODA and PPP)

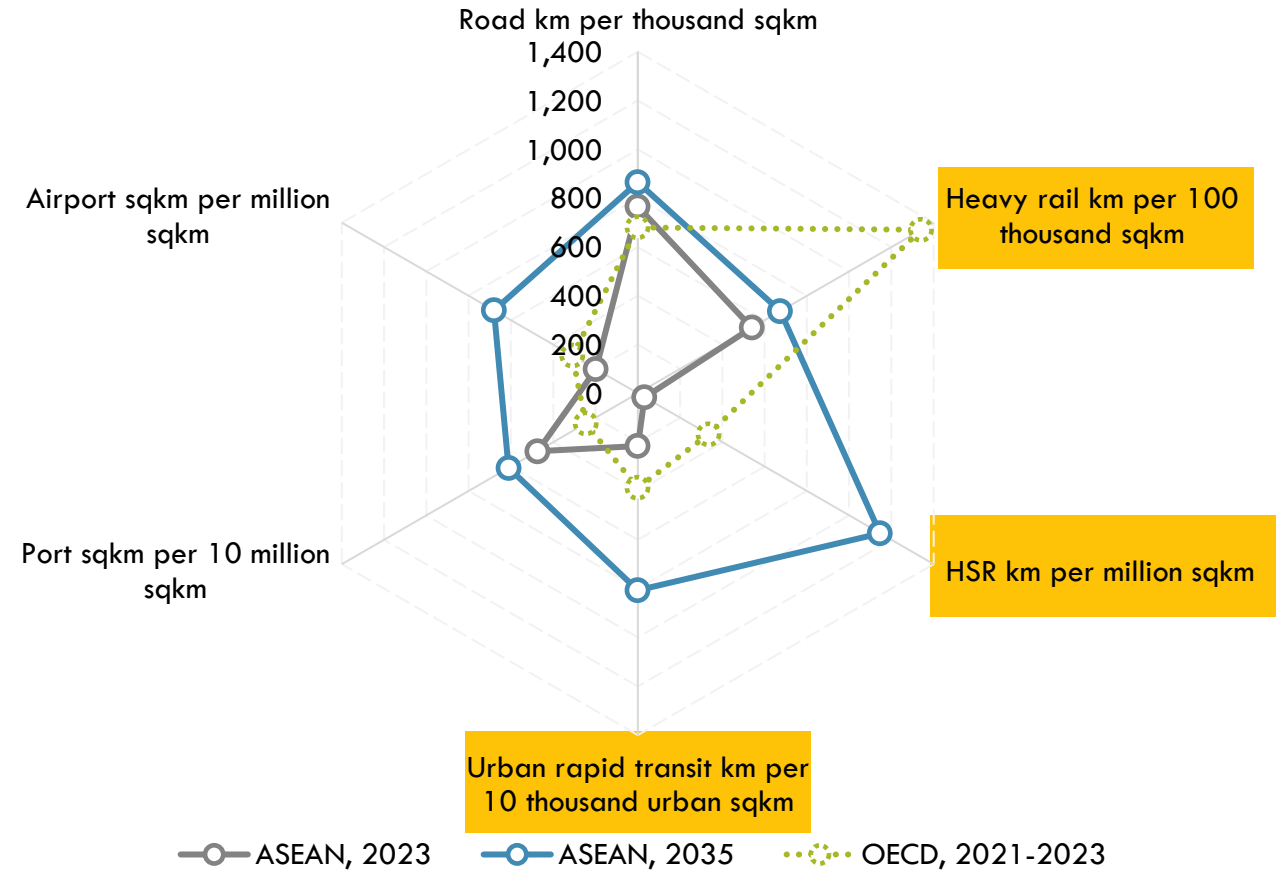


# Transport investment outlook

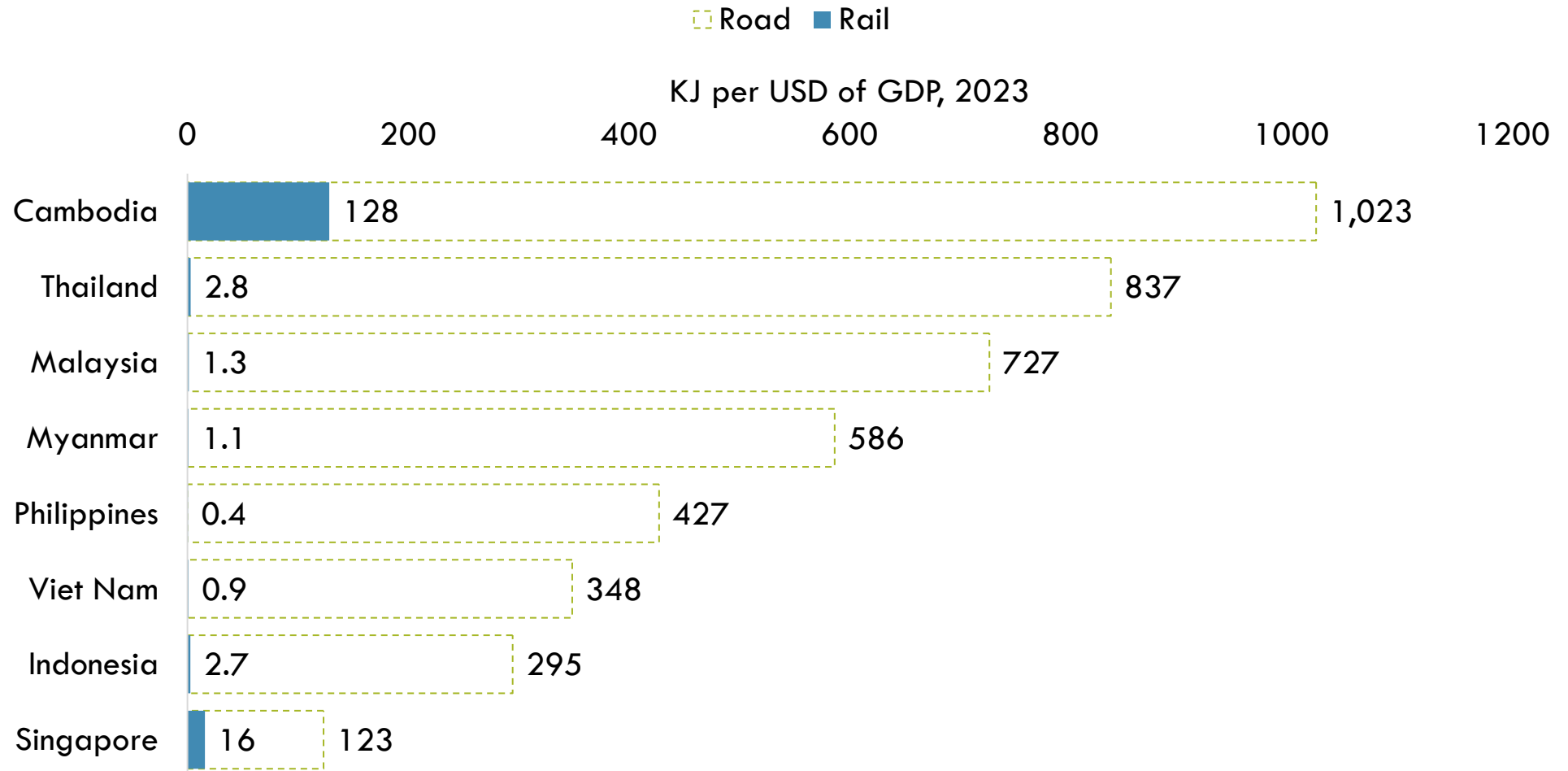
Transport infrastructure availability



Transport infrastructure density

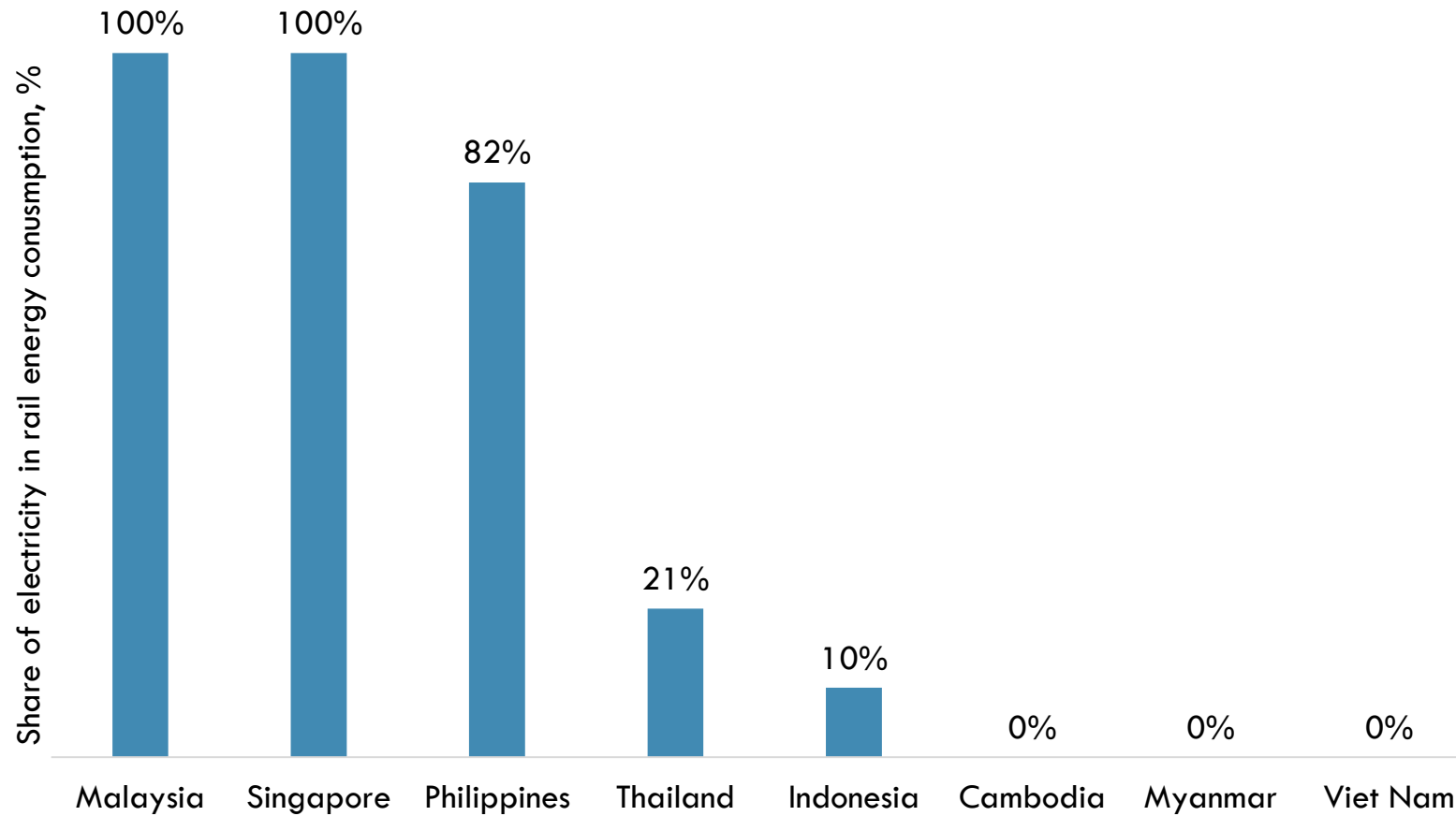


# Energy Intensity



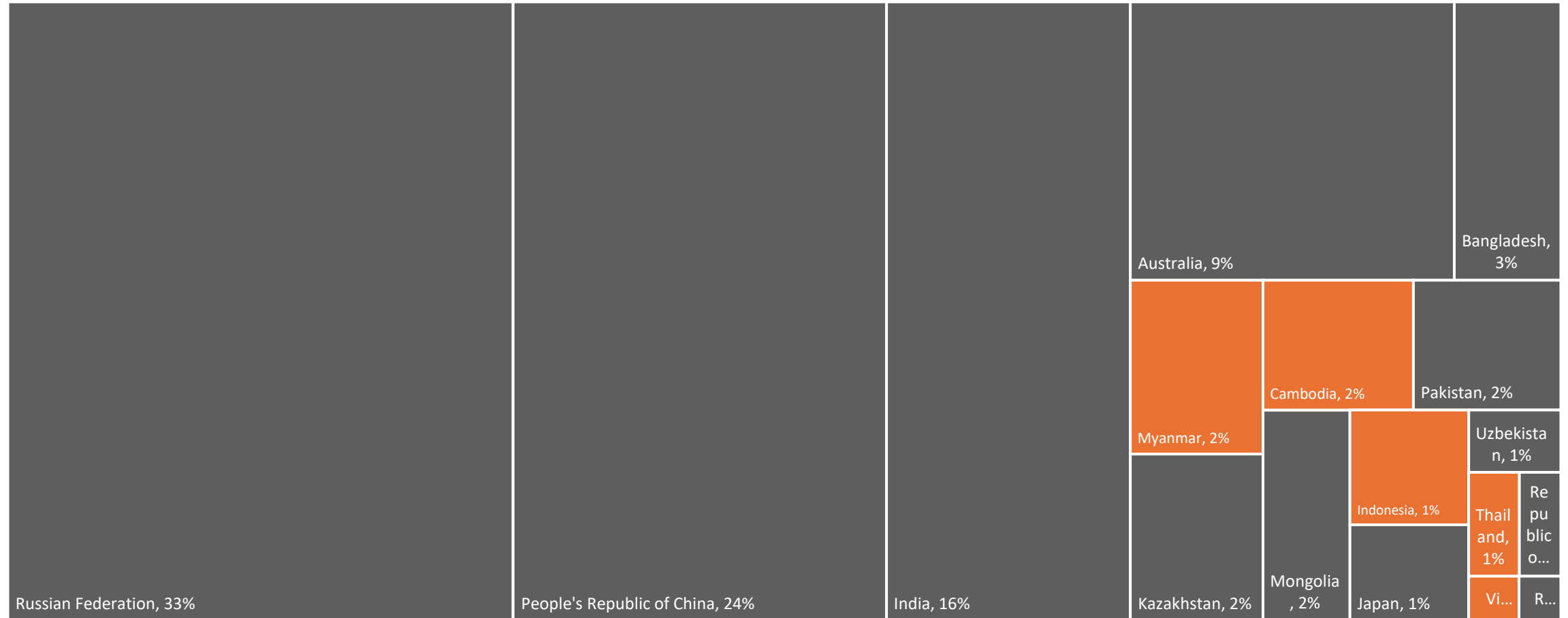
Estimated using United Nations Statistics Division. (2024). UNSD — Energy Statistics. <https://unstats.un.org/unsd/energystats/data>; World Bank. (2023). GDP, PPP (current international \$). World Bank Open Data. <https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD>

# Electrification of Railways



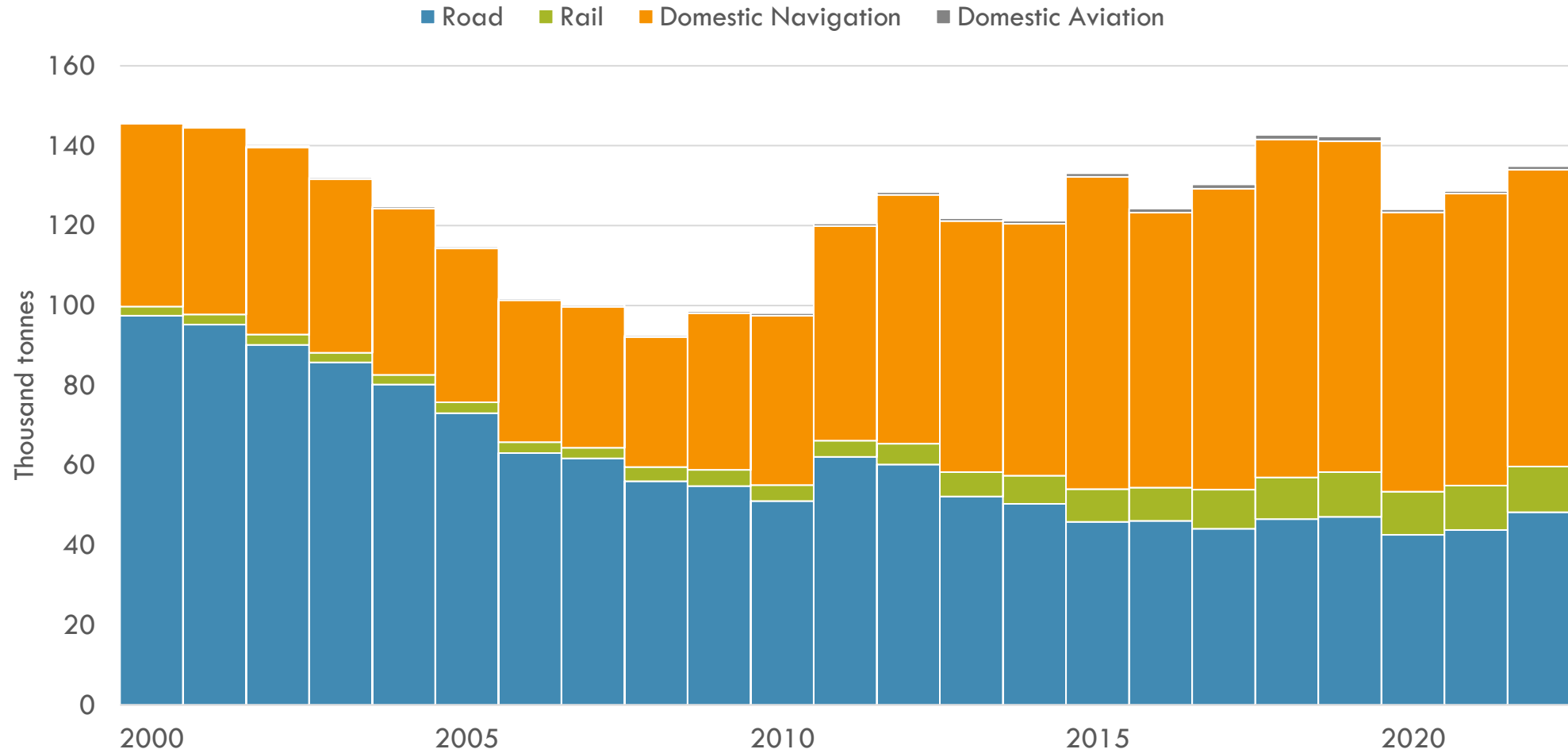
United Nations Statistics Division. (2024). UNSD — Energy Statistics. <https://unstats.un.org/unsd/energystats/data>

# Carbon Emissions



Estimated using Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., & Coheur, P. (2023). Insights on the spatial distribution of global, national and sub-national GHG emissions in EDGARv8.0. <https://doi.org/10.5194/essd-2023-514>; World Bank. (2023). GDP, PPP (current international \$). World Bank Open Data. <https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD>

# Air Pollutant Emissions



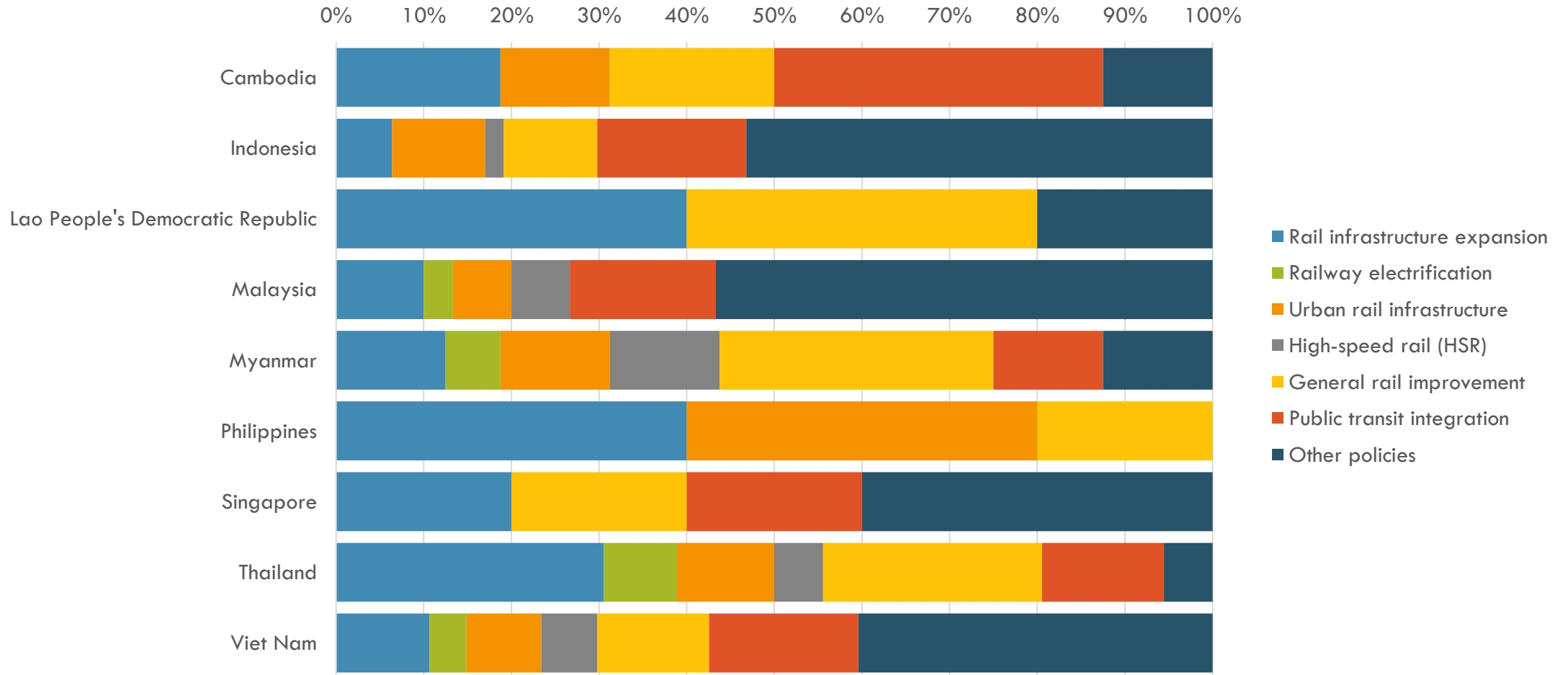
Ferrario, F. M., Crippa, M., Guizzardi, D., Muntean, M., Schaaf, E., Banja, M., Pagani, F., & Solazzo, E. (2022). EDGAR v6.1 Global Air Pollutant Emissions. <http://data.europa.eu/89h/df521e05-6a3b-461c-965a-b703fb62313e>

# Resilience

	Road, average annual losses due to all potential hazards	Rail, average annual losses due to all potential hazards	Ports, average annual losses due to all potential hazards	Airports, average annual losses due to all potential hazards	Share of transport in total average annual losses
	Million USD				%
Brunei Darussalam	4.0		0.1	0.1	6.6%
Cambodia	4.1	0.3	0.0	0.0	0.7%
Indonesia	725.8	16.0	7.7	11.8	4.7%
Lao PDR	4.6	0.7		0.1	0.7%
Malaysia	88.7	60.6	1.7	0.7	5.3%
Myanmar	39.9	11.9	0.8	3.0	2.6%
Philippines	297.0	10.4	28.7	11.7	5.6%
Singapore	32.5	4.9	5.3	7.0	31.5%
Viet Nam	33.2	13.3	0.2	1.9	0.8%
Thailand	98.1	25.8	0.4	1.4	1.6%
Timor-Leste	3.4		0.1	0.1	6.4%

CDRI. (n.d.). Building & infrastructure | GIRI. <https://giri.unepgrid.ch/facts-figures/building-infrastructures>

# Railway Policy Measures - Typology



# Select rail relevant targets

Country	Target statement	Document Name	Year Published	Target year
Singapore	Expanding the rail network from 230km in 2017 to 360km by 2030, with eight in ten households to be within a ten-minute walk from a train station	Singapore's Long-Term Low-Emissions Development Strategy	2020	2030
Malaysia	Increase in Cargo Volume via Rail, in Northern, Central and Southern Regions = 10%	Twelfth Malaysia Plan 2021-2025	2021	2025
Philippines	Passenger trips via rail in Metro Manila increased (% share to total passenger trips, cumulative) = 14 (from 1 in 2021)	Philippine Development Plan 2023-2028	2023	2028
Viet Nam	By 2050: use electricity and green energy for 100% rolling stocks; transition to electricity and green energy for 100% equipment using fossil fuels at stations. By 2050, transition to electricity and green energy for 100% inland railway vehicles using fossil fuels	Approving the Action Program for Transition to Green Energy and Mitigation of Carbon Dioxide and Methane Emissions from Transportation	2022	2050
Indonesia	Increased public satisfaction index with public services in the transportation sector by 88.5 On Time Performance (OTP) achievement for transportation services is 82.08%	Strategic Plan for the Railway Sector 2020-2024	2020	2024
Indonesia	Increased levels of safety and security as measured by a decrease in the fatality ratio of transportation accidents to 0.826	Strategic Plan for the Railway Sector 2020-2024	2020	2024
Indonesia	"The realization of mastery of railway technology by reducing technological dependence on facilities and infrastructure by a maximum of 25%, local content of at least 85% and supplied by a minimum of 90% of domestic industry	National Railways Master Plan	2018	2030
Viet Nam	North - South high-speed railway from Ngoc Hoi station to Thu Thiem station: double track, 1,435mm gauge, about 1,545 km in length.	Railway network planning for 2021-2030, vision to 2050	2021	2030

# Key Messages

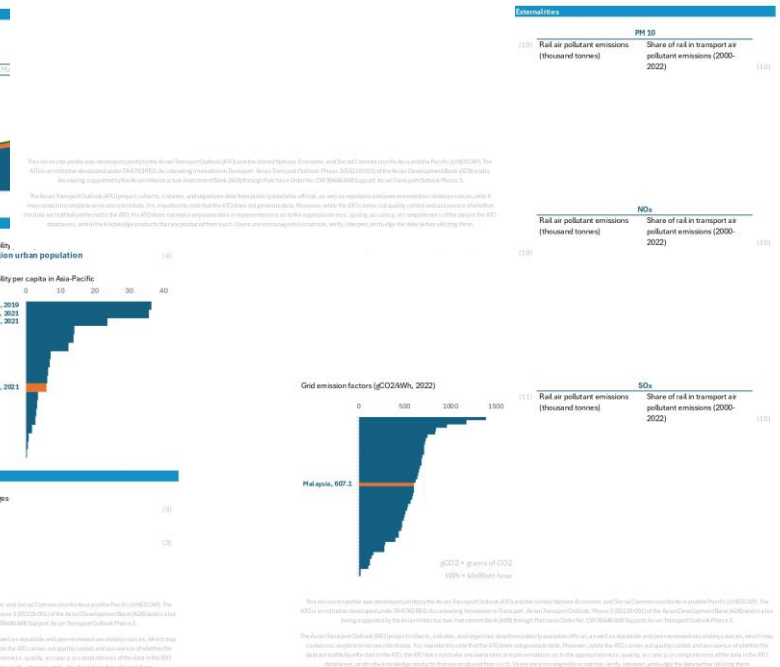
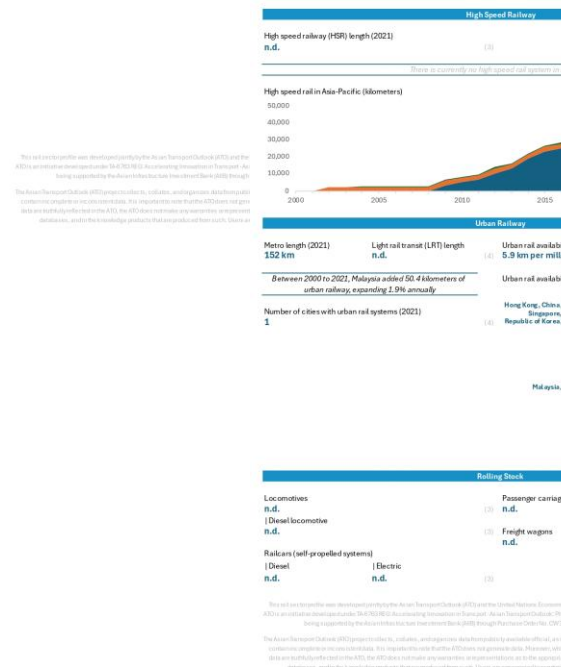
- Since 2000, ASEAN experienced a moderate growth in its heavy railway infrastructure. However, railway infrastructure growth is being outpaced by that of roads
- The availability of heavy rail infrastructure in Southeast Asia stands significantly lower when compared to the regional (Asia-Pacific) average
- Urban rail availability remains limited, and is concentrated in a few Southeast Asian countries
- The average utilization of rail has been falling since 2009, even with growing forecasts for future demand indicating that rail investments are not being optimally. Rail would need to increase its efficiency, reduce costs, address customer's need to attract more traffic.
- The share of electrification in rail energy's consumption has doubled in Southeast Asia from the turn of the century
- Rail sector's contribution to transport carbon emissions in Southeast Asia remains minute. On the other hand, Southeast Asia's share of total rail carbon emissions in the Asia-Pacific region has increased from just one per cent in the last two decades.
- Digitalization, evidenced by wider digital readiness indicators, remain a challenge.
- The rail sector in Southeast Asia faces a disproportionately high risk from climate challenges

# ATO Rail Sector Profiles

- Developed by: ATO with UNESCAP's input on Trans-Asian Railway routes.
- Infrastructure: Overview of national and urban rail networks.
- Operations: Insights into passenger, freight trends, and energy use.
- Environment: Analysis of emissions and environmental impacts.
- Investments: Overview of funding patterns, including ODA and PPPs.
- Policy Measures: Insights into national strategies, targets, and rail-related actions.

DRAFT Aug 27 2024

Policy document	Year	Rail-related measure
Green Technology Master Plan 2017-2020	2017	Urban passenger rail infrastructure improvement, Non-urban passenger rail infrastructure improvement, High-speed rail (HSR), General transport target - Modal shift
Malaysia Rail Supporting Industry Roadmap 2030	2014	Urban passenger rail infrastructure improvement, Non-urban passenger rail infrastructure improvement, General rail improvement, Technical standards for rail infrastructure
National Physical Plan, Chapter 7 (Implementation)	2020	High-speed rail (HSR), Railway electrification
Twelfth Malaysia Plan 2021-2025	2021	Urban passenger rail infrastructure improvement, Non-urban passenger rail infrastructure improvement, General rail improvement, Freight transport shifting to rail or inland waterways (IWT), Intermodality measures
Railways Act 1993	2012	Improvement, General rail improvement, Intermodality measures, General transport target - Modal shift
Logistics and Trade Facilitation Master Plan 2015-2020	2015	Improvement, General rail improvement, Intermodality measures, General transport target - Modal shift
National Land Public Transport Master Plan	2013	Urban passenger rail infrastructure improvement, Non-urban passenger rail infrastructure improvement, General rail improvement, Intermodality measures, General transport target - Modal shift
National Transport Policy 2019-2030	2019	Intermodality measures
Low Carbon Mobility Blueprint 2021-2030	2021	Freight transport shifting to rail or inland waterways (IWT), Intermodality measures
National Energy Policy 2022-2040	2022	General transport target - Modal shift



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

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