2.2

Transport Emissions

Key findings

Transport emission trends

- The transport sector was the fastest growing fossil fuel combustion sector worldwide from 2010 to 2019, with sectoral emissions rising 17.2% during this period. In absolute terms, transport (alongside "other industrial combustion") was the second highest emitting sector in 2019.
- Global transport emissions increased 1% in 2019, well below the 2% annual average growth rate for the decade.
- Between 2010 and 2019, transport carbon dioxide (CO_2) emissions grew 4% in member countries of the Organisation for Economic Co-operation and Development (OECD) and 34% in non-OECD countries.
- In 2019, transport CO_2 emissions fell more than 10% in some countries, but grew more than 5% in many countries, with growth exceeding 10% in some cases.

Transport emissions by mode and sub-sector

- In 2018, CO_2 emissions grew for all major transport modes and sub-sectors, except railways.
- Larger passenger vehicles – specifically sport utility vehicles (SUVs, including pickup trucks) – were the biggest driver of passenger transport emissions between 2010 and 2018, contributing 533 million tonnes of CO_2 during this period.
- Emissions from motorised two-wheelers accelerated; however, vehicle-level CO_2 emissions for two-wheelers are relatively low compared to larger vehicles.
- Ride-hailing services have increased rather than decreased CO_2 emissions in many regions and cities, resulting in an estimated 69% increase in climate pollution compared to the trips they displace, in part by increasing traffic congestion.
- Aviation emissions increased 32% between 2013 and 2018, exceeding projections for this period.
- Although freight transport accounted for only 5% of the vehicle fleet in 2017, it contributed 42% of total transport CO_2 emissions as well as disproportionately high levels of local air pollutants.
- Decarbonisation efforts have been slower for freight transport than for passenger transport, although some national and sub-national governments have increased funding commitments.
- As nearly zero emission modes of transport, walking and cycling contribute to Paris Agreement targets for reducing transport-related emissions, while moving 6-8 times more people per hour in the same space compared to higher-carbon, motorised personal vehicles.

Transport emissions and GDP growth

- Global gross domestic product (GDP) grew 2.9% annually on average between 2000 and 2019, while annual transport CO_2 emissions grew at a slower rate of 1.9% during 2000-2010 and 2.0% during 2010-2019; however, additional structural changes are needed to completely decouple economic growth and transport emissions.
- Since 2000, a strong decoupling of GDP and transport CO_2 emissions has been observed in OECD countries, with divergence beginning during the 2007 global financial crisis.
- Non-OECD countries have also experienced a decoupling of transport emissions and GDP growth, although at a lower intensity and a less rapid pace.

Transport energy intensity

- The energy intensity (total energy consumption per unit of GDP) of the transport sector continued to improve in 2018, decreasing 2.1% from the previous year, far faster than the 1.5% average annual decline for 2000-2017.
- The transport sector is 97% fossil fuel-powered and is the least diversified of all energy end-use sectors, remaining far from being fuelled primarily by renewable sources.
- As more electric vehicles enter the vehicle fleet, the carbon intensity of passenger transport has improved slightly.
- The carbon intensity of the shipping sector (CO_2 per deadweight tonne-nautical mile) improved 30% during the period from 2008 to 2018 – faster than the sector's stated target of 40% by 2030 – due to an increase in the average ship size.
- Between 2010 and 2018, the average carbon intensity of electricity generated globally improved 10%. As the market for electrified transport expands, it can leverage these cleaner grids to reduce overall transport emissions.

Other climate-related transport impacts

- As of June 2019, some 39 countries had adopted "soot-free" standards for heavier vehicles, helping to reduce black carbon emissions.
- A decoupling of economic growth and black carbon emissions for heavy-duty vehicles is under way, and accelerating this shift would result in an estimated USD 1 trillion in societal savings.

Impacts of the COVID-19 pandemic

- In 2020, global transport CO_2 emissions dropped 19.4% below 2019 levels due to the pandemic, the biggest decrease of any sector; however, this decline is projected to be short-lived.
- The USA saw the strongest decline in ground transport CO_2 emissions in 2020, down 24% from 2019 levels, followed by Brazil (down 15.3%).
- The impact of the COVID-19 pandemic on both GDP and transport CO_2 emissions may result in an equal or stronger decoupling of economic growth and emissions than seen in recent years.

Overview

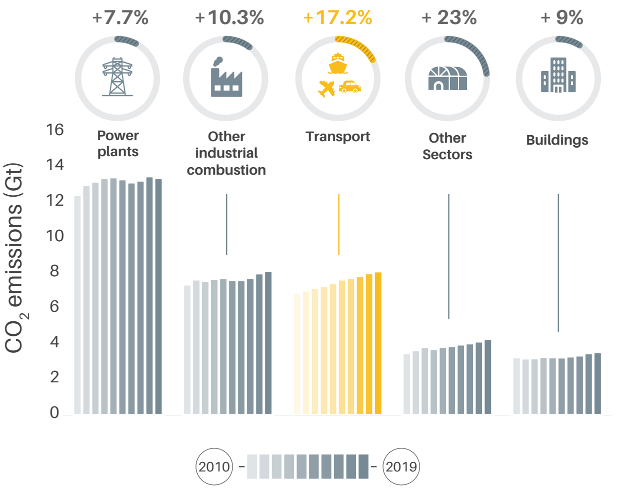
Rising global demand for mobility and goods has had a direct impact on emissions in the transport sector. Between 2010 and 2019, transport emissions grew in most countries, with higher growth recorded in developing countries. Strong emission increases occurred in road transport, driven by growing use of larger vehicles. Emissions from passenger aviation rose significantly before diving sharply in 2020 due to the COVID-19 pandemic, and shipping emissions experienced even more dramatic declines.

Efforts to decarbonise passenger transport outpaced action in freight transport, although some progress occurred on the latter. The decoupling of transport CO_2 emissions from GDP growth gained momentum – along with improvements in the energy intensity of transport – reflecting greater gains in developed countries. Reductions in black carbon yielded benefits for both transport emissions and local air quality. Although COVID-19 brought a temporary dip in transport emissions, this trend is projected to be short-lived (*see Box 1*).[1]

Transport emission trends

The transport sector was the fastest growing fossil fuel combustion sector worldwide from 2010 to 2019, with sectoral emissions rising 17.2% during this period (*see Figure 1*).[2] In absolute terms, transport (alongside "other industrial combustion") was the second highest emitting sector in 2019.[3]

Figure 1. Global CO_2 emissions by sector, 2010-2019



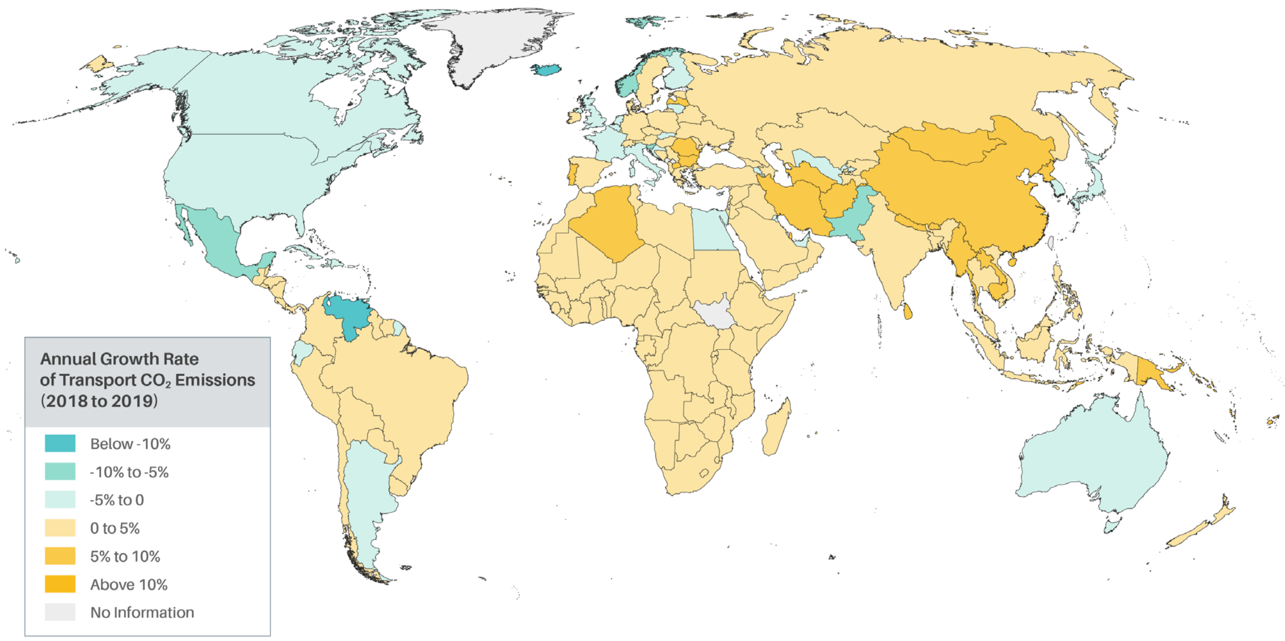
Source: See endnote 2 for this section.

Global transport emissions increased 1% in 2019, well below the 2% annual average growth rate for the decade.[4] As a whole, OECD countries and non-OECD countries contribute roughly equal shares of transport CO_2 emissions (similar to the split of global GDP).[5] However, this balance is likely to shift as the demand for transport grows in developing countries.

Between 2010 and 2019, transport CO_2 emissions grew 4% in OECD member countries and 34% in non-OECD countries.[6] The biggest emitters in 2019 were the **US** (1,788 million tonnes of CO_2), **China** (986 million tonnes), **India** (306 million tonnes), the **Russian Federation** (247 million tonnes), **Japan** (187 million tonnes) and **Brazil** (181 million tonnes).[7]

In 2019, transport CO_2 emissions fell more than 10% in some countries, but grew more than 5% in many countries, with growth exceeding 10% in some cases.[8] Globally, most countries experienced 1% to 5% growth in their transport emissions that year (*see Figure 2*).[9] Emissions fell more than 10% in **Iceland**, **Pakistan** and **Venezuela** (the latter an outlier due to economic and political factors).[10] Meanwhile, they grew 5% to 10% in many countries in **Asia** and **Oceania** (for example, **Brunei**, **China**, **Fiji**, **Iran** and **Sri Lanka**), and more than 10% in **Latvia**.[11]

Figure 2. Annual growth in transport CO_2 emissions, 2018-2019



Source: See endnote 9 for this section.

Transport emissions by mode and sub-sector

In 2018, CO_2 emissions grew for all major transport modes and sub-sectors, except railways. The emission growth was led by road freight (1.3% annual growth) and aviation (0.5%).[12] Despite recent efficiency gains, emissions from **passenger transport** increased as more people travelled by car and especially by aviation, both of which are high-emitting modes. As people move increasingly to cities, a decoupling of emissions from economic growth could occur as public transport networks develop in tandem with urban growth; however, this is not a given because urbanisation can lead to sprawl and congestion if not soundly managed.

Larger passenger vehicles – specifically SUVs (including pickup trucks) – were the biggest driver of passenger transport emissions between 2010 and 2018, contributing 533 million tonnes of CO_2 during this period.[13] The share of SUVs in passenger car sales increased from 17% in 2010 to 41% in 2019 (*see Figure 3*).[14] In some countries, the way that trucks and larger passenger cars are classified has undermined emission reduction efforts. For example, **Thailand**, despite a promising carbon-based excise tax on personal cars, gives preferential tax treatment to pickup trucks, which now account for more than half of all vehicles in the country.[15] Another factor influencing the preference for SUVs globally is that many of them use diesel fuel, which was around 7% cheaper than petrol on average as of 2018.[16]

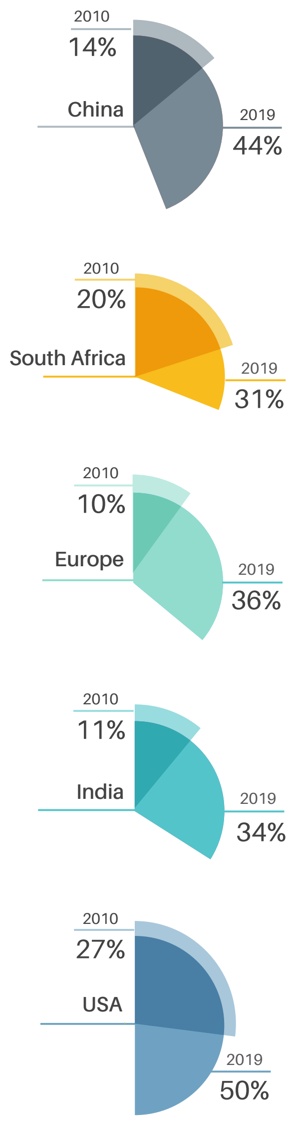
Emissions from motorised two-wheelers accelerated; however, vehicle-level CO_2 emissions for two-wheelers are relatively low compared to larger vehicles.[17] In **Vietnam**, a transition from conventional to electric motorcycles was seen as having the largest potential to mitigate emissions by 2030.[18]

Ride-hailing services have increased rather than decreased CO_2 emissions in many regions and cities, resulting in an estimated 69% increase in climate pollution compared to the trips they displace, in part by increasing traffic congestion.[19] This has been demonstrated in **Europe**, **India** and the **USA** as well as in cities such as **Bangkok**, **Cairo**, **Lagos** and **Manila**.[20] Ride-hailing has not produced the expected emission reductions because the distances that drivers travel to pick up customers offset the emission advantages of carrying multiple customers.[21] Unlike taxi fleets, which in some cases are shifting to electric or other low-emission vehicles, ridesharing fleets generally comprise newer internal combustion engine vehicles, which may provide only minor emission benefits because of their greater fuel efficiency.[22]

Aviation emissions increased 32% between 2013 and 2018, exceeding projections for this period.[23] Aviation is considered the hardest transport mode to decarbonise. Although electrification has made some headway for lighter aircraft, biofuels remain the most prevalent alternative energy source in aviation.[24] As new production came online, biofuel production capacity for aviation increased significantly in 2020.[25] However, biofuels face challenges with resource limitations and carbon neutrality, and are more expensive than jet fuel, which has no carbon price and is generally untaxed.[26]

Biofuels will likely struggle to compete in the aviation sub-sector until the policy environment changes. To make up for rising emissions from air travel, the International Air Transport Association has aimed for a 1.5% annual improvement in aviation fuel efficiency starting in 2020 (so-called carbon-neutral growth).[27] (*See Section 3.10: Aviation for more policy examples.*)

Figure 3. Share of SUVs in annual passenger car sales in selected countries and regions, 2010 and 2019



Source: See endnote 14 for this section.

Although freight transport accounted for only 5% of the vehicle fleet in 2017, it contributed 42% of total transport CO2 emissions as well as disproportionately high levels of local air pollutants.[28] The decarbonisation of freight has made some headway within metropolitan areas, including through more-efficient logistics operations and the electrification of delivery vans; however, on an inter-city level there has been little progress.

Decarbonisation efforts have been slower for freight transport than for passenger transport, although some national and sub-national governments have increased funding commitments.[29] The **Nordic region** stands out in its efforts to decarbonise freight, for example by taxing CO_2 and nitrogen oxides and setting long-term targets, even as regional GDP and freight activity have continued to grow.[30] In the USA, the state of **California** allocated USD 73 million for "freight demonstrations" and "advanced freight and fleet technologies" during 2018-2019.[31] For maritime freight, "cold ironing", or the electrification of ports, is a strategy for reducing both CO_2 emissions and local air pollution.[32] *(See Section 3.11: Shipping for more policy examples.)*

As nearly zero emission modes of transport, walking and cycling contribute to Paris Agreement targets for reducing transport-related emissions, while moving 6-8 times more people per hour in the same space compared to higher-carbon, motorised personal vehicles.[33] In some compact cities, walking and public transport account for up to 90% of trips, and cycling for nearly 50% of trips.[34] These modes have high potential to reduce emissions by replacing short car trips and lowering dependance on personal vehicles.

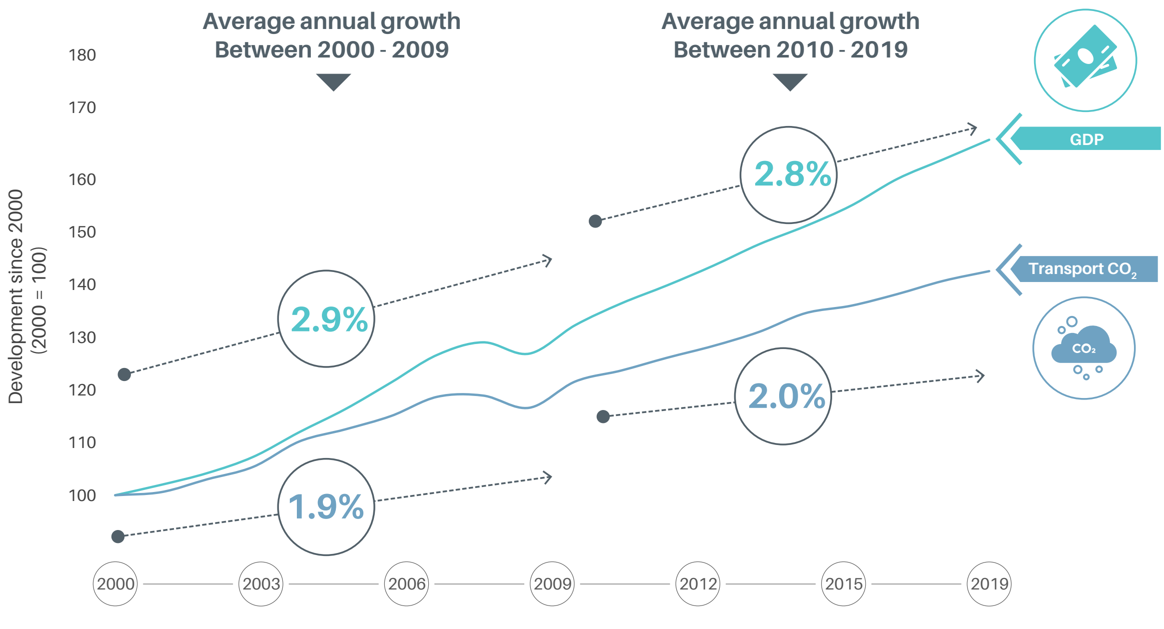
Transport emissions and GDP growth

Global population and economic growth have led to increases in both transport energy use and related CO_2 emissions (up 19% and 17%, respectively, between 2010 and 2019) (*see Figure 1 in Section 2.1*).[35] However, in the developed world, transport-related emissions have decoupled from economic growth. This may be because as more people live in cities, where average travel distances are shorter and there are more options for mobility (including public transport, cycling and walking), emissions per capita may decline.[36] Decarbonising cities remains an urgent challenge: although they account for 50% of the world's population and for 3% of the total land area, they represent 70% of total greenhouse gas emissions.[37]

Global GDP grew 2.9% annually on average between 2000 and 2019, while annual transport CO_2 emissions grew at a slower rate of 1.9% during 2000-2010 and 2.0% during 2010-2019; however, additional structural changes are needed to completely decouple economic growth and transport emissions (*see Figure 4*).[38] This decoupling was likely stronger during the former decade because of the effects of the 2007-2008 global financial crisis. The impact of the pandemic in reducing 2020 emissions may result in an equal or stronger decoupling.

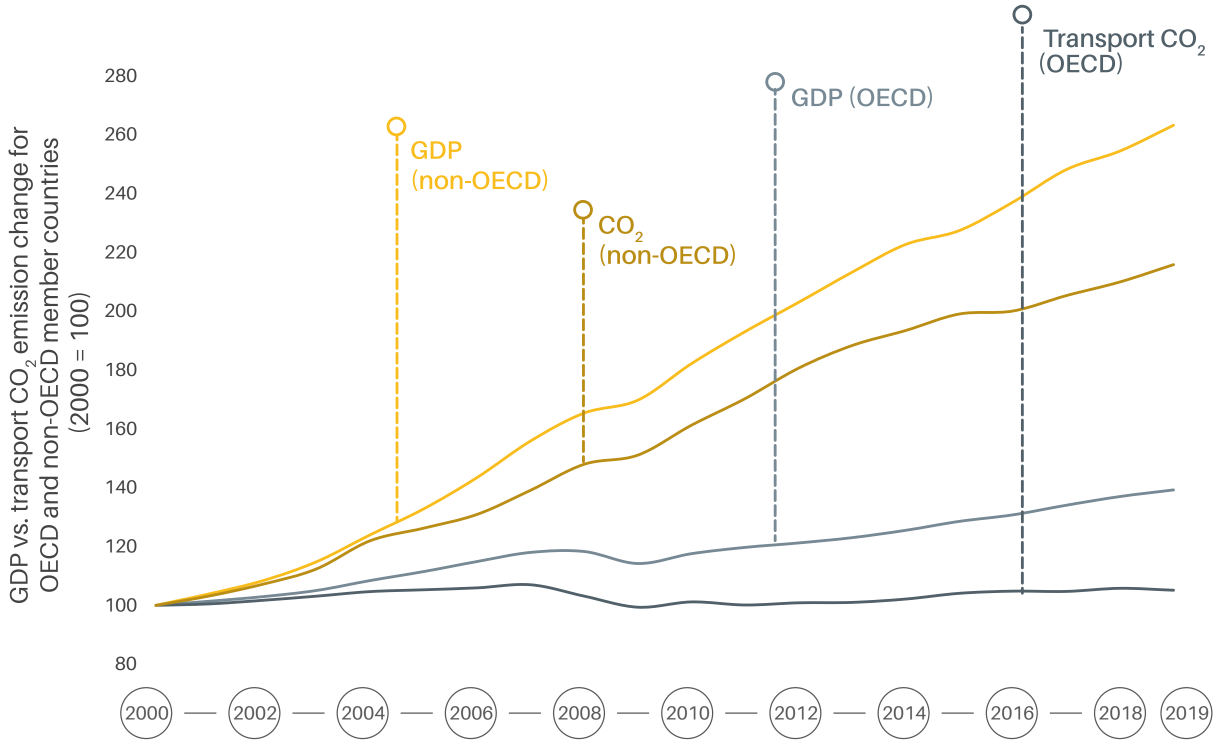
Since 2000, a strong decoupling of GDP and transport CO_2 emissions has been observed in OECD countries, with divergence beginning during the 2007 global financial crisis (*see Figure 5*).[39] Even starker decoupling has occurred in the **EU-27**, where the

Figure 4. Decoupling of transport CO_2 emissions and GDP, 2000-2019



Source: See endnote 38 for this section.

Figure 5. Change in GDP and transport CO_2 emissions in OECD and non-OECD countries, 2000-2018



Source: See endnote 39 for this section.

emission intensity of the economy declined by half between 1990 and 2018, and total transport emissions have held steady since 2017.[40] In 2019, emissions (of all types) regulated under the EU's carbon market dropped nearly 9% from the previous year.[41] Achieving the EU's goal for climate neutrality by 2050 will require drastic cuts in transport CO_2 emissions.[42]

Non-OECD countries have also experienced a decoupling of transport emissions and GDP growth, although at a lower intensity and a less rapid pace.[43] GDP in these countries grew on average 1.3% faster than transport CO_2 emissions from 2000 to 2010, although this margin dropped to 0.9% from 2010 to 2019.[44] Between 2005 and 2007, annual GDP growth in non-OECD countries was twice as high as annual growth in transport CO_2 emissions.[45]

Transport energy intensity

The energy intensity (total energy consumption per unit of GDP) of the transport sector continued to improve in 2018, decreasing 2.1% from the previous year, far faster than the 1.5% average annual decline for 2000-2017.[46] However, this rate of improvement falls short of the International Energy Agency's (IEA) target of a 3.2% annual decrease from 2020 to 2030.[47]

Major policies have been enacted in recent years to reduce the energy intensity of passenger car transport (*see Section 3.7: Fuel Economy*), but so far this has not resulted in absolute reductions in transport CO_2 emissions.[48] The IEA notes that freight energy intensity is not improving fast enough, and to achieve larger gains, urban freight needs to electrify.[49] For long-haul shipping, energy intensity will have to improve through goods consolidation, the use of alternative fuels, and gains in systems efficiency, and not necessarily through electrification, which is less suited for maritime transport.

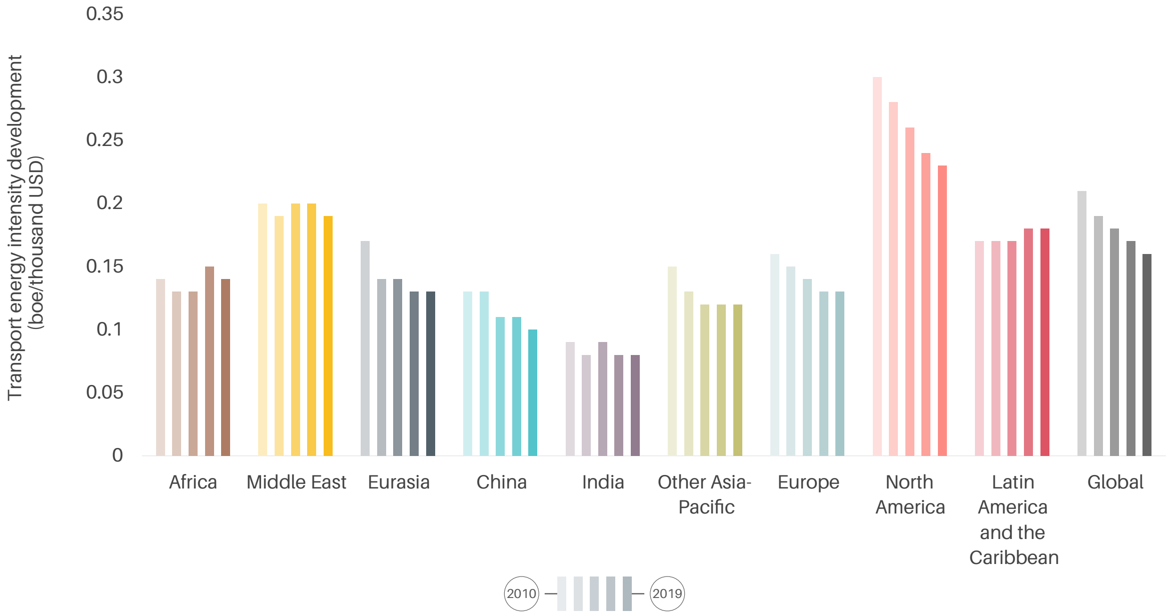
Energy intensity by region and country

Globally, the energy intensity of transport improved steadily between 2000 and 2019 (*see Figure 6*), although the rate of improvement has slowed in some regions, including in **Asia and the Pacific**, **Eurasia** and **Europe**.[50] Transport energy intensity increased in **Latin America and the Caribbean** due to low fuel economy standards.

At a national level, transport energy intensity improved nearly 20% in Japan and nearly 10% in Australia between 2000 and 2017 (*see Figure 7*).[51] However, the rate of improvement continues to lag behind the necessary ambition for alignment to the targets of the Paris Agreement.

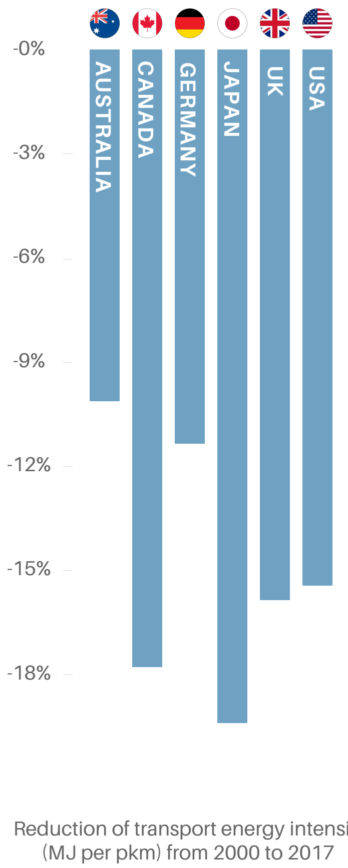
The transport sector is 97% fossil fuel-powered and is the least diversified of all energy end-use sectors, remaining far from being fuelled primarily by renewable sources.[52] Biofuels accounted for 90% of renewable energy use in the transport sector in 2017, a share that has not changed dramatically since 2000.[53] However, the absolute growth in oil products (including petrol and diesel) in the final energy consumption of transport has slowed, dropping to 15% for 2010-2017, down from 38% for 2000-2017.[54]

Figure 6. Transport energy intensity by region and country, 2010-2019



Source: See endnote 50 for this section.

Figure 7. Improvement of transport energy intensity in selected countries, 2000-2017



Source: See endnote 51 for this section.

As more electric vehicles enter the vehicle fleet, the carbon intensity of passenger transport has improved slightly.[55] On average, a battery electric car emits 60% less greenhouse gas emissions per kilometre than a petrol-powered car.[56] Passenger electric cars represented 2.6% of new vehicle sales in 2019 and accounted for just over 1% of the total global vehicle stock.[57] A larger shift has occurred towards the electrification of **buses**, mainly in **China**, which was home to more than 400,000 electric buses, or 99% of the world's e-bus fleet, in 2020.[58] **China** has also electrified most of its powered **two-wheelers**, for a total of around 250 million electric two-wheelers in 2020.[59]

The carbon intensity of the shipping sector (CO_2 per deadweight tonne-nautical mile) improved 30% during the period from 2008 to 2018 – faster than the sector's stated target of 40% by 2030 – due to an increase in the average ship size.[60] As a result, there have been recent calls for the International Maritime Organization to set a more ambitious target.[61] (*See Section 3.11: Shipping.*)

Between 2010 and 2018, the average carbon intensity of electricity generated globally improved 10%. As the market for electrified transport expands, it can leverage these cleaner grids to reduce overall transport emissions.[62] In 2018, renewable energy – mainly hydropower, wind and solar – accounted for just over a quarter (26.2%) of the world's power generation capacity.[63] Transport, which is still highly dependent on fossil fuels, will benefit from the clean energy grid in the transition to electrified mobility and other alternative fuels.

Other climate-related transport impacts

National and local efforts to decrease particulate matter and improve urban air quality often also result in reductions in greenhouse gas emissions. In addition to greenhouse gases (CO_2, methane, nitrous oxide), major transport pollutants include volatile organic compounds (VOCs), sulphur dioxide, carbon monoxide, F-gases, non-absorbing aerosols and black carbon. In **Germany**, sustainable transport measures such as speed limits led to a halving of the number of cities with poor air quality in 2019 compared to the previous year.[64] To improve air quality in **India**, electric buses have been deployed in 64 cities (including **Kolkata**) through the Faster Adoption and Manufacturing of Electric & Hybrid Vehicles (FAME) II scheme.[65]

As of June 2019, some 39 countries had adopted "soot-free" standards for heavier vehicles, helping to reduce black carbon emissions.[66] Black carbon, a by-product of incomplete combustion in the transport sector, is often produced in diesel buses, motorcycles, and ships, especially ones that are older or poorly maintained. A variety of options exist to decrease black carbon emissions from land transport (for example, upgrading bus fleets) and from the maritime sector (*see Section 3.11: Shipping for specific policy examples*).[67]

A decoupling of economic growth and black carbon emissions for heavy-duty vehicles is under way, and accelerating this shift would result in an estimated USD 1 trillion in societal savings.[68]

Box 1. COVID-19 impacts on transport emissions

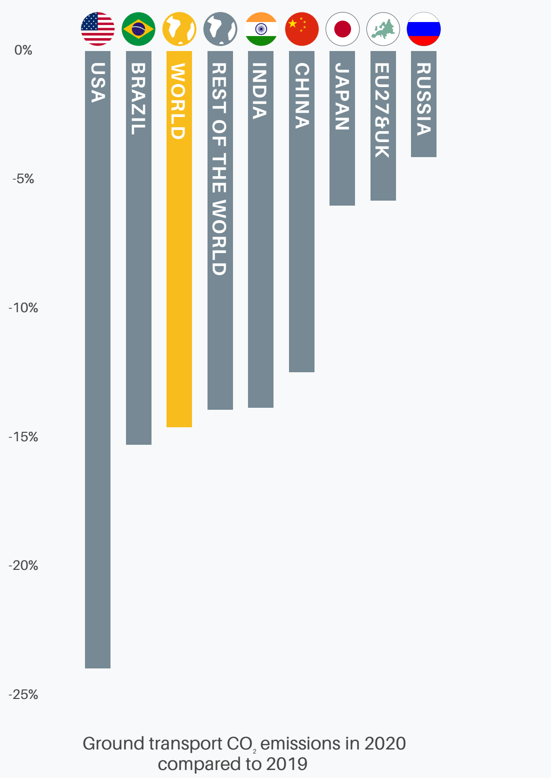
In 2020, global transport CO2 emissions dropped 19.4% below 2019 levels due to the pandemic, the biggest decrease of any sector; however, this decline is projected to be short-lived. CO_2 emissions from ground transport (road and railways) fell an estimated 14.6%, from domestic aviation 31.9%, from international aviation 56.4% and from international shipping 25%. Overall, energy-related CO_2 emissions in all economic sectors dropped an estimated 5.4% for the year, the largest recorded decline in CO_2 emissions in modern history.

The USA saw the strongest decline in ground transport CO_2 emissions in 2020, down 24% from 2019 levels, followed by Brazil (down 15.3%) (*see Figure 8*). China and India experienced declines of 12.5% and 13.8%, respectively. In the aviation sector, Europe released an estimated 48% fewer CO_2 emissions compared to 2019.

The impact of the COVID-19 pandemic on both GDP and transport CO_2 emissions may result in an equal or stronger decoupling of economic growth and emissions than seen in recent years. The ongoing decline in oil demand became a freefall in 2020 as the pandemic affected not only oil demand but also prices.

Source: See endnote 1 for this section.

Figure 8. CO_2 emissions from ground transport, by country, 2020



Annex: Methodological Note

Data usage

Time period for data:
The report strives to utilise the most recent publicly available data and information just prior to the time of publication (as of 31 May 2021). The figures in the report were developed between September and December 2020 using the most recent data available.

Secondary data:
SLOCAT relies on secondary data and information collected and provided by SLOCAT partners and other entities and does not make use of any internal modelling tools.

Data on sustainable mobility: A call to action

The report benefits directly from data collected by a wide range of stakeholders working in different areas of transport.

Data are important for providing a comprehensive picture of the status of sustainable, low carbon transport and are essential for both policy and investment decision making. In these times of change, it is critical to upgrade data and policy collection and interpretation capacities to better understand progress and the hurdles that must be addressed.

The data limitations mentioned below are not new. Obtaining regular, reliable and public data across regions and transport modes remains an outstanding issue. When an increasing number of stakeholders are collecting data and policy information, more and better open-access data and capacity building efforts for data interpretation are supported by many multi-stakeholder partnerships in the sustainable, low carbon movement.

If you share our passion for open-access data and knowledge towards greater impact on policy and investment decision making worldwide and/or would like to contribute data or knowledge to our collective efforts on this report, **please reach out to the research team in the SLOCAT Secretariat at tcc-gsr@slocatpartnership.org**.

Specific data used in this report

Data on emissions

The data in this edition of the report point to the direct carbon emissions from transport activity; they do not cover the indirect emissions and land-use impacts associated with certain modes of transport. The report primarily utilises CO_2 emission data compiled in the Emissions Database for Global Atmospheric Research (EDGAR) from the Joint Research Centre of the European Commission, as this represents the most recent, comprehensive dataset on transport CO_2 emissions. However, this global dataset does not convey in full detail the unique situations of individual countries.

EDGAR provides estimates for fossil CO_2 emissions from all anthropogenic activities with the exception of land use, land-use change, forestry and the large-scale burning of biomass. The main activities covered are CO_2 emissions emitted by the power sector (i.e., power and heat genertion plants), by other industrial combustion (i.e., combustion for industrial manufacturing and fuel production) and by buildings and other activities such as industrial process emissions, agricultural soils and waste. Transport activities covered within EDGAR include road transport, non-road transport, domestic aviation, and inland waterways on a country level, as well as international aviation and shipping.[1]

For the world, regions and countries, the CO_2 emission data (provided by EDGAR) span through 2019. In a few places in the report, CO_2 data for 2020 are shown to illustrate the impact of the COVID-19 pandemic; however, these data are based on a different methodology than the EDGAR dataset and should not be compared directly with the data from previous years.

The latest CO_2 emission data for individual transport modes are for 2018 and have been compiled only at the global level. For passenger and freight transport, the data on global CO_2 emissions are for 2017, as this is the latest year with robust data. Data on passenger activity (passenger-kilometres) and freight activity (tonne-kilometres) – provided mainly in the country fact sheets – are based on the latest available year, as indicated in the report analysis.

Information on greenhouse gas emissions – provided in CO_2 equivalent (CO_{2eq}) – include not only CO_2 but also methane, nitrous oxide, and industrial gases such as hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride and nitrogen trifluoride.[2] These data are less up-to-date. As of 31 May 2021, data on greenhouse gas emissions were not readily available for the period 2019-2020. In some cases, additional data sources were used to provide detailed information about other climate pollutants besides CO_2.

All data on CO_2 and other greenhouse gas emissions, as well as CO_{2eq}, are provided in metric tonnes.

Data on car ownership

Information on car ownership rates is based on a global dataset from the International Organization of Motor Vehicle Manufacturers (OICA), with the latest release (as of 31 May 2021) dating from 2015.[3] Although newer information is available for some individual countries, using these data would hinder accurate global comparisons. Data on passenger and commercial vehicle sales were available only up to 2019.

Policy landscape data

The policy-related information presented in this report is not intended to be comprehensive. The data for the policy landscape indicators provided in Section 3 were gathered through desk research unless otherwise indicated. Barriers to accessing such information include language and limited availability of information through online media (e.g., websites, press releases and news articles).

Data in country fact sheets

Information in the fact sheets is based on desk research and on contributions from the national focal points. The data were collected to the best of the authors' knowledge and based on data availability, and thus may not be complete or show the most recent status. When no information was available for a given indicator, the term "Not available" is used.

Data gaps

Major data gaps exist in areas where there is no globally accepted data collection methodology. For example, the mapping of cycling and walking infrastructure is not currently done in all regions. Also, the modal share can be surveyed through different methods, leading to inconsistencies in available data. In addition, data on paratransit (informal transport), a predominant form of transport in many parts of the world, are largely lacking. This results in an incomplete picture of the impact of transport on climate change and sustainable development.

Methodological approach

Countries and regions

The report follows the M49 Standard of the United Nations Statistics Division.[4] In total, 196 countries have official United Nations membership and are also party to the United Nations Framework Convention on Climate Change. The available data have been put in a common structure for the United Nations member countries, regions and income groups to enable a consistent assessment. Income groups are based on the World Bank's classification of 2019.[5]

Economic calculations

The per capita and gross domestic product (GDP) calculations are based on the United Nations World Population Prospects 2019 and on World Bank GDP data using constant 2010 USD.[6]

Spatial and temporal scales

The geographic scale (global, national, city-level, etc.) as well as time scale (annual, monthly, daily) used in this report depends largely on the available dataset, as noted in the relevant figures and text. The detailed data forming the basis of the calculations and analysis are provided in the SLOCAT Transport Knowledge Base.[7]

Criteria for selection

The report covers policies, targets, emission reductions (achieved or envisioned) and market measures. To merit inclusion in the analysis, the policies, projects and trends must have been announced or completed between 2018 and 2020. Significant developments from January through May 2021 were included when deemed relevant, with the understanding that the next edition of the *Transport and Climate Change Global Status Report* will cover a period starting in 2021.

Pre- and post-COVID-19 pandemic trends

The year 2020 was pivotal for the world, and the COVID-19 pandemic has had substantial impacts on many of the transport trends monitored in this report. This edition attempts to differentiate between long-term trends and impacts due to the pandemic. To the extent possible, the analysis notes "pre-pandemic" (up to the end of 2019 or latest by February 2020) and "during pandemic" trends (starting in March 2020 until the end of 2020), as in some cases the pandemic led to reversals in long-term trends, at least for a specific period of time. In each section, a box describes the impacts that the pandemic has had on specific regions and sub-sectors.

Assembling the report

Global Strategy Team

This edition of the report was guided by a global strategy team consisting of 20 experts in the field who provided inputs over the span of six meetings between September 2019 and October 2020. Additionally, small group consultations were organised in February 2021, following the peer review process.

Authors and contributors

The report was collaboratively drafted by 22 authors and contributors from 16 organisations, led by the SLOCAT Secretariat. This includes additions and high-level inputs from the copy editor and from the special advisor who also co-authored the Executive Summary. Authors researched and compiled relevant facts and figures for the five sections of the report, including the Focus Features, with supporting review and inputs from several other organisations.

Peer review: A peer review process was carried out from 18 December 2020 to 20 January 2021 with 1,700 comments received from 74 reviewers. Each comment was individually reviewed by the SLOCAT Secretariat and considered in finalising the report.

National focal points: The report benefited from the contributions of voluntary national focal points, or experts from various regions and countries who have been essential to overcome language and information barriers. A public call for participation to provide information on policies and data resulted in several hundred initial registrations. Out of these registrations, 78 national focal points provided inputs through a first survey from 24 January to 3 February 2020; and through a second survey (focused on the country fact sheets) from 6 to 30 August 2020. All national focal points that contributed to the surveys are listed in the Acknowledgements.

Endnotes

2.2 Transport Emissions

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Annex: Methodological Note

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