1.2

Africa Regional Overview

Demographics

Population size:	Population growth:	Urban population share:	Urban population growth:	GDP per capita:	GDP growth:
1,338 million	+29%	44%	+44%	USD 1,969	+31%
(2020)	(2010-2020)	(2020)	(2010-2020)	(2019)	(2010-2019)

Sources: See endnote 1 for this section.

Key findings

Demand trends

- Motorised transport volumes in Africa are the lowest among world regions; however, car ownership rates are rising, with some countries experiencing growth of 250% or more between 2005 and 2015.
- Increased car ownership in Africa is driven largely by imports of used vehicles from other regions, which account for up to 95% of vehicle registrations in some African countries.
- The African region has seen a rapid increase in motorcycles, which are used as taxis in both urban and rural areas and transport 80% of passengers and goods on rural roads.
- More than one-third of all trips globally are made on foot or by bicycle; in some African cities, walking and cycling account for more than 70% of all personal trips.
- Africa has the highest rate of road fatalities, with nearly 40% of these deaths involving pedestrians and another 4% involving cyclists – together accounting for nearly half of the region's road fatalities.
- In some African cities, up to 80% of the population relies on paratransit (sometimes called "informal transport"), and some minibus taxi fleets have grown more than 5% annually.
- Freight transport in Africa faces significant infrastructure gaps, resulting in relatively low levels of intra-regional trade.

Emission trends

- Africa had the lowest transport CO_2 levels among all regions in 2019 (at 0.25 tonnes per capita), contributing only 5% of total global transport CO_2 emissions that year.
- Transport emissions in the region are growing rapidly from a low baseline. Africa's transport emissions increased 27% between 2010 and 2019, the second highest regional growth rate after Asia (41%).
- Only 15% of African countries exceeded global average per capita transport emissions during 2010-2019; however, nearly three-quarters of African countries reported above-average emission growth.

Policy measures

- Walking and cycling infrastructure improvements are expanding the options for safe, low carbon mobility, accounting for up to 20% of overall transport budgets in some African cities.
- Broader adoption of sustainable urban mobility plans (SUMPs) reflects more comprehensive planning approaches; however, SUMPs in Africa trail other regions relative to population share.
- Despite recent improvements, only 35% of residents in Sub-Saharan Africa live within 500 metres of access to public transport, the lowest rate in the world and well below the global average of 49%.
- Enhancements to paratransit services – including increased regulation, fleet renewals and digital technologies – are increasing access to mobility across Africa.
- Actions aimed at regulating vehicle and fuel quality standards are increasing and include bans on used vehicle imports as well as national and regional fuel economy roadmaps.

Impacts of the COVID-19 pandemic

- Paratransit services have been particularly vulnerable to the COVID-19 pandemic, due to travel restrictions, reduced capacities and rising costs.
- A number of African cities have expanded walking and cycling measures in response to COVID-19 to allow for physical distancing while commuting and recreating.

Overview

Rapid urbanisation trends in Africa continued in 2019 and 2020, and the region's megacities (many in **West Africa**) are expected to represent all of the world's 10 fastest growing cities (and 21 of the top 30) from 2018 to 2035.[2] Car ownership has remained low by global standards, with only 38 cars per 1,000 people in 2015, but is rising rapidly in many countries including **Ghana, Madagascar** and **Tanzania** *(see Figures 1 and 2)*.[3] African populations rely heavily on imported used vehicles and on paratransit as a primary source of mobility *(see Focus Feature 6: Paratransit as a Complement to Formal Transport Networks)*.[4]

Historically, regional transport investments have been focused mainly on developing infrastructure for private vehicles, although most of the African population does not have access to this form of transport. Walking is a dominant mode of travel in the region, but fewer resources have been allocated to pedestrian and cycling infrastructure, exacerbating issues of social inequity and access to transport.[5] Overall, a lack of robust data on urban and rural transport in Africa makes quantifying trends and calculating emissions difficult, although efforts are being made to fill in critical data and information gaps.[6] The COVID-19 pandemic has created additional challenges for transport systems in Africa *(see Box 1)*.[7]

Demand trends

Motorised transport volumes in Africa are the lowest among world regions; however, car ownership rates are rising, with some countries experiencing growth of 250% or more between 2005 and 2015 *(see Figures 1 and 2)*.[8] Despite relatively low vehicle ownership, Africa has the world's highest mortality rate from road traffic accidents (at 32.2 deaths per 100,000 inhabitants), nearly three times that of Europe.[9] Africa (along with the Middle East) is an emerging hub for automobile manufacturing, led by several new plants being opened in recent years in Morocco.[10]

- **Morocco** has become Africa's leading auto manufacturer, producing 345,000 passenger vehicles in 2017 to surpass South Africa's total (331,000).[11] Morocco has also become a key supplier of parts for European auto factories and is expected to soon produce more cars annually than Italy.[12]
- **South Africa** is Africa's largest commercial vehicle market; however, the shift in demand for domestic and continental freight during the COVID-19 pandemic greatly impacted new commercial vehicle sales.[13]

New vehicle sales in Africa:

- **7% decrease** in total new vehicle sales (2010-2019)
- **5% decrease** in new passenger car sales (2010-2019)
- **841,000** new passenger cars sold (2019)
- **11% decrease** in new commercial vehicle sales (2010-2019)
- **302,000** new commercial vehicles sold (2019)

Sources: See endnote 14 for this section.

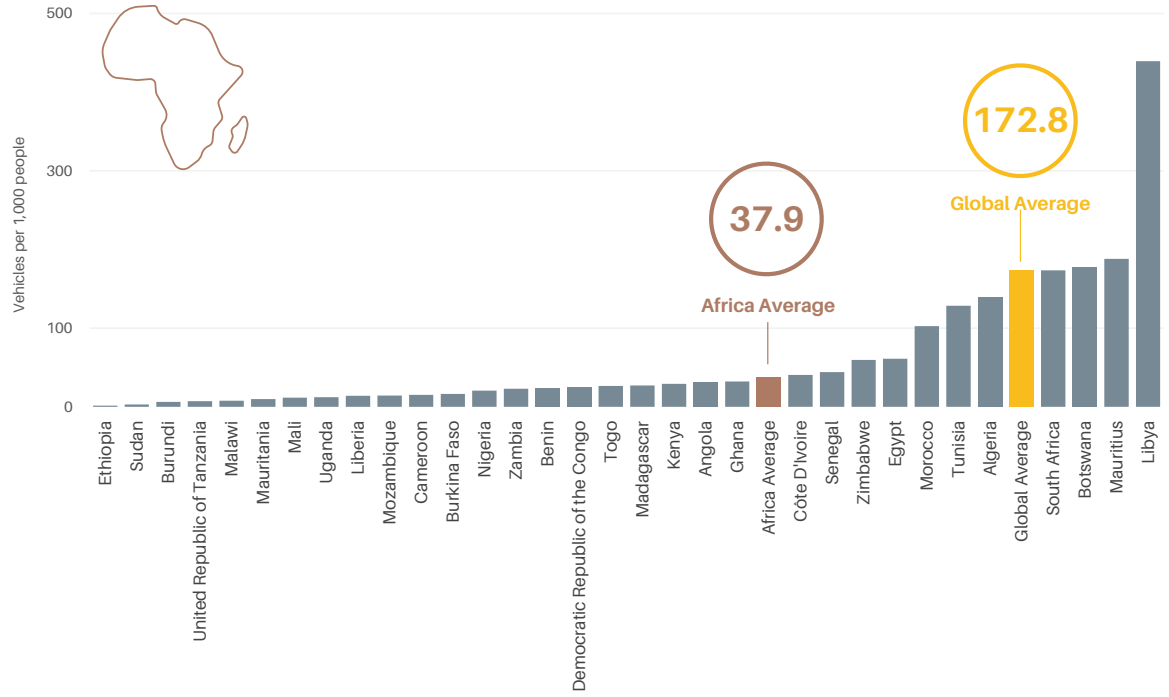
Increased car ownership in Africa is driven largely by imports of used vehicles from other regions, which account for up to 95% of vehicle registrations in some African countries.[15] Used car imports from Europe and Japan make up a large portion of light-duty vehicle fleets in many African countries.

- In **Kenya**, **Rwanda** and **Uganda**, up to 95% of vehicles being added to light-duty vehicle fleets are imported from Japan.[16]
- From 2017 to 2018, the **Netherlands** exported 35,000 light-duty vehicles to **Africa**, with roughly two-thirds of these going to Libya, Nigeria and Ghana.[17] More than 80% of the vehicles did not meet Euro 4 emission standards.[18]

The African region has seen a rapid increase in motorcycles, which are used as taxis in both urban and rural areas and transport 80% of passengers and goods on rural roads.[19]

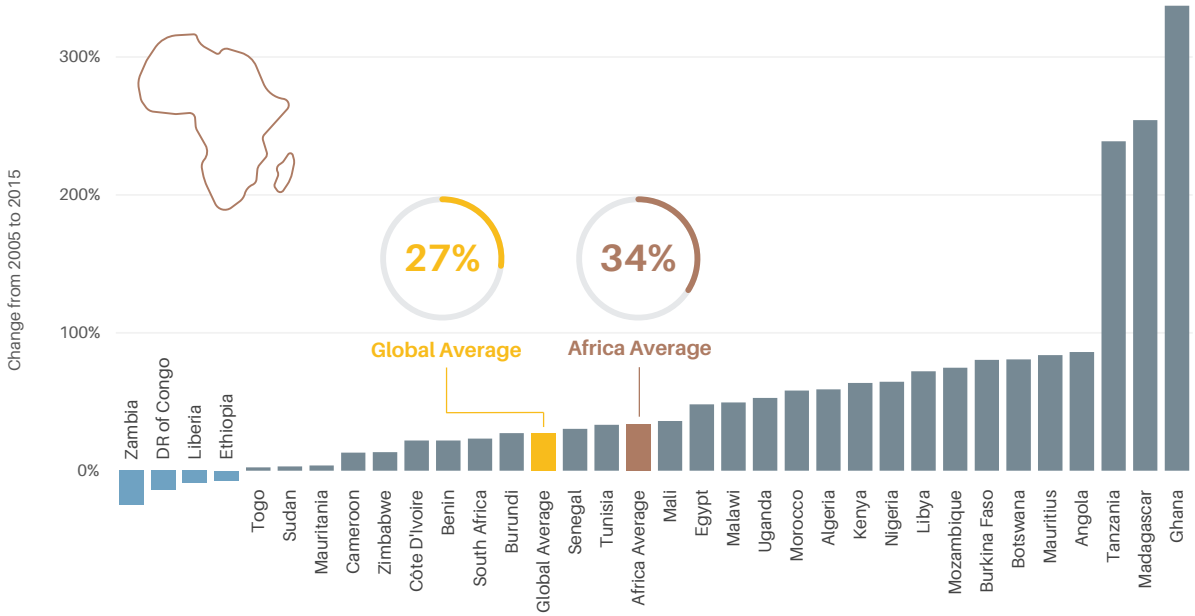
- The African two-wheeler market is predicted to grow 12% annually until 2025.[20]
- Motorcycle numbers in **Rwanda** increased 8.5% annually between 2004 and 2017.[21]

Figure 1. Car ownership rates per 1,000 people in Africa, 2015



Source: See endnote 3 for this section.

Figure 2. Growth in car ownership in Africa, 2005-2015



Source: See endnote 3 for this section.

More than one-third of all trips globally are made on foot or by bicycle; in some African cities, walking and cycling account for more than 70% of all personal trips.[22] However, more than 9 out of 10 of the streets in the region that are walked and cycled do not meet minimum levels of service.[23]

- African cities where pedestrian travel exceeds 30% of all trips include **Dar es Salaam**, Tanzania; **Kampala**, Uganda; **Nairobi**, Kenya; and **Quelimane**, Mozambique.[24]

Africa has the highest rate of road fatalities, with nearly 40% of these deaths involving pedestrians and another 4% involving cyclists – together accounting for nearly half of the region's road fatalities.[25] Globally, some vehicle manufacturers have begun implementing safety standards to protect people who are outside the vehicle, but these standards typically are targeted at high-income countries.[26]

- Traffic death rates generally go up as incomes decrease; in **Africa**, the fatality rate for middle-income countries is 23.6 per 100,000 but for low-income countries is 29.3 per 100,000.[27]
- Of the more than 90,000 walking and cycling deaths recorded in **Africa** in 2019, 93% involved pedestrians.[28]
- **Africa** is home to only 2% of the countries globally where drunk-driving laws meet best practices, compared to 60% in Europe.[29]

In some African cities, up to 80% of the population relies on paratransit, and some minibus taxi fleets have grown more than 5% annually.[30] Paratransit contributes to urban air pollution because the vehicles are often old and poorly maintained.[31] A lack of formal scheduling can lead to higher global emissions due to frequent start-and-stop patterns and rapid acceleration and deceleration cycles *(see Focus Feature 6: Paratransit as a Complement to Formal Transport Networks)*.[32]

- In **Kampala, Uganda**, a fleet of 16,000 private minibus taxis carried 82.6% of commuters in 2015, and this fleet has grown 5.4% annually in recent years.[33]
- Shares of minibus taxi use in **South Africa's** provinces reached 45.7% in Gauteng and 38.3% in the Eastern Cape and Mpumalanga in 2019.[34]
- Paratransit services directly employed around 100,000 people in **Kampala, Uganda** in 2015.[35]

Freight transport in Africa faces significant infrastructure gaps, resulting in relatively low levels of intra-regional trade.

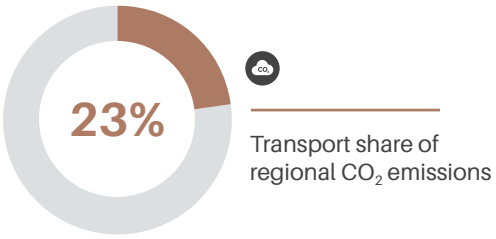
- Transport infrastructure in **South Africa** is rated on par with **India** and slightly better than **Indonesia**.[36] Many African countries face a continuing need for improvements in road, rail, air and port networks.[37]
- **Sub-Saharan Africa** scored 45 out of 100 points for regional infrastructure performance in the World Economic Forum's 2019 Global Competitiveness Report, down nearly three percentage points from 2018.[38]
- The quality of **Africa's** transport infrastructure declined 6% between 2015 and 2017, compared with a 7% average improvement in countries in the Association of Southeast Asian Nations (ASEAN) region.[39] During this period, only **Botswana** and **South Africa** narrowed transport infrastructure gaps relative to more advanced economies.[40]

Emission trends

Africa had the lowest transport CO_2 levels among all world regions in 2019 (at 0.25 tonnes per capita), contributing only 5% of total global transport CO_2 emissions that year.[41] This is due in part to the region's still large rural population share, whereas in urban areas transport emissions are growing rapidly.[42]

Regional CO_2 emissions

- Total transport CO_2 emissions (2019): **326.8 million tonnes**
- Share of global transport CO_2 emissions (2019): **5%**
- Per capita transport CO_2 emissions (2019): **0.25 tonnes**
- Transport CO_2 emissions per USD 10,000 GDP (2019): **1.31 tonnes**



Sources: See endnote 43 for this section.

Transport emissions in the region are growing rapidly from a low baseline. Africa's transport emissions increased 27% between 2010 and 2019, the second highest regional growth rate after Asia (41%).[44] The rise in emissions is driven by factors such as increasing urbanisation, growing demand for consumer goods, widespread import of inefficient used vehicles and a lack of fuel economy standards.

Only 15% of African countries exceeded global average per capita transport emissions during 2010-2019; however, nearly three-quarters of African countries reported above-average emission growth *(see Figures 3 and 4)*.[45] Trends in transport emissions ranged from 198% growth in Cabo Verde to a 16% decline in Djibouti.[46] Only 2 out of 53 African countries reduced transport emissions during the period.[47]

Policy measures

Africa has continued to experience high urbanisation rates and increasing pressure to accommodate economic activity and population growth. This has resulted in a growing need for sustainable mobility options. Improving access to low carbon transport in Africa will continue to depend on national and private actions, due to a general lack of regional co-operation enabling sustainable planning modes.

Given the relatively small share of investment in transport in Africa (only 5.6% of the region's foreign direct investment portfolio), the strongest

opportunities to improve sustainable transport are likely low-cost, innovative, sustainable transport approaches that focus on planning, regulation and small-scale information technology solutions.[48]

Transport policy measures enacted since 2018 include an increase in comprehensive transport planning, growing (but still insufficient) attention to walking and cycling, expansion of bus rapid transit systems, the integration of digital technologies in transport, and efforts to map and improve the routing of paratransit services. Additionally, public transport reforms in recent years contributed to making formalised transport more viable in several African cities.

Walking and cycling infrastructure improvements are expanding the options for safe, low carbon mobility, accounting for up to 20% of overall transport budgets in some African cities.[49] Walking is a dominant mode of transport in the region but receives little attention from dedicated infrastructure and policies, which continue to invest heavily in urban highways and flyovers. African cities have faced challenges in expanding cycling due to a lack of dedicated bicycle infrastructure; they also have a unique opportunity to maintain the share of pedestrian travel by improving the walkability of streets.

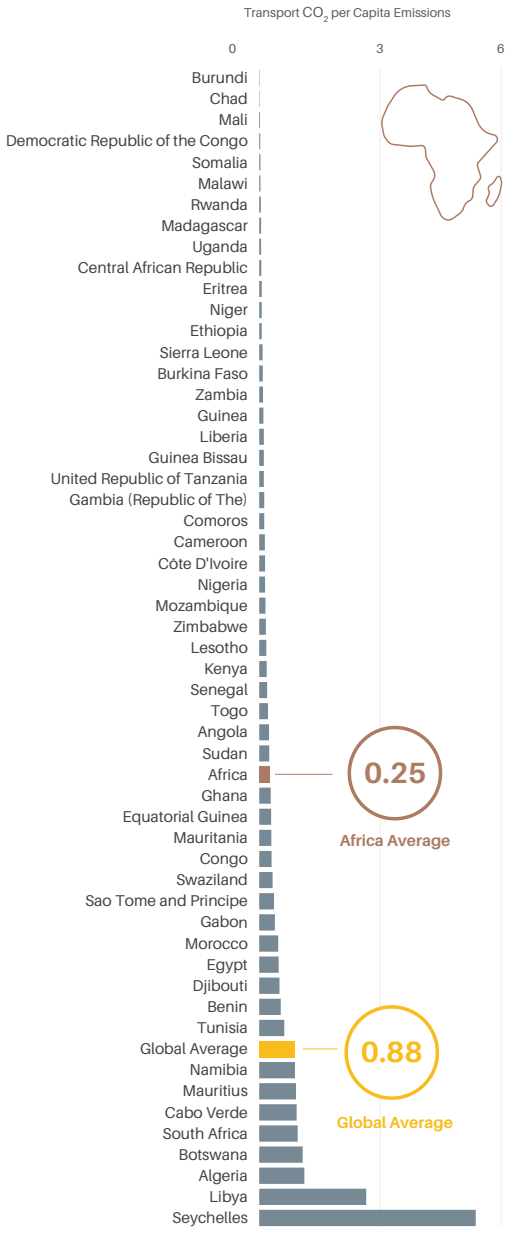
- Strategies to increase walking and cycling have been implemented in **Ethiopia**, **Kenya** (including Mombasa and Nairobi) and **Zambia**.[50] Nairobi has earmarked 20% of its transport budget towards development of these modes.[51]
- "Open Streets" events have become increasingly popular in several major cities, including Addis Ababa, **Ethiopia** and Kigali, **Rwanda**.[52] Since 2018, Menged Le Sew (Streets for People) has organised monthly car-free days in Addis Ababa and other **Ethiopian** cities.[53]
- Infrastructure improvements and Open Streets activities in Kampala, **Uganda** have been aimed at advancing the uptake of cycling.[54]

Broader adoption of sustainable urban mobility plans (SUMPs) reflects more comprehensive planning approaches; however, SUMPs in Africa continue to trail other regions relative to population share. Efforts have been made in several African countries to support more comprehensive transport planning that enables public transport, more walking and cycling, and improved paratransit services.

The increased focus on SUMPs and on national urban mobility plans (NUMPs) with wide-ranging transport options provides opportunities to address social inequalities through enhanced accessibility. It can also help maintain Africa's relatively low levels of transport CO_2 emissions, especially given rapid growth in the region's megacities. However, the increased adoption of NUMPs and SUMPs in Africa will only bring about emission reductions and improvements in mobility access if they are soundly implemented.

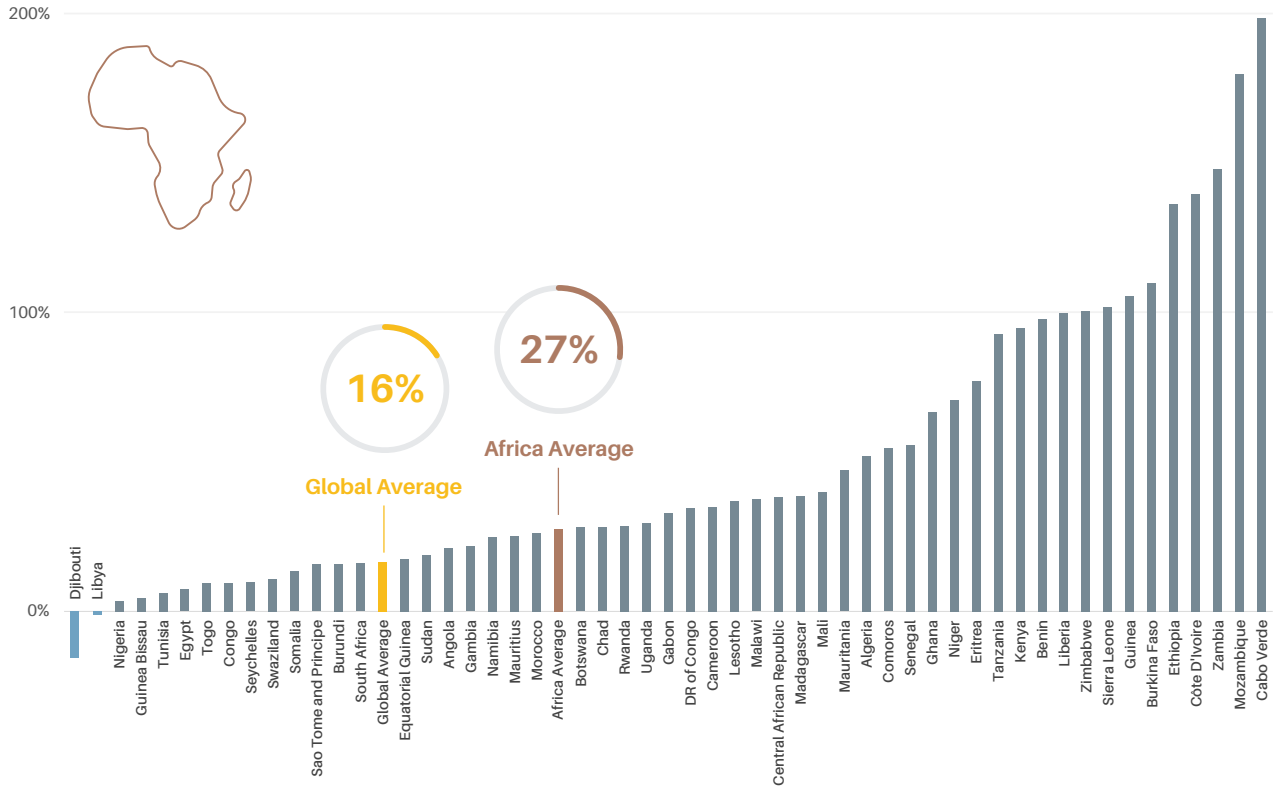
- Since 2018, **Burkina Faso**, **Cameroon** and **South Africa** have all adopted NUMPs.[55] At the local level, Douala and Yaounde (**Cameroon**) and Kisumu (**Kenya**) offer examples of advanced sustainable urban mobility planning.[56] The MobiliseYourCity Partnership is expected to provide ongoing support to cities in **Côte d'Ivoire**, **Ethiopia**, **Ghana**, **Morocco**, **Mozambique** and **Senegal**, among others.[57]
- Diagnostic studies on sustainable urban mobility were conducted in 2020 in **Benin**, **Burkina Faso**, **Côte d'Ivoire**, **Ethiopia**, **Ghana**, **Guinea**, **Kenya**, **Mali**, **Nigeria**, **Rwanda**, **Senegal** and **Togo**, facilitated by the Africa Transport Policy Program (SSATP).[58]

Figure 3. Per capita transport CO_2 emissions in Africa, 2019



Source: See endnote 45 for this section.

Figure 4. Change in transport CO_2 emissions in Africa, 2010-2019



Source: See endnote 45 for this section.

- In 2020, GoMetro and Ascendal initiated the **Africa Urban Mobility Observatory** to collect urban mobility data on 10 African cities, which can support the formulation of SUMPs and other sustainable transport policy measures; these cities are: **Addis Ababa** (Ethiopia), **Blantyre** (Malawi), **Dar es Salaam** (Tanzania), **Gaborone** (Botswana), **Johannesburg** (South Africa), **Kigali** (Rwanda), **Kinshasa** (Democratic Republic of the Congo), **Lagos** (Nigeria), **Maseru** (Lesotho) and **Mwanza** (Tanzania).[59]

Despite recent improvements, only 35% of residents in Sub-Saharan Africa live within 500 metres of access to public transport, the lowest rate in the world and well below the global average of 49%.[60] While bus rapid transit and light-rail systems are being launched or expanded in some African cities, greater investment is required to provide needed urban mobility options across the continent.

- **Abuja**, Nigeria inaugurated the country's first light-rail Phase 1 project in 2018, extending 24 kilometres from the city's central business district to the Murtala Mohammed International Airport.[61]
- **Lagos**, Nigeria inaugurated a 13.6-kilometre bus rapid transit extension in 2020 from Oshodi to Abule Egba, with 550 new buses.[62]
- In March 2020, **Dakar**, Senegal started building the first phase of its bus rapid transit system.[63] The first section of the city's Train Express Régional, a 55-kilometre commuter rail, was completed in 2019.[64]
- **Dar es Salaam**, Tanzania started implementing its second and third bus rapid transit lines in 2019, which aim to eventually cover 130 kilometres, and launched a smartphone app for trip planning on the system.[65]

Enhancements to paratransit services – including increased regulation, fleet renewals and digital technologies – are increasing access to mobility across Africa. The paratransit sector, comprising minibuses, taxis and motorcycles, has filled in the gap left by limited public transport options in African cities.[66] Improvements in the services have been pursued by civil society, company, government and non-governmental entities in many cities across the region (e.g., **Accra**, **Addis Ababa**, **Cairo**, **Dar es Salaam**, **Kampala**, **Kisumu**, **Lusaka** and **Mombasa**).[67] However, the challenge of quantifying the emissions from these services makes it difficult to evaluate policy impacts.[68]

- African cities have increasingly sought to improve the efficiency of paratransit through regulations (e.g., minibus taxi licencing in **Kampala**, Uganda), support for fleet renewal (e.g., in

Burkina Faso) and integration with formal public transport services *(see Focus Feature 6: Paratransit as a Complement to Formal Transport Networks)*.[69]

- App-based ride-hailing services have expanded quickly in many countries in the region (such as **Kenya** and **Nigeria**) and have pulled away ridership from traditional taxis and collective transport.[70]
- Digital technologies such as smart phone apps have improved paratransit mapping, route planning and user experience by increasing the predictability of service frequency and wait times; examples include the DAR City Navigator app in Dar es Salaam, **Tanzania**; the Google Maps paratransit feature in Lagos, **Nigeria**; and DigitalTransport4Africa mapping of public/paratransit services across **Africa**.[71]

Actions aimed at regulating vehicle and fuel quality standards are increasing and include bans on used vehicle imports as well as national and regional fuel economy roadmaps. Africa imports the largest share of used passenger cars (40%) of any region, and many of the vehicles have high fuel usage and CO_2 emissions and low safety conditions.[72] The lack of regulations in many African countries results in lower efficiency levels than in any other region.[73] Imports of vehicles that meet minimum emission standards in exporting markets can help lower the pollution impacts of road transport and improve human and environmental health.[74]

- African countries that have imposed total bans on used vehicle imports include **Egypt**, **Morocco**, **South Africa** and **Sudan**.[75]
- The first-ever regional fuel economy roadmap, introduced through the **Economic Community of West African States** (**ECOWAS**), aims to improve the average fuel economy in the 15 member countries 34% over 2015 levels by 2025, with an average target of 5 litres per 100 kilometres by that year.[76]
- **Namibia** and **Nigeria** are among the countries using fiscal measures or tougher fuel economy measures in an effort to reduce fuel consumption.[77]

Box 1. Impacts of the COVID-19 pandemic on transport in Africa

Major COVID-19 impacts:

- 53% decrease in trips to public transport stations (at lowest point in 2020 versus January 2020 average)
- 32% to 50% decline in freight transport activity (below 2019 levels)
- 60% decline in international aviation activity (below 2019 levels)
- 53% decline in domestic aviation (below 2019 levels)

Mobility in most African countries has been heavily impacted by COVID-19. **South Africa** experienced a significant drop in transport demand for several months in 2020. Whereas global public transport ridership levels dropped 60-80%, ridership in South Africa fell 78-100%.

In **Kenya**, the government halved the capacity of collective transport providers, causing transport costs to rise and leading 27% of transport users to travel less often, and 17% to be unable to travel. Whereas 62% of users shifted to walking as a primary means of transport, only 6% shifted to private vehicles.

In **Nigeria**, due to the drop in oil prices (to which the local currency is pegged), public transport fares increased 100% or more (and in some cases 200% or more for paratransit, which provides the majority of services).

Relief funds for increased transport services (including those that are less formal) have not been proportional to needs in many African countries. In **Cairo**, Egypt, the local government has supported bus companies by restructuring loan agreements and service fees to maintain the viability of public transport operations.

Paratransit services have been particularly vulnerable to the COVID-19 pandemic, due to travel restrictions, reduced capacities and rising costs.

- In **Kampala**, Uganda and elsewhere, travel restrictions and lockdowns led to a temporary halt of all boda boda and minibus services.
- In **Kinshasa**, Democratic Republic of the Congo, social distancing requirements for public and private transport decreased the number of passengers per vehicle, leading to higher fares, lower revenues and vehicle delays due to lack of resources.

A number of African cities expanded walking and cycling measures in response to COVID-19 to allow for physical distancing while commuting and recreating. COVID-19 has underscored the need for improved walking and cycling infrastructure, which are being implemented in cities such as **Addis Ababa** and **Kampala**.

- **Cape Town**, South Africa has constructed 17 kilometres of new walkways for pedestrians and cyclists.
- **Mombasa**, Kenya has converted a major road into a temporary pedestrian zone to minimise contact while reducing traffic volumes.
- **Nairobi**, Kenya has widened footpaths and sidewalks to promote walking as a response to the pandemic.

Source: See endnote 7 for this section.

In Practice: Additional Policy Responses

Avoid measures

Sustainable mobility planning

- **Burkina Faso** adopted a national urban mobility policy (NUMP) in 2020 that aims to improve governance in the urban mobility sector; improve safe and equitable access to essential service; promote development of public transport; and drive a shift from private motorised vehicles.[78]
- **Cameroon** enacted a NUMP in 2019 that in turn enabled the creation of sustainable urban mobility plans (SUMPs) in Douala and Yaounde.[79]
- Kenya's third largest city, **Kisumu**, introduced a SUMP in 2020 with 10-year goals, such as keeping the share of walking and cycling above 55% and lowering greenhouse gas emissions.[80]
- **South Africa** launched its Green Transport Strategy in 2018, with a time frame up to 2050 in support of national climate plans.[81]

Shift measures

Public transport

- **Kigali**, Rwanda completed full adoption of electronic fare collection on the city bus system, revolutionising local transport by allowing real-time updates of public transit routes; the city also launched the re-tendering of city bus services.[82]

Paratransit

- Civil society, non-governmental and governmental partners have documented existing paratransit routes in Accra, Addis Ababa, Cairo, Dar es Salaam, Kampala, Kisumu, Lusaka and Mombasa, among others.[83]
- **Burkina Faso** plans to regulate paratransit taxi services by 2025 by renewing fleets, increasing the share of drivers with health insurance and implementing a fare collection system in all vehicles.[84]
- By the end of 2019, the Digital Matatus project had mapped 140 routes for paratransit in **Nairobi, Kenya**, covering more than 3,000 kilometres and 4,000 stops.[85]
- Google officially launched its Maps feature for paratransit in **Lagos**, Nigeria in 2019.[86] In February 2020, the city enacted a ban on motorcycle-based ride-hailing due to safety concerns.[87]
- **Kampala, Uganda** launched a licencing programme for minibus taxis in June 2020 in an effort to better regulate the network and routes.[88]

Walking and cycling

- The African Road Safety Observatory was launched in 2018 to improve safety for road users in the region, which has the world's highest rate of road traffic fatalities at 26.6 deaths per 100,000 people.[89]
- **Ethiopia** launched a national Non-Motorised Transport Strategy in 2020, preceded by the **Addis Ababa** Non-Motorised Transport Strategy of 2019. The national strategy includes targets to increase the share of walking, cycling and public transport, reduce personal vehicle use, improve road safety and improve air quality over a 10-year period.[90]
- The "red carpet" project in **Mombasa**, Kenya expanded walkways in the city centre by nine kilometres.[91] In **Nairobi**, the first car-free day was held in the city centre in 2019, and the city has begun implementing its 2015 Non-Motorised Transport strategy.[92]

Improve measures

E-mobility

- **Egypt** started operating its first electric buses, with a fleet of 15 buses in **Alexandria** in 2018 and **Cairo** in 2019.[93]
- Kenya reduced excise duties on electric vehicles from 20% to 10% in 2019, while increasing fees for conventional vehicles.[94]
- In 2020, **Morocco** launched several hundred electric scooters in Marrakech and its first electric car charging station in Rabat.[95]
- In 2019, **Rwanda** announced a national mobility policy to replace all motorcycles with electric motorcycles, as well as plans to launch a national electric bike sharing system.[96]
- South Africa's uYilo eMobility Programme, which enables connectivity between electric vehicles and smart grid infrastructure, was named a UK PACT implementation partner in February 2021.[97]
- **Kampala, Uganda** began pilot operations of two electric buses in 2020.[98]

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

1.2 Africa Regional Overview

1 United Nations (UN) (2019), "2019 Revision of World Population Prospects", https://population.un.org/wpp (accessed 28 September 2020); UN (2018), "World Urbanization Prospects 2018", https://population.un.org/wup (accessed 28 September 2020); GDP growth is in constant 2010 USD, from World Bank, "GDP (constant 2010 US$)", https://data.worldbank.org/indicator/NY.GDP.MKTP.KD (accessed 28 September 2020).

2 N. Patel (2018), "Figure of the week: Africa is home to the 10 fastest growing cities in the world", Brookings Institution, 5 October, https://www.brookings.edu/blog/africa-in-focus/2018/10/05/figure-of-the-week-africa-is-home-to-fastest-growing-cities-in-the-world.

3 Figures 1 and 2 from SLOCAT calculations based on International Organization of Motor Vehicle Manufacturers (OICA) (2020), "Vehicles in use", https://www.oica.net/category/vehicles-in-use (accessed 27 April 2021), and on UN (2019), op. cit. note 1.

4 United Nations Environment Programme (UNEP) (2020), *Used Vehicles and the Environment – A Global Overview of Used Light Duty Vehicles: Flow, Scale and Regulation*, Nairobi, https://www.unep.org/resources/report/global-trade-used-vehicles-report; International Transport Workers' Federation (2017), *The Power of Informal Transport Workers*, Global Labour Institute, Manchester, https://www.itfglobal.org/media/1691170/informal-transport-workers.pdf; Institute for Transportation and Development Policy (ITDP) Africa, "What we do", https://africa.itdp.org/what-we-do (accessed 21 April 2021).

5 S. A. Okyere et al. (2021), "People living in African urban settings do a lot of walking: but their cities aren't walkable", The Conversation, 23 March, https://theconversation.com/people-living-in-african-urban-settings-do-a-lot-of-walking-but-their-cities-arent-walkable-156895.

6 M. Stucki (2015), *Policies for Sustainable Accessibility and Mobility in Urban Areas of Africa*, Working Paper No. 106, Africa Transport Policy Program (SSATP), http://documents1.worldbank.org/curated/en/467541468191641974/pdf/95606-REVISED-PUBLIC-SSATPWP106-Urban-Mobility-IO.pdf.

7 Box based on the following sources: 53% decrease is a SLOCAT calculation based on Google (2021), "COVID-19 Community Mobility Reports", https://www.google.com/covid19/mobility (accessed 27 April 2021); International Transport Forum (2020), *How Badly Will the Coronavirus Crisis Hit Global Freight?* OECD Publishing, Paris, https://www.itf-oecd.org/sites/default/files/global-freight-covid-19.pdf; International Civil Aviation Organization, "Economic impacts of COVID-19 on civil aviation", https://www.icao.int/sustainability/Pages/Economic-Impacts-of-COVID-19.aspx (accessed 27 April 2021); Sustainable Mobility for All / GoMetro (forthcoming), *Impact of COVID on Public Transport in South Africa*; Kenya National Bureau of Statistics (2020), *Survey on Socio Economic Impact of COVID-19 on Households Report – Wave Two*, Nairobi, https://www.knbs.or.ke/?wpdmpro=survey-on-socio-economic-impact-of-covid-19-on-households-report-wave-two; Rédaction Africanews and AFP (2020), "Nigerians lament rising cost of living as food prices soar, inflation at 4-year high", Africa News, 22 April, https://www.africanews.com/2021/04/22/nigerians-lament-rising-cost-of-living-as-food-prices-soar-inflation-at-4-year-high; Cairo from C. Mimano (2021), *Africa in Transition: Improving Urban Mobility Amid the COVID-19 Pandemic*, ITDP Africa, https://www.itdp.org/wp-content/uploads/2021/03/ITDP_ST32_Africa_in_Transition.pdf; Kampala Capital City Authority (KCCA) (2020), "Public transport in Kampala", 5 June, https://www.kcca.go.ug/index.php?jsp=news&req=402#.YIGla5NKiCR; KCCA (2020), "Press statement on the public transport reforms to streamline and regulate the boda boda industry as approved by Cabinet", 29 July, https://www.kcca.go.ug/news/413#.YIMcAH1KiCO; M. P. Dizolele (2020), "DRC grapples with the Covid-19 pandemic shock", Center for Strategic and International Studies (CSIS), 21 July, https://www.csis.org/analysis/drc-grapples-covid-19-pandemic-shock; walking and cycling infrastructure from Mimano, op. cit. this note; Cape Town, Mombasa and Nairobi from SLOCAT Partnership on Sustainable Low Carbon Transport, "Walking", International Road Federation, https://www.gtkp.com/themepage.php&themepgid=473 (accessed 21 April 2021).

8 See sources in endnote 3.

9 World Health Organization (WHO) (2018), *Global Status Report on Road Safety 2018*, Geneva, https://www.who.int/publications/i/item/9789241565684.

10 S. Kasraoui (2018), "WSJ: Morocco is leading Africa's automotive industry", Morocco World News, 1 October, https://www.moroccoworldnews.com/2018/10/254381/morocco-africa-automotive-industry.

11 Ibid.

12 Ibid.

13 Statista, "Commercial vehicle sales in Africa 2005 and 2019", https://www.statista.com/statistics/473661/commercial-vehicle-sales-in-africa (accessed 21 April 2021).

14 SLOCAT calculations based on OICA (2020), "Global sales statistics 2019-2020", https://www.oica.net/category/sales-statistics (accessed 15 April 2021).

15 UNEP, op. cit. note 4.

16 Ibid.

17 Ibid.

18 Ibid.

19 P. Starkey (2016), "The benefits and challenges of increasing motorcycle use for rural access", presented at International Conference on Transport and Road Research, Mombasa, 15-17 March, http://research4cap.org/ral/Starkey-Re-CAPPMU_2016_BenefitsChallengesofIncreasingMotorcycleUseRuralAccess_iTRARR_160314.pdf.

20 Based on a compound annual growth rate. Intrado GlobalNewswire (2021), "Africa two-wheeler (motorcycle, scooter & moped) market, competition, forecast & opportunities, 2025", 4 January, https://www.globenewswire.com/news-release/2021/01/04/2152775/0/en/Africa-Two-Wheeler-Motorcycle-Scooter-Moped-Market-Competition-Forecast-Opportunities-2025.html.

21 SSATP (2018), *Policies for Sustainable Accessibility and Mobility in Cities of Rwanda*, World Bank, Washington, D.C., https://www.ssatp.org/sites/ssatp/files/publication/SSATP_UTM_FinalReport_RWANDA.pdf.

22 R. Cervero (2013), *Transport Infrastructure and the Environment: Sustainable Mobility and Urbanism Working Paper 2013-03*, University of California, Berkeley, https://iurd.berkeley.edu/wp/2013-03.pdf.

23 High Volume Transport Applied Research (UK Aid, IMC Worldwide, UNEP, Walk21, Share the Road, University of Manchester) (2021), "Valuing walking: Priorities for valuing and investing in African cities."

24 United Nations Human Settlements Programme (2013), *Planning and Design for Sustainable Urban Mobility*, Routledge, New York, https://unhabitat.org/sites/default/files/download-manager-files/Planning%20and%20Design%20for%20Sustainable%20Urban%20Mobility.pdf.

25 WHO, op. cit. note 9.

26 Ibid.

27 Ibid.

28 High Volume Transport, op. cit. note 23.

29 WHO, op. cit. note 9.

30 D. E. Agbiboa, ed. (2018), *Transport, Transgression and Politics in African Cities. The Rhythm of Chaos*, Routledge, London, https://www.taylorfrancis.com/books/edit/10.4324/9781351234221/transport-transgression-politics-african-cities-daniel-agbiboa.

31 V. K. Phun and Y. Tetsuo (2016), "State of the art of paratransit literatures in Asian developing countries", *Asian Transport Studies*, Vol. 4/1, pp. 57-77, Eastern Asia Society for Transportation Studies, https://doi.org/10.11175/eastsats.4.57.

32 I. Ndibatya and M. J. Booysen (2020), "Minibus taxis in Kampala's paratransit system: Operations, economics and efficiency", *Journal of Transport Geography*, Vol. 88, p. 102853, Elsevier Ltd, https://www.sciencedirect.com/science/article/pii/S0966692320304415.

33 Ibid.

34 Government of South Africa, "Transport", https://www.gov.za/about-sa/transport (accessed 9 April 2021).

35 Ndibatya and Booysen, op. cit. note 32.

36 PwC South Africa, "Africa gearing up – future prospects in Africa for the transportation & logistics industry, according to PwC report", https://www.pwc.co.za/en/press-room/transport-logistics.html (accessed 21 April 2021).

37 Ibid.

38 K. Schwab (2019), *The Global Competitiveness Report 2019*, World Economic Forum (WEF), Geneva, http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf.

39 WEF (2017), *The Africa Competitiveness Report 2017*, Geneva. https://www.afdb.org/sites/default/files/documents/publications/africa_competitiveness_report_2017.pdf.

40 Ibid.

41 SLOCAT calculations based on M. Crippa et al. (2020), *Fossil CO2 Emissions of All World Countries, JRC Science for Policy Report*, Publications Office of the European Union, Luxembourg, https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/fossil-co2-emissions-all-world-countries-2020-report.

42 J. Saghir and J. Santoro (2018), "Urbanization in Sub-Saharan Africa", CSIS, https://www.csis.org/analysis/urbanization-sub-saharan-africa.

43 SLOCAT calculations based on Crippa et al., op. cit. note 41.

44 Ibid.

45 Figure 3 from Ibid. and from UN (2019), op. cit. note 1. Figure 4 from SLOCAT calculations based on Crippa et al., op. cit. note 41.

46 SLOCAT calculations based on Crippa et al., op. cit. note 41.

47 Ibid.

48 EY Africa (2019), *How Can Bold Action Become Everyday Action?* EY Attractiveness Program, EYGM Limited, https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/attractiveness/ey-africa-attractiveness-report-2019.pdf.

49 UNEP (2016), *Global Outlook on Walking and Cycling 2016*, Nairobi, https://wedocs.unep.org/bitstream/handle/20.500.11822/17030/globalOutlookOnWalkingAndCycling.pdf.

50 ITDP (2020), *Ethiopia Non-Motorised Transport Strategy 2020-2029*, Geneva, https://unhabitat.org/sites/default/files/2020/07/ethiopia_nmt_strategy_en_200629.pdf; ITDP (2019), "Along Kenya's coast, streets maneuver to accommodate more than just cars", 25 March, https://www.itdp.org/2019/03/25/mombasa-sidewalk-expansion; E. Lagat (2019), "Car-free day pilot in Nairobi CBD to be done on Friday", Citizen Digital, 30 January, https://citizentv.co.ke/news/car-free-day-pilot-in-nairobi-cbd-to-be-done-on-friday-229056; Nairobi City County Government. (2015), *Non Motorized Transport Policy*, Nairobi. https://www.kara.or.ke/Nairobi%20City%20County%20Non%20Motorized%20Transport%20Policy.pdf; Ministry of Transport and Communications, UNEP and ITDP (2019), *Zambia*

Non-Motorised Transport Strategy, Geneva, http://www.airqualityandmobility.org/STR/Zambia_NMTStrategyfinal.pdf.

51 UNEP, Share the Road and Fia Foundation (2018), *Share the Road Programme Annual Report 2018*, https://wedocs.unep.org/bitstream/handle/20.500.11822/27503/SRP2018.pdf.

52 I. Abubaker (2019), "Reclaiming the streets: Addis Ababa, other African cities launch car-free days", TheCityFix, 22 April, https://thecityfix.com/blog/reclaiming-streets-addis-ababa-african-cities-launch-car-free-days-iman-abubaker.

53 Ibid.

54 A. Ngabirano (2020), "Kampala's inspiring journey towards a cycling-friendly city", Urbanet, 14 May, https://www.urbanet.info/kampalas-inspiring-journey-towards-a-cycling-friendly-city.

55 SSATP (2020), *Policies for Sustainable Accessibility and Mobility in the Cities of Burkina Faso*, World Bank, Washington, D.C., https://www.ssatp.org/sites/ssatp/files/publication/1143_190-rap-jal-egu-BF-FinalReport-EN_v2_%28VersionNonMiseEnForme%29.pdf; MobiliseYourCity, "MobiliseYourCity in Cameroon", https://www.mobiliseyourcity.net/node/306 (accessed 21 April 2021); International Institute for Sustainable Development (IISD) (2019), "South Africa launches Green Transport Strategy", 2 July, http://sdg.iisd.org/news/south-africa-launches-green-transport-strategy.

56 MobiliseYourCity, op. cit. note 55; ITDP Africa (2020), "Kisumu Sustainable Mobility Plan", https://africa.itdp.org/event/kisumu-sustainable-mobility-plan (accessed 22 April 2021).

57 MobiliseYourCity, "About MobiliseYourCIty Africa", https://www.mobiliseyourcity.net/node/294 (accessed 22 April 2021).

58 SSATP (2020), "Policies for Sustainable Urban Mobility & Accessibility in African Cities: Policy/Strategy Papers and Diagnostic Studies for 12 Pilot Countries", 1 October, https://www.ssatp.org/news-events/policies-sustainable-urban-mobility-accessibility-african-cities-policystrategy-papers.

59 J. Coetzee (2020), "GoMetro and Ascendal Mobility Observatory launches in Africa with DFID and UKAid backing", GoMetro (Pty) Ltd, 1 August, https://gometroapp.com/gometro-ascendal-mobility-observatory-launches-in-africa-with-dfid-and-ukaid-backing.

60 Figure 5 from https://unstats.un.org/sdgs/metadata/files/Metadata-11-02-01.pdf.

61 D. Burroughs (2018), "First phase of Abuja light rail opens", International Rail Journal, 13 July, https://www.railjournal.com/passenger/light-rail/first-phase-of-abuja-light-rail-opens.

62 A. Odunoye (2020), "Review transport fares, structures on Oshodi-Abule Egba BRT corridor", *The Guardian Nigeria*, 17 August, https://guardian.ng/news/review-transport-fares-structures-on-oshodi-abule-egba-brt-corridor.

63 Dakaractu (2020), "Avancement physique des travaux du BRT à Guédiawaye sur la section 1: 'grande mosquee – croisement bethio thioune', 12 June, https://www.dakaractu.com/Avancement-physique-des-travaux-du-BRT-a-Guediawaye-sur-la-section-1-grande-mosquee-croisement-bethio-thioune_a189490.html.

64 Wikipedia (2020), "Train Express Regional Dakar-AIBD", https://en.wikipedia.org/wiki/Train_Express_Regional_Dakar-AIBD (accessed 22 April 2021); Global Railway Review (2019), "First section of Dakar's Regional Express Train is completed", 11 January, https://www.globalrailwayreview.com/news/76678/dakar-rail-development-link.

65 C40 Cities (2017), "Cities100: Dar es Salaam – first bus rapid transit system in Eastern Africa", 14 September, https://www.c40.org/case_studies/cities100-dar-es-salaam-first-bus-rapid-transit-system-in-eastern-africa.

66 P. S. Ferro (2015), "Paratransit: A key element in a dual system", CODATU, https://www.codatu.org/wp-content/uploads/transports_collec_artisanal_V03ecran_EN.pdf.

67 ITDP Africa, op. cit. note 4; SSATP, "SSATP Member Countries", https://www.ssatp.org/country (accessed 10 May 2021).

68 Stucki, op. cit. note 6.

69 KCCA, "Public transport in Kampala", op. cit. note 7; SSATP, op. cit. note 55.

70 Y. Kazeem (2020), "Lagos has banned its most effective methods of transport – including bike-hailing startups", Quartz Africa, 28 January, https://qz.com/africa/1792504/lagos-bans-okada-oride-gokada-keke-tricycles; B. Weru and J. Mugo (2020), *Ride Hailing Survey: Usage of App-Based Mobility Services in Nairobi*, Kenya, Pan African Research Services Ltd, Sandton, https://www.changing-transport.org/wp-content/uploads/2020_Ride_Hailing_Survey.pdf.

71 Transformative Urban Mobility Initiative, "DAR City Navigator", https://www.transformative-mobility.org/campaigns/dar-city-navigator-mobility-app-for-dar-es-salaam (accessed 22 April 2021); L. George (2019), "Google goes Nigerian with local accent, 'informal' transit routes", *Reuters*, 24 July, https://www.reuters.com/article/us-nigeria-alphabet/google-goes-nigerian-with-local-accent-informal-transit-routes-idUSKCN1UJ1XL; Digital Transport for Africa, "Projects", https://digitaltransport4africa.org/projects (accessed 22 April 2021).

72 UNEP, op. cit. note 4.

73 Ibid.

74 Partnership for Clean Fuels and Vehicles Economy Division (2019), *Addressing the Used Vehicles Market: Potential Strategies for Importing and Exporting Countries to Improve Safety*, Fuel Economy and Emissions Impacts, UNEP, Nairobi, https://wedocs.unep.org/handle/20.500.11822/27789; A. Baskin (2018), *Africa Used Vehicle Report*, UNEP, Nairobi, https://wedocs.unep.org/bitstream/handle/20.500.11822/25233/AfricaUsedVehicleReport.pdf.

75 UNEP, op. cit. note 4.

76 Global Fuel Economy Initiative (2020), "West Africa adopts the first ever Africa regional fuel economy roadmap", 13 February, https://www.globalfueleconomy.org/blog/2020/february/west-africa-adopts-the-first-ever-africa-regional-fuel-economy-roadmap.

77 UNEP (2019), "Namibia proposes tougher fuel economy measures to tackle climate change", 5 November, https://www.unep.org/news-and-stories/story/namibia-proposes-tougher-fuel-economy-measures-tackle-climate-change; C. Nwagbara (2020), "FG discloses plan to sell fuel at N97 per litre with new initiative", Nariametrics, 17 January, https://nairametrics.com/2020/01/17/fg-discloses-plan-to-sell-fuel-at-n97-per-litre-with-new-initiative.

78 SSATP, op. cit. note 55.

79 MobiliseYourCity, op. cit. note 55.

80 ITDP Africa, op. cit. note 56.

81 IISD, op. cit. note 55.

82 H. Kuteesa (2019), "Inside the next generation of Kigali's public transport", *The New Times Rwanda*, 4 November, https://www.newtimes.co.rw/news/inside-next-generation-kigalis-public-transport.

83 Digital Transport for Africa (2021), "Projects", https://digitaltransport4africa.org/projects.

84 SSATP, op. cit. note 55.

85 Digital Matatus (2019), "Second update of DigitalMatatus now live", 8 October, http://digitalmatatus.com/post20.html.

86 N. Henry (2019), "There is now a Google Maps feature for 'Danfo' and 'Molue' In Lagos", Weetracker, 6 November, https://weetracker.com/2019/11/06/google-launches-map-for-informal-transit-lagos.

87 Kazeem, op. cit. note 70.

88 KCCA (2020), "Public transport in Kampala", op. cit. note 7.

89 African Road Safety Observatory, http://www.africanroadsafetyobservatory.org (accessed 21 April 2021); WHO, op. cit. note 9.

90 ITDP (2020), op. cit. note 50.

91 ITDP (2019), op. cit. note 50.

92 Lagat, op. cit. note 50; Nairobi City County Government, op. cit. note 50.

93 Egypt Independent (2019), "Alexandria's transport authority to receive 14 electric buses on May", 15 April, https://egyptindependent.com/alexandrias-transport-authority-to-receive-14-electric-buses-on-may; Egypt Independent (2019), "Cairo announces route for its first electric bus", 18 December, https://egyptindependent.com/cairo-announces-route-for-its-first-electric-bus.

94 Deloitte (2019), *Kenya Budget Highlights 2019/20 Unravelling the Puzzle*, https://www2.deloitte.com/content/dam/Deloitte/ke/Documents/tax/Budget_highlights_KE_2019.pdf.

95 FuelCellsWorks (2020), "Several hundred hydrogen scooters will circulate in Marrakech in the next few days", 13 May, https://fuelcellsworks.com/news/several-hundred-hydrogen-scooters-will-circulate-in-marrakech-in-the-next-few-days; North Africa Post (2020), "First 100% Morocco-made electric car charging station unveiled in Rabat", 22 December, https://northafricapost.com/46290-first-100-morocco-made-electric-car-charging-station-unveiled-in-rabat.html.

96 A. Idris (2019), "Rwanda aims to introduce electric motorcycles to address climate change concerns", TechCabal, 28 August, https://techcabal.com/2019/08/28/rwanda-aims-to-introduce-electric-motorcycles-to-address-climate-change-concerns.

97 South Africa UK Pact, "STRAPSA (Shifting the TRAnsport Paradigm for South Africa)", uYilo E-Mobility Programme, https://www.uyilo.org.za/strapsa-shifting-the-transport-paradigm-for-south-africa (accessed 21 April 2021).

98 Sustainable Bus (2020), "Kiira Motors and the electric bus 'made in Uganda'", https://www.sustainable-bus.com/news/kiira-motors-corporations-kayoola-electric-bus-made-in-uganda (accessed 21 April 2021).

1 Annex: Methodological Note

1 M. Crippa et al. (2020), *Fossil CO2 Emissions of All World Countries, JRC Science for Policy Report*, Publications Office of the European Union, Luxembourg, https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/fossil-co2-emissions-all-world-countries-2020-report.

2 US Energy Information Administration (2020), "Energy and the environment explained: Greenhouse gases," https://www.eia.gov/energyexplained/energy-and-the-environment/greenhouse-gases.php (accessed 14 April 2021).

3 International Organization of Motor Vehicle Manufacturers (OICA), "Definitions", https://www.oica.net/wp-content/uploads/DEFINITIONS-VEHICLE-IN-USE1.pdf (accessed 20 May 2021).

4 United Nations Statistics Division, "Standard country or area codes for statistical use (M49)", https://unstats.un.org/unsd/methodology/m49 (accessed 20 May 2021).

5 World Bank (2021), "World Bank Country and Lending Groups", https://datahelpdesk.worldbank.org/knowledgebase/articles/906519 (accessed 20 May 2021).

6 United Nations (2019), "World Population Prospects 2019", https://population.un.org/wpp (accessed 20 May 2021); World Bank, "GDP (constant 2010 US$)", http://data.worldbank.org/indicator/NY.GDP.MKTP.KD (accessed 20 May 2021).

7 SLOCAT (2021), "Transport Knowledge Base", https://slocat.net/our-work/knowledge-and-research/trakb (accessed 20 May 2021).

Tracking Trends in a Time of Change: The Need for Radical Action Towards Sustainable Transport Decarbonisation

SLOCAT Transport and Climate Change Global Status Report 2nd Edition

This report should be cited as:

SLOCAT (2021), *Tracking Trends in a Time of Change: The Need for Radical Action Towards Sustainable Transport Decarbonisation*, Transport and Climate Change Global Status Report – 2nd edition, www.tcc-gsr.com.

Data access and licensing:

The development of this report was led by Maruxa Cardama, Angel Cortez, Nicolas Cruz, Angela Enriquez, Emily Hosek, Karl Peet, Nikola Medimorec, Arturo Steinvorth and Alice Yiu from the secretariat of the SLOCAT Partnership.

For a full list of acknowledgements, please visit the the online page here.

Explore more online

Download the full report

Download the full endnotes

Contact us

SLOCAT Partnership on Sustainable, Low Carbon Transport

#TransportClimateStatus