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Asia Regional Overview

Demographics

Population size:

4,676 million

(2022)

Population growth:

+12%

(2010-2020)

Urban population share:

52%

(2022)

Urban population growth:

+31%

(2010-2022)

GDP per capita:

USD 6,802

(2021)

GDP growth:

+58%

(2010-2021)

Source: See endnote 1 for this section.



SLOCAT Partnership on Sustainable, Low Carbon Transport

Transport, Climate and Sustainability
Global Status Report - 3rd edition

Key findings



Demand trends



- As their populations and economies expand, countries across Asia have recorded soaring motorisation growth (covering four-wheeled motorised vehicles) – with increases of more than 200% in some countries during 2010-2019 – as well as significant growth in two- and three-wheelers.
- Asian countries continued to be global leaders in electric vehicles. As of 2021, the region was home to 95% of the world's electric vehicles, with nearly 92% of the Asian fleet being two-wheelers.
- Cities in Asia have experienced a surge in public transport, led by a strong increase in metro rail.
- Between 2015 and 2021, the number of Asian cities with bus rapid transit systems increased 36%, while cities with metros and light-rail systems increased 49%.
- Informal transport through two-wheelers, three-wheelers, Jeeps and other types of collective transport continue to play a significant role in many parts of Asia.
- The demand for bike sharing services in Asia has risen since 2020, making the region the world's largest bike sharing market. As of 2021, nearly 800 bike sharing schemes were operating across Asia.
- Passenger air travel in Asia had partially rebounded from the COVID-19 pandemic by late 2022 and showed stronger recovery than in other regions. Globally, passenger air travel increased 57% by September 2022 compared to 2021, whereas the Asia-Pacific region saw an increase of 465% (although global averages were still 74% below pre-pandemic levels).
- Decreased economic activity during the pandemic, followed by the Russian Federation's invasion of Ukraine, led to significant shifts in freight transport across Asia.
- The Asia-Pacific region has experienced the fastest uptake of renewable energy use in transport globally, with average annual growth of nearly 14% between 2010 and 2019 (although starting from a low baseline).

Emission trends



- Asia continued to have the highest transport-related carbon dioxide (CO₂) emissions among world regions, as well as the highest transport emissions growth, at 36% during 2010-2021.
- China remained the largest emitter of transport CO₂ in Asia and the second highest emitter globally as of 2021, followed by India, although Persian Gulf countries still dominated per capita transport emissions.
- China continued to see slight decreases in transport emissions in 2022 as lockdowns remained in place, whereas restrictions had been loosened in many other Asian countries. In countries such as India and Japan, transport emissions increased consistently, in part rebounding from lows during the pandemic.
- Air pollution contributed to 6.5 million deaths globally in 2019, with 70% of the deaths occurring in the Asia-Pacific region.
- Recent projections have shown that transport emissions in Asia deviated from pre-2015 projections, which had predicted a near-doubling in business-as-usual emissions between 2021 and 2050. Even so, at the growth rate of 2021, the region's transport emissions would not peak before 2050, whereas a net zero emissions pathway or a pathway consistent with keeping global temperature rise below 1.5 degrees Celsius would require emissions to peak by 2025.

Policy developments



- As both population and urbanisation increase in Asia, governments will need to boost efforts to achieve sustainable transport while meeting the rising demand for passenger and freight transport.
- As of 2022, at least 14 countries in the region had made economy-wide pledges towards net zero emissions, in addition to having transport-specific targets, mostly aimed at electric mobility.
- Several Asian countries and cities have prioritised electric mobility in their policy targets, with some adopting targets to reduce or ban sales of internal combustion engine vehicles.
- Some transport-specific targets are aimed specifically at improving the efficiency of the freight sector, ranging from reducing energy use to increasing efficiency and multi-modality.

- Specifically for shipping, some countries and ports in the region pledged to contribute to efforts to decarbonise the sector.
- Policies focused on sustainable mobility have continued to expand in Asia, as more countries develop policy frameworks supporting low-carbon urban mobility, as well as freight transport.
- Informal transport fleets in Asia are gradually electrifying, for example in the Philippines.
- Some Asian countries have adopted sweeping measures towards low-carbon mobility and reductions in vehicle travel, while cities have increasingly created sustainable urban mobility plans (SUMPs), often to decongest urban areas.
- Measures to support cycling are on the rise in Asian cities, with governments such as India, Indonesia and the Philippines launching initiatives since 2020 to support walking and cycling.
- A few Asian countries have long implemented fuel efficiency standards, including China, India, Japan and the Republic of Korea. As of 2022, only five countries globally had fuel economy standards for heavy-duty vehicles, among them China, India and Japan (along with Canada and the United States).
- Asia's global dominance in electric mobility has been driven by national efforts to implement specific policies and to remove barriers, as well as in some cases by initiatives to swap, recycle and re-use electric vehicle batteries.
- As countries in Asia have focused on increasing their renewable energy capacity, the most common policy measure aimed at the use of renewables in transport continued to be biofuel blending mandates, with three countries (India, Indonesia and the Republic of Korea) increasing their mandates in 2022.





Overview



Despite setbacks, the Asia regionⁱ remained relatively economically resilient during the COVID-19 pandemic and had partially rebounded by late 2022. The Russian Federation's war in Ukraine, starting in February 2022, led to additional economic uncertainty as commodity prices rose and global demand weakened, exposing the higher risks of shocks in some Asian countries due to their economic structures.² The region also has experienced increasing climate-related disasters, highlighting the role that decarbonisation of the transport sector can play in contributing to greater resiliency.³

Asia has made advances towards several of the United Nations (UN) Sustainable Development Goals (SDGs), which would contribute to further resilience and improved equity and health, although overall progress has been slow.⁴ At the pace of progress as of 2023, the region would achieve only 10% of the measurable SDG targets by 2030 (or 118 out of 169 targets).⁵ The most progress has been seen on affordable and clean energy (SDG 7) and on industry, innovation and infrastructure (SDG 9), whereas progress on climate action (SDG 13) has continued to regress.⁶

Alongside several decades of economic growth, Asia has experienced rising demand for mobility and for diverse transport modes. This has led to increased motorisation as well as rising interest in electric vehicles, bike sharing systems and public transport in much of the region. Asia continued to have the highest share of electric vehicles globally in 2021, while also increasing its use of renewable energy in transport. Policy measures and targets for sustainable mobility have expanded in the region, with a growing number of policy frameworks supporting active travel and public transport.

However, absolute transport-related carbon dioxide (CO₂) emissions in Asia remained the highest among world regions in 2022, with most countries in the region experiencing increases since 2020.⁷ With the rising demand for both passenger and freight transport, alongside growing populations and urbanisation, governments across Asia will need to boost their support for sustainable transport systems going forward.

Demand trends



In 2019, analysts proclaimed that the "Asian century" had begun, citing projections for robust economic growth across the region.⁸ Despite some hardships from the COVID-19 pandemic in 2020 and 2021, most Asian countries remained relatively economically resilient in 2020 and beyond.⁹ Growth in gross domestic product (GDP) continued to be mostly stable, and the Asian economy contracted only 1.5% in 2020, much less than the global economy at 3.2%, resulting in a more rapid rebound.¹⁰

Asia's population has continued to surge, and as of early 2023 the region was home to 11 of the top 20 countries globally with the largest populations.¹¹ As cities have expanded, an estimated 55% of the Asian population is projected to live in urban areas by 2030, up from 52% in 2022.¹²

Many countries in Asia imposed strict lockdowns in response to the pandemic, restricting mobility. As in other regions, this led to a temporary plunge in all modes of passenger transport and to major shifts in freight.¹³ Mobility to public transport stations in the region fell nearly 60% between January and April 2020, although it recovered to pre-pandemic levels by late 2021 as countries eased restrictions.¹⁴ Traffic congestion levels also increased in 2021, although they were still 10% lower than in 2019.¹⁵

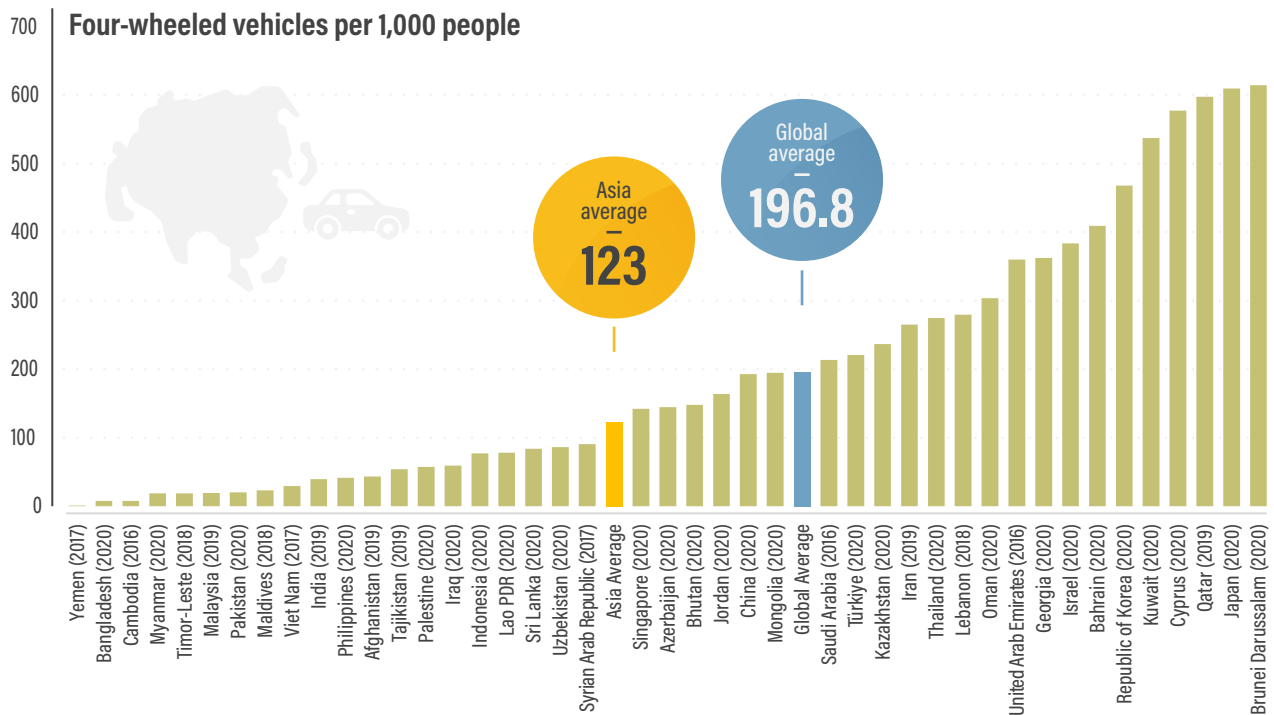
As their populations and economies expand, countries across Asia have recorded soaring motorisation growth (road motor vehicles except motorcycles) - with increases of more than 200% in some countries during 2010-2019 - as well as significant growth in two- and three-wheelers.¹⁶

Private vehicle ownership in the region increased by nearly 1 billion vehicles between 2000 and 2020, with two- and three-wheelers taking the lead to represent more than 75% of the private vehicles owned in low- and lower middle-income countries in Asia.¹⁷

ⁱ SLOCAT includes in the Asia region a total of 48 countries, covering Western, Central, Eastern, Southern and South-Eastern Asia.

FIGURE 1. Motorisation levels per 1,000 people in Asia, 2016-2020

Source: See endnote 16 for this section.



- ▶ China had the region’s highest growth in private motorisation during 2010-2019, at 212%, followed closely by Myanmar (209%) and Pakistan (207%), whereas Singapore’s motorisation rate fell 9% during this period.¹⁸
- ▶ Brunei Darussalam led the region in per capita motorisation levels, at 614 vehicles per 1,000 people in 2020, followed by Japan (609 vehicles per 1,000 people) and Qatar (597 vehicles per 1,000 people); the lowest motorisation rates were in Yemen, at less than 1 vehicle per 1,000 people, followed by Cambodia and Bangladesh (both at 7 vehicles per 1,000 people) (see Figure 1).¹⁹
- ▶ Bangladesh experienced the fifth highest increase in motorisation rate in Asia, rising more than 150% between 2010 and 2019.²⁰

Asian countries continued to be global leaders in electric vehicles. As of 2021, the region was home to 95% of the world’s electric vehicles, with nearly 92% of the Asian fleet being two-wheelers.²¹ Electric trucks also have increased in the region in recent years.²² Asia’s electric vehicle fleet (excluding two- and three-wheelers) grew 66% between 2020 and 2021, from 4.7 million vehicles to 7.8 million vehicles.²³

- ▶ As of 2022, China had the highest market share of electric vehicles in the region at 29%, followed distantly by the Republic of Korea (9.4%), Japan (3%) and India (1.5%).²⁴

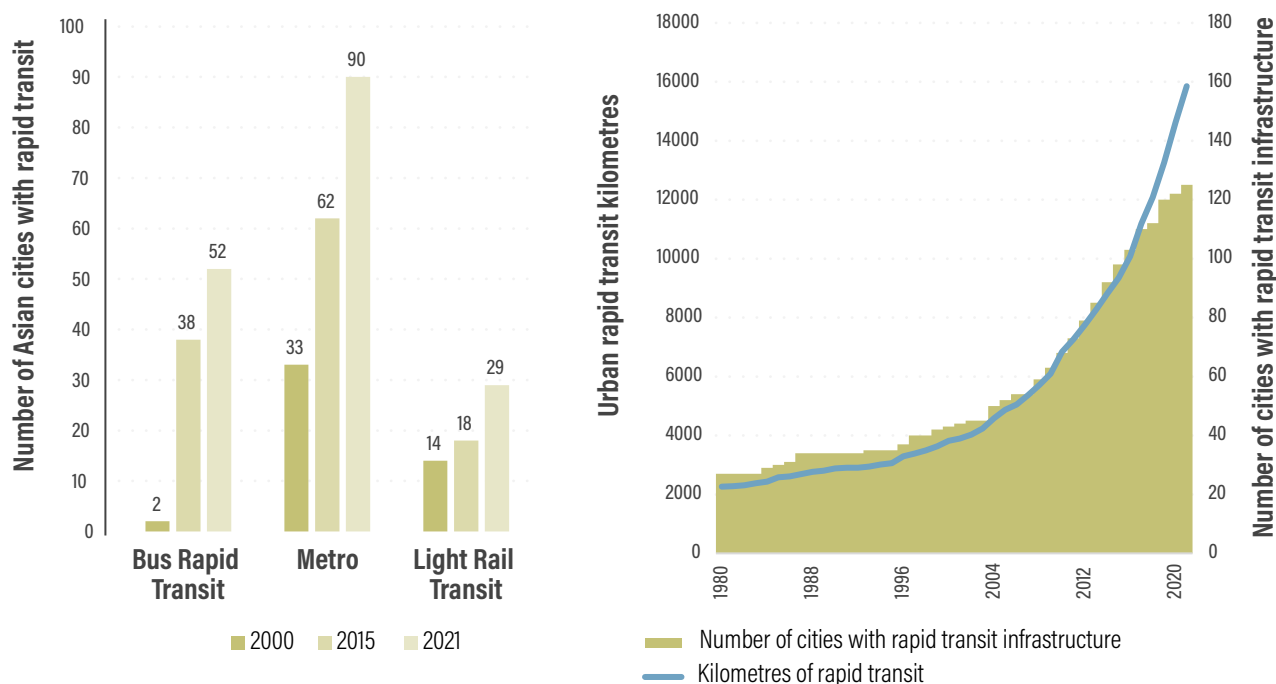
- ▶ The electric car market in China, with 14.1 million units in 2022, was more than two times larger than the market in the European Union (5.7 million) and nearly five times that in the United States (3 million).²⁵ Electric bus and truck registrations in China increased in 2021 after falling sharply in 2020, but did not quite return to 2019 pre-pandemic levels.²⁶ Price parity of battery electric trucks with diesel trucks in China is anticipated as early as 2025 for some truck types.²⁷

Cities in Asia have experienced a surge in public transport services, led by a strong increase in metro rail (see Figure 2).²⁸ However, the modal split varies greatly across countries.²⁹ While the demand for high-quality public transport in cities has increased greatly, particularly since the early 2000s, as of 2021 only 125 out of 550 Asian cities with more than 500,000 people had rapid transit systems.³⁰

- ▶ **Between 2015 and 2021, the number of cities in Asia with bus rapid transit systems increased 36%, while cities with metros and light-rail systems increased 49%.**³¹
- ▶ Singapore is a leader in public transport use, accounting for 83% of all trips in 2022.³² The Philippines also had a relatively high share of public transport use, at 42%.³³ Conversely, high shares of private motorcycle use were seen in Viet Nam (82%), Cambodia (74%) and Indonesia (73%).³⁴

FIGURE 2. Urban transport trends in Asia, 2000, 2015 and 2021

Source: ADB. See endnote 28 for this section.



- Several countries or cities installed their first metro lines in recent years. In 2020, Pakistan opened its first metro line in Lahore, serving 250,000 passengers along a 27-kilometre route.³⁵ In 2022, Bangladesh's capital Dhaka opened the country's first metro line, extending to 12 kilometres and expected to transport around 60,000 people an hour.³⁶ Hanoi (Viet Nam) also opened its first metro line in 2022, with nine more lines planned, although the project has been delayed by administrative and technical issues.³⁷

Other places saw developments in high-speed rail, with the Lao People's Democratic Republic (PDR) and Indonesia working on their first high-speed rail services. In 2021, the first China-Lao PDR bullet train arrived in the Laotian capital of Vientiane, with the stated objective of faster connectivity between the two countries.³⁸ By late 2022, the Jakarta-Bandung high-speed rail line, the first high-speed rail in Indonesia, was estimated to be 88% complete and to start operating in June 2023.³⁹

Informal transport through two-wheelers, three-wheelers, Jeeps and other types of collective transport continue to play a significant role in many parts of Asia. These informal services are often connectors to major public transport services, provide access for women, children and the elderly, and are a source of employment for urban dwellers. As of 2022, there were an estimated 10 million rickshaw drivers in India and 2

million in Bangladesh.⁴⁰ Studies show that informal transport represents 38% of all commuting trips in Manila (Philippines), 40% in Kuala Lumpur (Malaysia), 50% in Jakarta (Indonesia) and 58% in Dhaka (Bangladesh).⁴¹

The demand for bike sharing services in Asia has risen since 2020, making the region the world's largest bike sharing market.⁴² As of 2021, nearly 800 bike sharing schemes were operating across Asia.⁴³ (See Section 3.3 Cycling.)

- A 2020 study found that 360 Chinese cities were using dockless bike sharing in some capacity, with 54% of the users riding to make convenient connections to other transport modes, and nearly 36% using the bikes to commute to work.⁴⁴ The country's dockless bike sharing system has grown rapidly in response to rising traffic congestion from motorised vehicles for short-distance travel.⁴⁵ A 2022 study on shared mobility in China revealed knowledge gaps on topics such as the health impacts, life-cycle greenhouse gas emissions and equity implications of such systems.⁴⁶
- A 2017 study reported that at least 18% of people in Beijing (China), Seoul (Republic of Korea) and Singapore were using bike sharing, often for last-mile trips in combination with public transport use.⁴⁷ Similar trends have been seen in Delhi (India), Penang (Malaysia) and Bandung and Yogyakarta (Indonesia).⁴⁸

Some Asian countries have seen advances in **autonomous vehicles**.

- ▶ In 2022, China's largest artificial intelligence firm, Baidu, launched the country's first fully autonomous, driverless taxis in the cities of Chongqing and Wuhan.⁴⁹
- ▶ Bayanat, a Saudi AI company, launched the United Arab Emirates' first fully autonomous taxis in Abu Dhabi in 2021.⁵⁰

Passenger air travel in Asia had partially rebounded from the pandemic by late 2022 and showed stronger recovery than in other regions. Globally, passenger air travel increased 57% by September 2022 compared to 2021, whereas the Asia-Pacific region saw an increase of 465% (although global averages were still 74% below pre-pandemic levels).⁵¹

Decreased economic activity during the pandemic, followed by the Russian Federation's invasion of Ukraine, led to significant shifts in freight transport across Asia.⁵² In some places, urban freight and logistics activity grew to take advantage of emerging trends, including increased online shopping and food deliveries.⁵³ Air cargo activity in the Asia-Pacific region fell 16% in March 2020 compared to March 2019, similar to declines seen in most world regions.⁵⁴ Air cargo volumes also fell nearly 16% in April 2022 compared to April 2021; the decline is attributed to the Russian invasion of Ukraine (as both countries have been key cargo handlers), to Chinese labour shortages, and to an overall reduction in export orders.⁵⁵

Still, the Asia-Pacific region had the highest share of the air cargo market globally in 2022, at 32.5%.⁵⁶

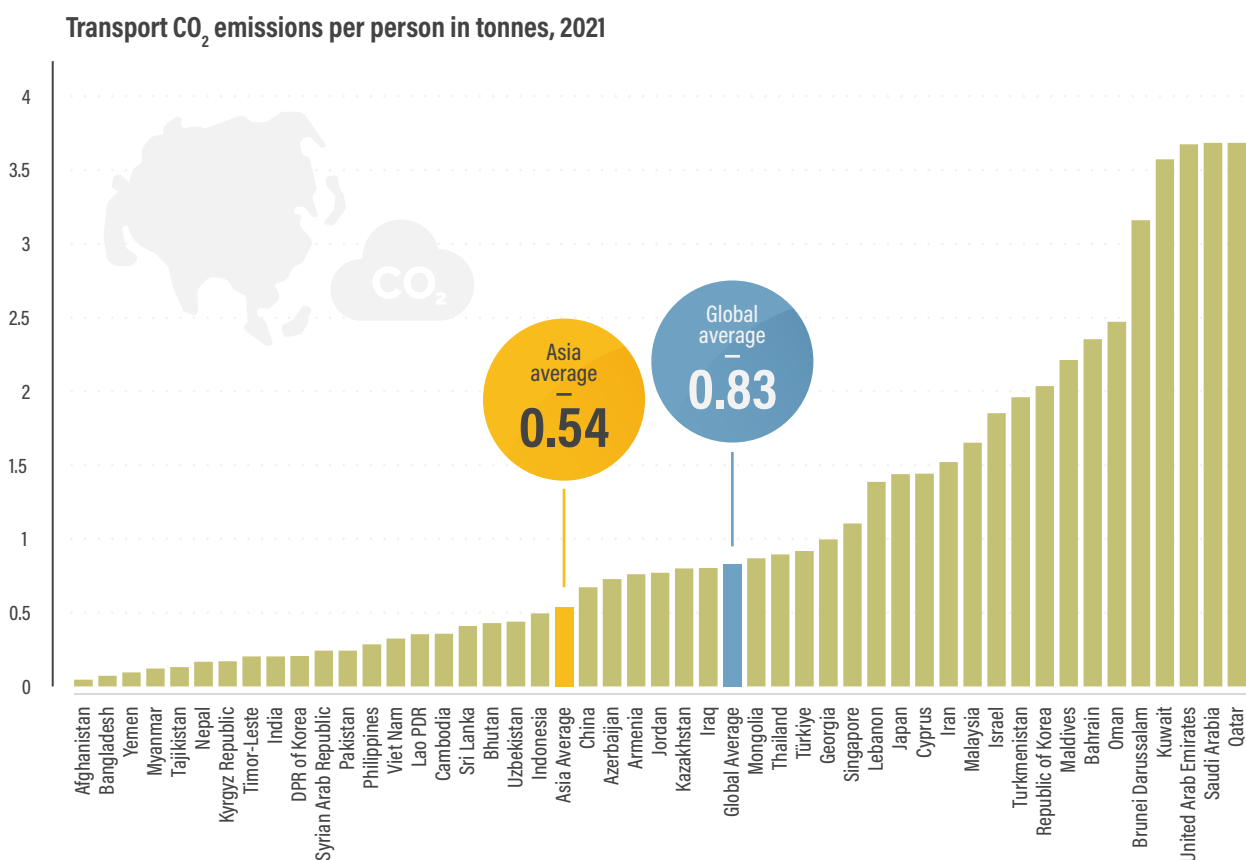
- ▶ Port calls at the Chinese ports of Shanghai (the world's largest) and Yangshang fell 17% by January 2020 compared to one year earlier, which led to knock-on effects globally.⁵⁷ By May 2022, the port of Shanghai had rebounded to reach 95% of pre-pandemic activity.⁵⁸
- ▶ Rail freight in Asia experienced mixed impacts during the pandemic, with China seeing a 24% increase in rail freight movement to Europe in the first quarter of 2020 compared to the first quarter of 2019, while India saw a 28% decline in domestic rail freight traffic in April-May 2020 compared to 2019.⁵⁹
- ▶ Trade volumes between China and the Association of Southeast Asian Nations (ASEAN) region increased 28% in 2021, as the latter became China's biggest trading partner for the second year in a row.⁶⁰

The Asia-Pacific region has experienced the fastest uptake of renewable energy use in transport globally, with average annual growth of nearly 14% between 2010 and 2019 (although starting from a low baseline).⁶¹ The top renewable energy consumers for transport in the region in 2019 were Indonesia (0.17 exajoules of renewables) and China (0.12 exajoules).⁶²



FIGURE 3. Per capita transport CO₂ emissions in Asia, by country, 2021

Source: See endnote 76 for this section.



Emission trends

Asia continued to have the highest transport-related CO₂ emissions among world regions - reaching 2,513 million tonnes in 2021 - as well as the highest transport emissions growth, at 36% during 2010-2021.⁶³ The region's share of global transport CO₂ emissions (excluding international aviation and shipping) was 39% in 2021.⁶⁴ Transport contributed the region's third highest emissions among all sectors, after the power sector and industrial combustion (and excluding other miscellaneous sectors).⁶⁵

Per capita transport CO₂ emissions in Asia averaged 0.54 tonnes in 2021, the second lowest level after Africa.⁶⁶ Transport CO₂ emissions per USD 10,000 of GDP reached 0.80 tonnes, the third lowest level after Oceania and Europe.⁶⁷ Per capita transport CO₂ emissions increased 65% from 2010 to 2021, whereas emissions per unit of GDP fell 22%.⁶⁸

Regional CO₂ trends

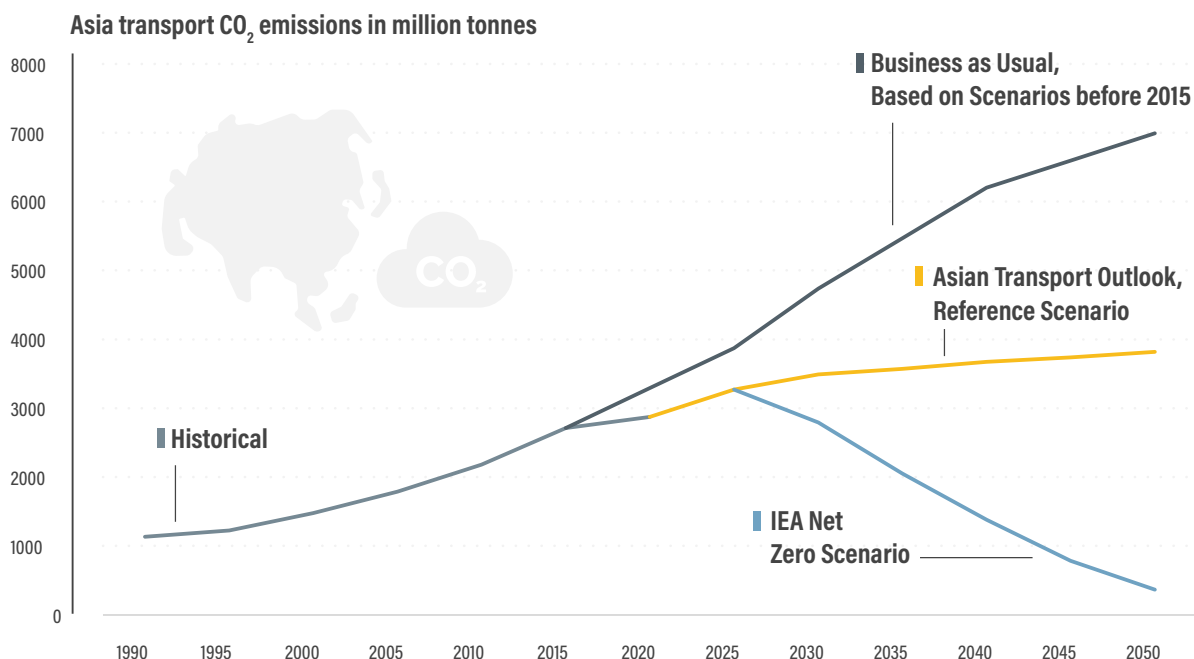
Total transport CO₂ emissions (2021):	2,512.9 million tonnes
Share of global transport CO₂ emissions (excluding international aviation and shipping) (2021):	39%
Per capita transport CO₂ emissions (2021):	0.54 tonnes
Transport CO₂ emissions per USD 10,000 GDP (2021):	0.79 tonnes

Source: See endnote 69 for this section.

China remained the largest emitter of transport CO₂ in Asia - contributing 38% of the region's total in 2021 - and was the second highest emitter globally, followed by India, although Persian Gulf countries still dominated per capita transport emissions.⁷⁰ China contributed 955 million tonnes of transport

FIGURE 4. CO₂ emissions from transport in Asia, 1990-2050

Source: ADB. See endnote 87 for this section.



CO₂ in 2021 (distantly following the United States, at 1,647 million tonnes).⁷¹ India was the third largest emitter of transport CO₂ globally but contributed only 11% of Asia’s transport CO₂ emissions.⁷²

Estimates for 2015 indicate that CO₂ emissions from freight transport are slightly larger (around 55%) than from passenger transport in Asia.⁷³ The rising demand for road freight movement in the region is expected to further drive emissions.⁷⁴

- ▶ Countries in the Persian Gulf dominated per capita transport CO₂ emissions in Asia in 2021, with Qatar and Saudi Arabia each emitting 3.7 tonnes per person.⁷⁵ However, in 30 of the 47 Asian countries with emission data, per capita transport CO₂ emissions were less than 1 tonne (see Figure 3).⁷⁶
- ▶ In two-thirds of Asian countries, transport emissions remained lower in 2021 compared to pre-pandemic levels, with some countries reporting far lower emissions, such as Viet Nam (down 24% between 2019 and 2021) and Qatar (down 19%).⁷⁷

China continued to see slight decreases in transport emissions in 2022 as lockdowns remained in place, whereas restrictions had been loosened in many other Asian countries.⁷⁸ In countries such as India and Japan, transport emissions increased consistently, in part rebounding from lows during the pandemic.

- ▶ In China, emissions from ground transport decreased 3.6%, from domestic aviation decreased 40.1%, and from international aviation decreased 14.6% in 2022, compared to 2021.⁷⁹
- ▶ In Japan, emissions from ground transport increased 4%, from domestic aviation grew 39.8%, and from international aviation rose 11.8% during the same period.⁸⁰
- ▶ In India, emissions from ground transport increased 8.1%, in domestic aviation grew 24.3%, and from international aviation rose 73.4%.⁸¹

Air pollution caused 6.5 million deaths globally in 2019, with 70% of the fatalities occurring in the Asia-Pacific region.⁸²

Globally, the losses in economic welfare attributable to air pollution represented 6.1% of GDP in 2019, whereas in East Asia the share was 9.3% and in South Asia it reached 10.3%.⁸³ From 2000 to 2019, countries in South, East and South-East Asia had the strongest increase among sub-regions globally in deaths attributable to pollution, due mostly to increased ambient air pollution, rising chemical pollution and ageing populations.⁸⁴

Recent projections have shown that transport emissions in Asia deviated from pre-2015 projections, which had predicted a near-doubling in business-as-usual emissions between 2021 and 2050.⁸⁵ On the contrary, emissions

were lower during the period 2015-2020 due to average fuel efficiency improvements, progress in electrification and other policies.⁸⁶ **Even so, at the growth rate of 2021, the region's transport emissions would not peak before 2050, whereas a net zero emissions pathway or a pathway consistent with keeping global temperature rise below 1.5 degrees Celsius would require emissions to peak by 2025 (see Figure 4).**⁸⁷

Policy developments



As both population and urbanisation increase in Asia, governments will need to boost efforts to achieve sustainable transport while meeting the rising demand for passenger and freight transport.

As of 2022, at least 14 countries in the region had made economy-wide pledges towards net zero emissions, in addition to having transport-specific targets, mostly aimed at electric mobility.⁸⁸ This included Bhutan, China, India, Japan, Kazakhstan, Lao PDR, Malaysia, Maldives, Nepal, the Republic of Korea, Singapore, Sri Lanka, Thailand and Viet Nam.⁸⁹ Many Asian countries also have **transport-specific targets**, with at least 19 countries having specific targets for electric mobility, 16 for rail, and 13 for modal share as of the end of 2022.⁹⁰

The **Nationally Determined Contributions (NDCs)** of six Asian countries – Bangladesh, Georgia, Israel, Japan, Sri Lanka and the United Arab Emirates – are among the 23 second-generation NDCs submitted under the Paris Agreement that feature targets for transport greenhouse gas mitigation.⁹¹ This is the second highest share by region after Africa.⁹²

- ▶ Bangladesh set a target to reduce its transport CO₂ emissions 9.3% (unconditional contribution) and 27% (conditional) below projected business-as-usual (BAU) levels by 2030.⁹³
- ▶ Israel aims to limit its increase in transport greenhouse gas emissions by 2030 and then reduce these emissions at least 96% below 2015 levels by 2050.⁹⁴
- ▶ As in other regions, most of the transport-related measures included in the second-generation NDCs of Asian countries continued to be “Improve”ⁱⁱ measures, although both “Avoid” and “Shift” measures increased compared to the first generation of NDCs submitted.⁹⁵
- ▶ Sri Lanka provides a comprehensive, well-balanced set of transport mitigation actions following the “Avoid-Shift-Improve” structure.⁹⁶

Several Asian countries and cities have prioritised electric mobility in their policy targets, with some adopting targets to reduce or ban sales of internal combustion engine

vehicles (whether economy-wide or for public vehicles only, and sometimes permitting hybrid vehicles).

- ▶ By 2023, countries with targets for full or partial sales bans on internal combustion engine vehicles included the Republic of Korea (with a target year of 2025), India (2030), China (2035), Japan (2035) the Philippines (2040) and Viet Nam (2050).⁹⁷
- ▶ Israel's Ministry of Environmental Protection set a mandatory target to have only zero-emission public transport buses in operation by 2026.⁹⁸
- ▶ Cambodia is aiming for 40% electric cars and buses and 70% electric motorbikes by 2050.⁹⁹
- ▶ The state of Maharashtra (India) plans to add 1,900 electric buses to Mumbai's Brihanmumbai Electric Supply and Transport fleet (a public entity providing transport services and electricity).¹⁰⁰ Mumbai aims to have a 100% electric fleet by 2027, with an interim 50% target by 2023.¹⁰¹

Some transport-specific targets are aimed specifically at improving the efficiency of the freight sector, ranging from reducing energy use to increasing efficiency and multi-modality.

- ▶ Since 2017, Viet Nam has included targets for changing freight transport models in its NDC to address energy consumption.¹⁰²
- ▶ In 2022, India launched its National Logistics Policy to improve the efficiency of the freight sector.¹⁰³
- ▶ China issued a five-year work plan in 2022 to promote multi-modality in its freight sector.¹⁰⁴

Specifically for shipping, some countries and ports in the region pledged to contribute to efforts to decarbonise the sector.

- ▶ At the 2021 United Nations Climate Change Conference in Glasgow, United Kingdom (COP 26), Japan joined 18 other countries in the Clydebank Declaration, aimed at creating at least six “green shipping corridors” by 2025.¹⁰⁵ In early 2022, Singapore announced that it would join the agreement.¹⁰⁶
- ▶ The Port of Shanghai – along with the Port of Los Angeles and industry partners – announced in 2022 that it would deliver an implementation plan for a green shipping corridor to decarbonise shipping between China and the United States.¹⁰⁷

Policies focused on sustainable mobility have continued to expand in Asia, as more countries develop policy frameworks supporting low-carbon urban mobility, as well as freight transport. Policies focused on electric mobility, urban rail and active mobility have received greater importance in the region in recent years. Due in large part to policy support, particularly in China and to a lesser extent in India, Asia has the highest share of electric vehicles globally.¹⁰⁸

ii From the Avoid-Shift-Improve framework. See <https://slocat.net/asi>.

- ▶ In 2020, Malaysia released its Low Carbon Mobility Blueprint 2021-2030, which includes several measures for reducing emissions and energy consumption in transport, such as fuel economy, electric vehicles, alternative fuel adoption and modal shift.¹⁰⁹

Informal transport fleets in Asia are gradually electrifying, for example in the Philippines, although informal transport operators are often neglected and do not receive support from the government.¹¹⁰

- ▶ The Philippines initiated a Jeepney electrification programme in 2017, but by early 2023 only 4% of the country's 158,000 jeepneys had been electrified.¹¹¹

Some Asian countries have adopted sweeping measures towards low-carbon mobility and reductions in vehicle travel, while cities have increasingly created sustainable urban mobility plans (SUMPs), often to decongest urban areas. Some cities, such as in China and Singapore, also have adopted strict rules on vehicle permitting and licences in an effort to reduce the number of vehicles.¹¹²

- ▶ In 2022, the ASEAN region released guidelines for developing SUMPs in metropolitan areas.¹¹³
- ▶ The SUMP of Medan (Indonesia), completed in 2022, features USD 3.2 billion in investment to shift 15% of trips from private motorised vehicles to public transport, through the implementation of six bus rapid transit lines and a metro system, and by optimising existing public transport services.¹¹⁴
- ▶ Foshan was China's first city to introduce the SUMP concept (in 2021) and is considered a leader in sustainable transport in the country due to its well-developed public transport system – with one of the highest bus densities in China, a fully electrified bus network and a vast public bike sharing programme.¹¹⁵

Measures to support cycling are on the rise in Asian cities, with governments such as India, Indonesia and the Philippines launching initiatives since 2020 to support walking and cycling.

- ▶ India's Ministry of Housing and Urban Affairs launched its Cycles4Change and Streets4People challenges in 2020 to support active mobility.¹¹⁶ By early 2023, more than 100 Indian cities had taken part in the initiatives, identifying a collective 400 kilometres of main roads and 3,500 kilometres of neighbourhood spaces that could be transformed for bike-friendly purposes.¹¹⁷
- ▶ In 2021, the Philippines' Department of Transport completed 500 kilometres of bike lanes along the metro routes of three cities: Manila (313 kilometres), Cebu (129 kilometres) and Davao (55 kilometres).¹¹⁸
- ▶ In 2022, Jakarta (Indonesia) completed 309 kilometres of bike lanes, out of a total 500 kilometres planned, with government data showing that the average number of cyclists daily in the city had surged from 47 in 2005 to 4,000 in 2022.¹¹⁹

A few Asian countries have long implemented fuel efficiency standards, including China, India, Japan and the Republic of Korea.¹²⁰ As of 2022, only five countries globally had fuel economy standards for heavy-duty vehicles, among them China, India and Japan (along with Canada and the United States).¹²¹ Since 2021, ASEAN members have been introducing fuel efficiency standards in their respective countries.¹²²

Asia's global dominance in electric mobility has been driven by national efforts to implement specific policies and to remove barriers, as well as in some cases by initiatives to swap, recycle and re-use electric vehicle batteries. Between 2018 and 2022, two-thirds of the global investment in electric vehicles and charging infrastructure was in Asia.¹²³ Some countries have invested in critical materials necessary for electric vehicle battery manufacturing, such as Indonesia (home to some 22% of global nickel reserves).¹²⁴

- ▶ India doubled its investment in electric vehicles in 2022.¹²⁵ The government plans to introduce a battery swapping policy for electric buses to cater to the growing demand.¹²⁶ Some studies have explored the challenges and opportunities for battery re-use and recycling in India.¹²⁷ In 2022, the country released a tender for the procurement of 5,580 electric buses to be deployed across five major cities, which will induce a major shift to electric buses.¹²⁸
- ▶ In addition to policy support, China has supported electric vehicles through targets for and investment in battery charging and swapping facilities, including for heavy-duty vehicles.¹²⁹ In 2021, China enacted several directives to promote the scaling of electric vehicle battery re-use and recycling.¹³⁰
- ▶ Nepal lifted its import duty on electric vehicles in 2021, resulting in the import of 1,103 electric cars in the six months from July 2021 to January 2022 (up from just 51 during the same period a year prior) and 1,922 electric motorcycles (up from 695).¹³¹
- ▶ In 2022, Cambodia began rolling out charging stations and reduced the import duty for electric vehicles from 30% to 10%.¹³²
- ▶ The Department of Transport of Hanoi (Viet Nam) approved a pilot phase for electric two-wheeler sharing, to facilitate easy travel to the city's bus rapid transit system.¹³³

As countries in Asia have focused on increasing their renewable energy capacity, the most common policy measure aimed at the use of renewables in transport continued to be biofuel blending mandates.

- ▶ **Three countries in the region - India, Indonesia and the Republic of Korea - increased their biofuel blending mandates in 2022.**¹³⁴

- ▶ Several Asian countries had biofuel blending mandates of 10% or above as of 2022, including China, India, Indonesia, and the Philippines, while other countries had lower blending mandates, such as Lao PDR, Thailand and Viet Nam.¹³⁵

Partnership in action



SLOCAT partners engaged in dozens of actions during 2020-2022, including:

- ▶ The Asian Development Bank launched the **Asian Transport Outlook (ATO)** in 2021 to strengthen knowledge on transport in the Asia and Pacific region.¹³⁶
- ▶ **Clean Air Asia** focuses on reducing air pollution and greenhouse gas emissions from transport and other sectors by translating research into policies and actions. Its projects and activities aim to strengthen regional and national policies and standards, enhance national and local frameworks for programmes and urban development, and increase access to information, tools and partners.¹³⁷
- ▶ In 2022, the **Council for Decarbonising Transport in Asia** released a flagship report that advocates a vision for complete decarbonisation of transport in Asia by mid-century.¹³⁸
- ▶ The **Global Climate Action Partnership (GCAP)** Asia regional platform – the Asia LEADS Partnership (ALP) – established a Leadership Group for Clean Transport in Asia (LG-CTA) in 2021. The membership-based group consists of policy and technical leads who are supported with multilateral activities, such as capacity building workshops, technical trainings, peer learning and study tours. The SLOCAT Partnership supports the Leadership Group as the strategic pillar of the implementing partners, along with the National Renewable Energy Laboratory and ICLEI–Local Governments for Sustainability South Asia.¹³⁹
- ▶ The **NDC Transport Initiative for Asia (NDC-TIA)** aims to facilitate a paradigm shift to zero-emission transport across Asia, supporting China, India and Vietnam to develop comprehensive decarbonisation strategies and solutions to implement them.¹⁴⁰ The SLOCAT Partnership supports the NDC-TIA as a member of its consortium and steering committee.
- ▶ In 2023, the **United Nations Centre for Regional Development** led and published the first ever mapping and overview of thematic and geographic scope of transport policy support activities carried out by international organisations in participating countries of the Regional EST Forum Asia. Mapping and activities include contributions from across the SLOCAT Partnership including but not limited to France’s Agence Française de Développement (AFD), Germany’s Agency for International Cooperation (GIZ), Volvo Research and Educational Foundations (VREF), the World Resources Institute and the World Bank Group.¹⁴¹
- ▶ The **United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)** launched the Asia-Pacific Initiative on Electric Mobility in 2022 to accelerate the transition to electric mobility in public transport, with the aim of reducing greenhouse gas emissions from the transport sector and supporting implementation of the Paris Agreement.¹⁴²



2.2 ASIA REGIONAL OVERVIEW

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