MODULE 3 | 3.4.2

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Informal Transport

SLOCAT Partnership on Sustainable, Low Carbon Transport

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Note: The previous section *3.4.1 Public Transport* covers any collective transport services in cities operated and regulated by public authorities; any other shared, technology-focused services run by companies through apps are covered in *3.4.3 App-Driven Shared Transport.*

Key findings

- Informal transport services are among the most common urban mobility systems globally. They are present in nearly every city and town in low- and middle-income countries and even in the underserved fringes of cities in high-income countries.
- Informal transport refers to services that are offered with some measure of informality in their operations, not planned or operated by governments. These services tend to be demand-driven, unscheduled, and flexible, reflecting varying degrees of organisation among drivers and operators.
- If integrated into policy and planning, informal transport could help to accelerate the transition towards more sustainable transport systems worldwide.
- A tendency to ignore or eliminate informal transport, despite its immense contributions, has generated large gaps in policy, knowledge and data.

Demand trends

- Global data on the size, reach and ridership of informal transport fleets are lacking, although research is attempting to close this knowledge gap. Overall, the market share for these services is high, especially in Sub-Saharan Africa and in some Latin American cities, while it is lower in Asian cities.
- Electrification efforts for two- and three-wheelers, which are major modes for informal transport, are accelerating rapidly. However, there is little information on how much of the informal fleet is electrified. Most sales of electric two- and three-wheelers are in Asia (especially in China, India and Viet Nam), and the vehicles are projected to continue to be the largest electrified road transport fleet globally.
- During the COVID-19 pandemic, informal transport experienced up to 50-70% losses in demand and income between 2020 and 2022, depending on the region, with little to no support from government. These services also were essential to ensure that riders had access to transport, particularly in vehicles that allowed for greater ventilation and lower capacity, such as bike taxis, two- and three-wheelers, and pick-up trucks.
- In some African cities, up to 95% of all motorised trips are made using informal transport.
- The vehicles (and names) used for informal transport services typically vary by region. Minibuses appear to be the most-used mode in Africa and in Latin America and the Caribbean, whereas two- and three-wheelers are most common in Asia.
- By 2022, Africa was home to 27 million registered two- and three-wheelers, of which 80% were used for passenger transport and/or delivery services; this was up from less than 5 million in 2010.
- In certain Latin American cities, fleets of minibuses and collective taxis are similar in size to or even larger than government-provided bus fleets.
- Informal transport can also be found in high-income countries, although to a far lesser extent. When such services are linked to the use of technology or digital platforms, they either are part of government-supported pilots or services, or are quickly regulated under categories such as app-based mobility, demand-responsive transport, ride-hailing or mobility-as-a-service.

Emission trends

- In general, data on emission trends for informal transport are lacking, and few countries collect disaggregated data for the sector. However, this does not mean that there is no progress towards decarbonisation.
- Angola is the only country in the world to acknowledge the emissions caused by informal vans in its Nationally Determined Contribution (NDC) towards reducing emissions under the Paris Agreement.
- A study found that the fuel economy of vehicles used for informal transport in Africa is two to three times worse than in the countries the vehicles are imported from.

- The potential to electrify informal transport is enormous: in South Africa, each electric minibus in operation could reduce tailpipe emissions by 13 tonnes of carbon dioxide (CO_2) equivalent annually.
- The available information on emissions from informal transport in Asia focuses mainly on specific vehicle types. Across the region, initial steps are being made towards electrifying informal transport.
- In Latin America, efforts to calculate emissions from informal transport or to electrify these modes remain scarce, although some examples exist.

Policy developments

- The most common policy measures and innovations are mapping, digitalisation and the introduction of technological platforms to improve the experience of users and service providers. Less common, but very relevant efforts include organisational and financial support to reform the sector in certain cities.
- As of early 2023, no countries worldwide had included measures to reduce emissions from informal transport in their NDCs under the Paris Agreement.
- Attempts to adequately incorporate the informal transport sector into global and local decarbonisation efforts have been hampered by the lack of consolidated and robust information.

Overview

Informal transport services are among the most common urban mobility systems globally. They are present in nearly every city and town in low- and middle-income countries and even in the underserved fringes of cities in high-income countries. The widely used labels for these services – which include "informal" and "unregulated systems" – define them by what they *are not* rather than by what they *are*: homegrown, emergent, widespread, self-organising and self-sustaining modes of mobility. Other terms affirming these transport forms include "popular", "entrepreneurial", "neighbourhood" and "indigenous".

Informal transport refers to services that are offered with some measure of informality in their operations, not planned or operated by governments. These services tend to be demand-driven, unscheduled, and flexible, reflecting varying degrees of organisation among drivers and operators. Typically, informal transport systems are not planned by municipal authorities but instead represent private, often unscheduled and flexible services that "spring up to meet demand".[1] They tend to be provided by small operators using small to medium-sized vehicles (with or without motors), generally in the absence of an effective regulatory framework.[2] In many cases, these services operate in a grey area between formal and informal systems (often termed semi-formal), depending on the local operating context, the type of service and the level of regulation required by government authorities.

Informal transport also can be understood as any transport service that is offered with some measure of informality in its operations.[3] Despite operating largely outside of government-provided or -regulated public transport systems, these systems move millions of people, employ hundreds of thousands and support urban economies. **If integrated into policy and planning, informal transport could help to accelerate the transition towards more sustainable transport systems worldwide.**

In low- and middle-income countries, informal transport often intersects with "app-based shared mobility", or the use of mobile applications and software to enable users to access and use transport services. This is the case with car-based ride-hailing (e.g., Careem, DiDi, Grab, Lyft, Uber), three-wheeler-based ride-hailing (e.g., Ola, Uber), motorcycle taxis (e.g., Gojek, Gokada, Safeboda) and on-demand microtransit (e.g., GrabShuttle, SWVL, Via). These digital technology platforms are often grafted onto existing informal transport systems that pre-date the rise of the platforms, and platform companies recruit drivers and operators of informal transport as service providers.[4] In high-income countries, the technology platforms are integral to the shared mobility service. (*See Section 3.4.3 App-Driven Shared Transport.*)

A tendency to ignore or eliminate informal transport, despite its immense contributions, has generated large gaps in policy, knowledge and data. Attempts to adequately incorporate this sector into global and local decarbonisation efforts have been hampered by a lack of consolidated and robust information. Better documentation of trends, policy measures, and mobility and emission data for the sector can help guide decision making and next steps, enabling informal transport to play a more prominent role in climate action, funding, and strategies, particularly for low- and middle-income countries.

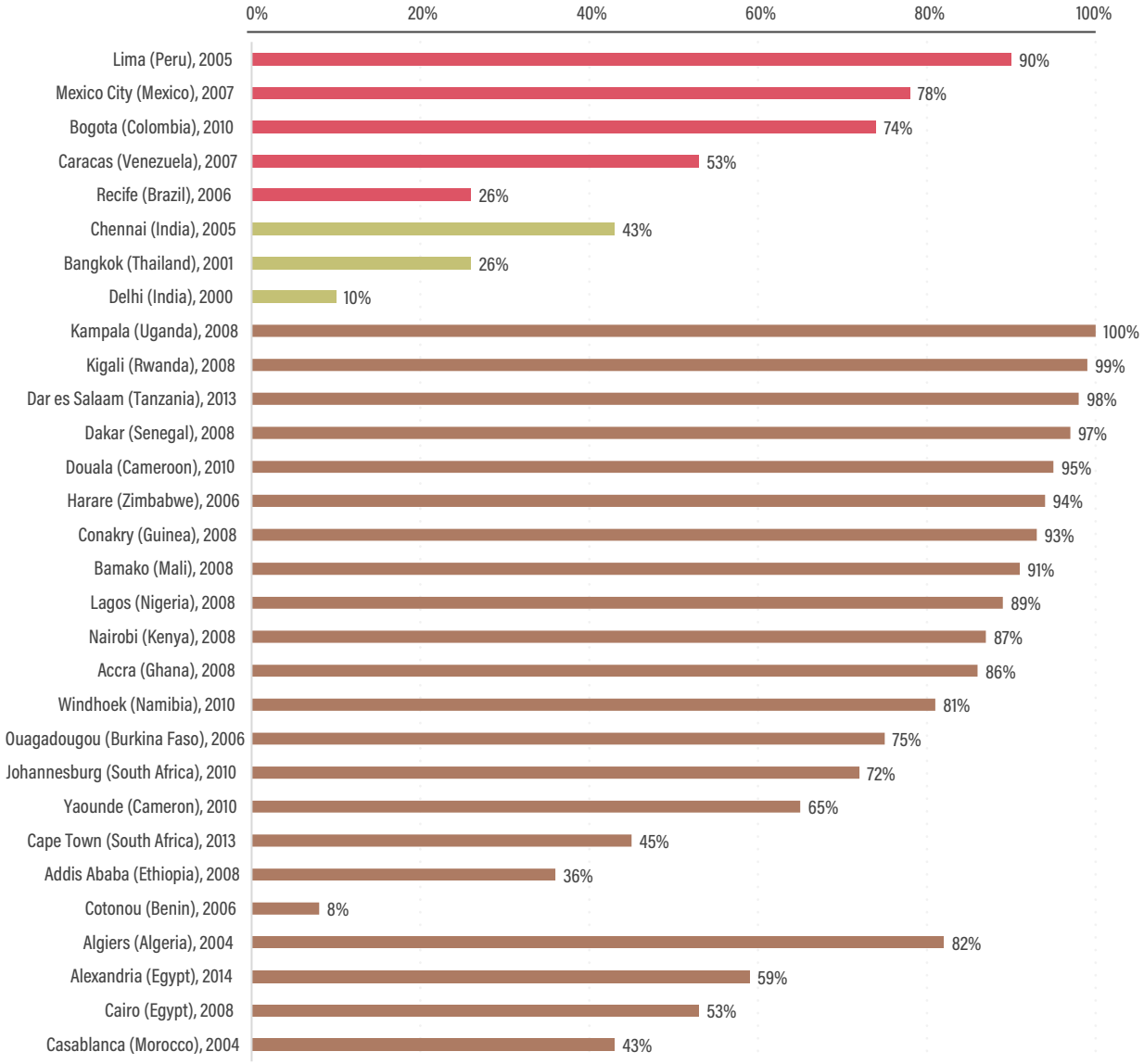
Demand trends

Global data on the size, reach and ridership of informal transport fleets are lacking, although research is attempting to close this knowledge gap. Overall, the market share for these services is high, especially in Sub-Saharan Africa and in some Latin American cities, while it is lower in Asian cities (see Figure 1).[5] Even in cities with government-provided transport services, informal transport persists and often dominates over government-provided services.

Electrification efforts for two- and three-wheelers, which are major modes for informal transport, are accelerating rapidly. However, there is little information on how much of the informal fleet is electrified. As of 2021, around 25% of the global two- and three-wheeler fleet (both formal and informal), and 44% of worldwide sales, were electric, helping to reduce more than 1 million barrels of oil use per day.[6] **Most sales of electric two- and three-wheelers are in Asia** (**especially in**

FIGURE 1. Market shares of informal transport among motorised trips in 30 cities, selected years

Source: See endnote 5 for this section.



China, India and Viet Nam), and the vehicles are projected to continue to be the largest electrified road transport fleet globally.[7]

During the COVID-19 pandemic, informal transport experienced up to 50-70% losses in demand and income between 2020 and 2022, depending on the region, with little to no support from government.[8] **These services also were essential to ensure that riders had access to transport, particularly in vehicles that allowed for greater ventilation and lower capacity, such as bike taxis, two- and three-wheelers, and pick-up trucks.**

- In 2020, informal transport service levels in Africa dropped 30-40%, with effects including reduced service quality, higher wait times, mismatched supply and demand, and lower revenues.[9] Estimated losses neared 50-70% in some African cities.[10]
- In Asia, one of the few studies on the pandemic's impact on informal transport reported a negative effect on the operations of remork drivers (who use a motorcycle and cart rickshaw to carry passengers) – including a 57% decline in ridership, up to a 55% drop in frequency and up to a 62% decline in monthly income (with no government support).[11]
- The only available study for Latin America identified an overall decline in informal transport use during the pandemic but highlighted the continued use of services such as pick-up trucks and two- and three-wheelers, as well as the increased use of bicycle taxis – suggesting that riders preferred more ventilated and lower-capacity vehicles.[12]

Africa

In some African cities, up to more than 95% of all motorised trips are made using informal transport (see Figure 2).[13] These services – which range from minibuses and two- and three-wheelers to boats, bikes and motorcycles – enable residents to access transport offerings in locations where government-provided services either are unavailable or do not satisfy user needs and demand.[14]

- In Accra (Ghana), informal transport accounted for more than 90% of the total public transport supply in 2018.[15]
- In 2018, informal transport met more than 60% of the mobility demand in Dar es Salaam (Tanzania), half in Abidjan (Côte d'Ivoire); nearly 40% in Lagos (Nigeria) and 35% in Addis Ababa (Ethiopia).[16]
- In Gauteng (South Africa), 82% of the public transport network in 2022 was made up of informal minibus taxi routes.[17]

The vehicles (and names) used for informal transport services typically vary by region. Minibuses appear to be the most-used mode in Africa and in Latin America and the Caribbean, whereas two- and three-wheelers are most common in Asia (see Figure 3).[18]

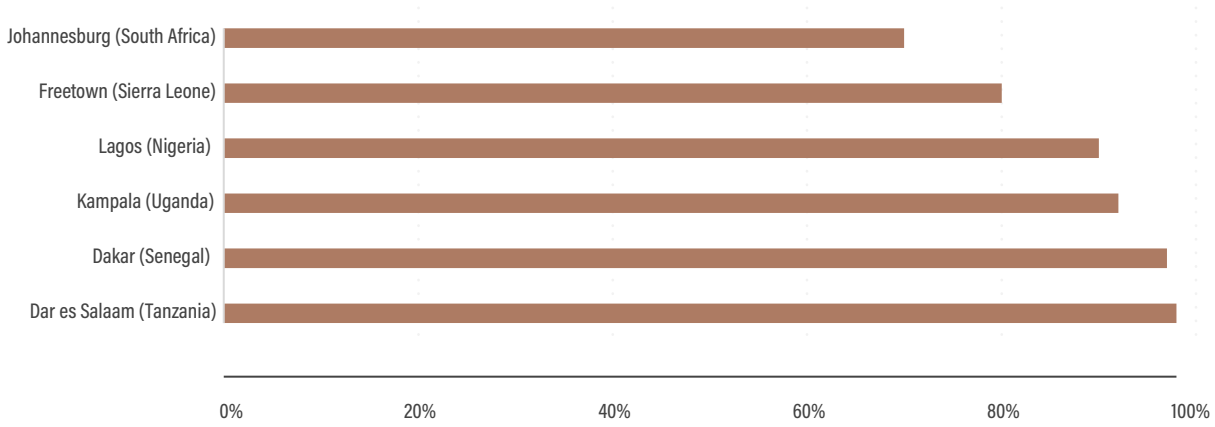
Minibuses are one of the highest-demand modes of informal transport in Africa.

- In Dar es Salaam (Tanzania), Johannesburg (South Africa), Kampala (Uganda) and Lagos (Nigeria), 83% of trips by informal transport in 2018 used minibuses.[19]
- In 2020, 70% of public transport commuters in Nairobi (Kenya) relied on matatu minibuses or buses.[20]
- Minibus taxis accounted for 73% of the transport choices in Addis Ababa (Ethiopia) in 2005.[21]
- In Kumasi (Ghana), minibuses are one of the two main informal transport services, along with shared sedans; together, these modes served around half of all motorised transport users in 2010.[22]

Two- and three-wheelers are also an important mode of informal transport in Africa, and fleets have grown sharply in the past two decades, especially in Sub-Saharan Africa. **By 2022, Africa was home to 27 million registered two- and three-wheelers, of which 80% were used for passenger transport and/or delivery services; this was up from less than 5 million in 2010.**[23] The largest fleets are in West and East Africa.[24]

FIGURE 2. Share of road-based motorised trips made by informal transport services in six African cities, selected years

Source: See endnote 13 for this section.



Note: Data for Dakar reflect the percentage of daily trips made using informal transport, and data for Freetown refer to the percentage of passenger transport trips using informal transport. Data for Dar es Salaam and Johannesburg are from 2013; for Dakar, Kampala and Lagos are from 2008; and for Freetown are from 2019.

FIGURE 3. Common informal transport modes and local names for these services in Africa

Source: See endnote 18 for this section.

Minibuses or buses	Candongueiros (Angola), Car Rapide (Senegal), Chapa (Maputo, Mozambique), Dala Dala (Tanzania), Danfos (Nigeria), Esprit de Mort (Democratic Republic of the Congo), Gbaka (Côte d'Ivoire), Kombi (Harare, Zimbabwe; South Africa), Minibus-Taxi (Cape Town, South Africa), Sotramas (Mali), Trotro (Accra and Kumasi, Ghana)
Bikes	Cyclo-Pousse (Madagascar)
Boats	Akro or Piroue (Togo)
Motorcycles	Boda boda (East Africa), Okada (West Africa)
Three wheelers	Bajaji (Tanzania), Hende moto (Nigeria), Kekeh (Freetown), Pragia (Kumasi)
Automobiles	Amaphela (Cape Town), Mshikashika (Harare), Taxi (Freetown), Woro-woro (Côte d'Ivoire)

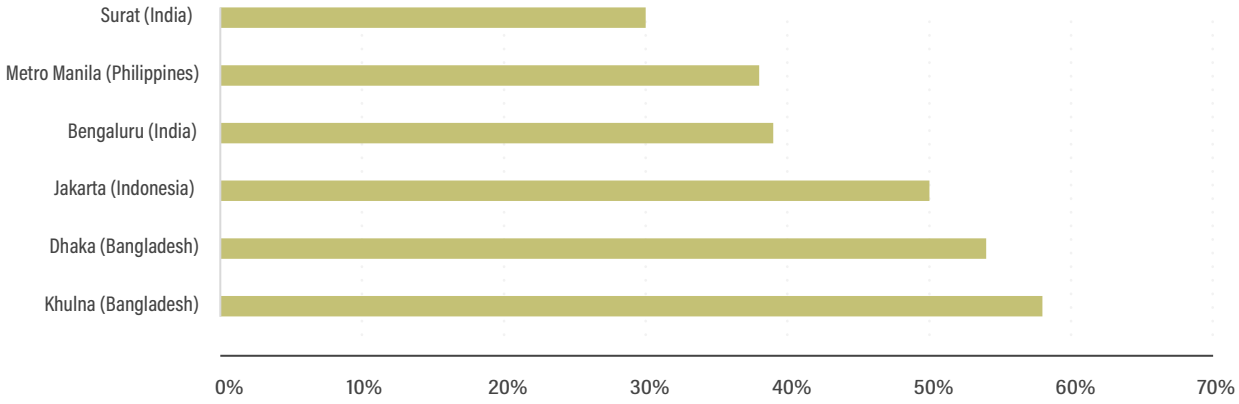
Asia

People in Asian cities rely heavily on informal transport, with the modal share for these services reaching up to 58% in selected cities (see Figure 4).[25] The services typically operate in organised ways, such as route associations, driver unions, and location- or area-based drivers' associations.[26] As in Africa, the modes and names for informal transport vary by city or region (see Figure 5).[27] Efforts to understand the scope and demand for informal transport in Asia are still in the early stages.

- Researchers in Japan have termed informal transport services in Asia as "LAMAT" (Locally Adapted Modified and Advanced Transport), and in Phnom Penh (Cambodia) they reported a fleet size in 2018 of 29,288 auto-rickshaws, 14,338 Bajaj and 10,091 remorks.[28]
- In China, the Local Traffic Management Bureau and the National Bureau of Statistics gather information on informal transport such as vehicle registrations and transaction data in the informal economy.[29]
- In Medan (Indonesia), an estimated 7,000 angkot minibuses provide the majority of all trips made by shared transport; the minibuses are operated by 42 for-profit co-operatives, and more than 3,500 workers are directly and indirectly tied with the operation of this system.[30] Meanwhile, ojeks (motorbike taxis) and tuk tuks (motorised three-wheelers) have a modal share of 7% in the city.[31]

FIGURE 4. Estimated modal shares of informal transport in commuting trips in six Asian cities

Source: See endnote 25 for this section.



Note: Data for Bengaluru are specifically for two-wheelers and auto-rickshaws. Data for Metro Manila are from 2021, for Khulna are from 2019, for Dhaka and Surat are from 2018, and for Bengaluru and Jakarta are from 2017.

FIGURE 5 . Common informal transport modes and local names for these services in Asia

Source: See endnote 27 for this section.

Automobiles	Services (Lebanon)
Motorcycles	Lemorque/ Motodop/Remork/Remorque (Cambodia), Motosai (Thailand), Ojek (Indonesia)
Minibuses or buses	Angkot/pete-pete/sudako (Indonesia), Jeepney (Philippines)
Three wheelers	Baby Taxi or Mahindra (Bangladesh), Bajaj (Cambodia and Indonesia), Chang Gari or Chingchi (Pakistan), Sān Lún Chē (China), Tuk-tuk / Auto-rickshaw (various countries)

Latin America and the Caribbean

More than half of all trips taken via shared transport in many Latin American and Caribbean cities are provided by informal transport services, which have varying names and modes (see Figure 6).[32] However, data on the use or modal share for these services are limited. Existing studies for the region tend to focus on the specific vehicle types (such as three-wheelers or minibuses) used in certain cities (see Figures 7 and 8) or on the fleet numbers available to meet existing demand.[33] **In certain Latin American cities, fleets of minibuses and collective taxis are similar in size to or even larger than government-provided bus fleets** (see Figure 8).[34]

- Minibuses are the most widely used informal transport mode throughout the islands of Barbados, Guyana, Jamaica, St. Lucia, and Trinidad and Tobago.[35]
- Mexico City depends heavily on its informal transport system, with over 1,000 minibus routes that cover 28,000 kilometres and provide 11.5 million passenger trips daily.[36]
- In Central America, one analysis estimated that more than 85,000 vehicles provide informal transport services, although this is likely well below the actual number due to a lack of data.[37]
- Existing data suggest that the share of informal trips among total passenger journeys taken is 30-40% in Guadalajara (Mexico), Mexico City and Panama City; 40% in Bogotá (Colombia) and 50% in Lima (Peru).[38]

Other studies have explored the motivations behind the use of informal transport in the region.

- A study in Central America found that the main reasons that users prefer informal transport modes for travel are ease of access, price and velocity.[39]
- In Guatemala, three-wheelers have an advantage over other forms of transport due to their ability to manoeuvre narrow, winding streets. Pick-ups and other cargo vehicles provide passenger transport in rural areas where road access is limited.[40]
- In the Caribbean, the unreliability and lack of coverage of government-run buses in less-populated locations drives travellers to use informal transport services.[41]
- In Guyana, Jamaica, and Trinidad and Tobago, the elderly and disabled tend to prefer shared taxi services, as these typically provide greater convenience and comfort.[42]

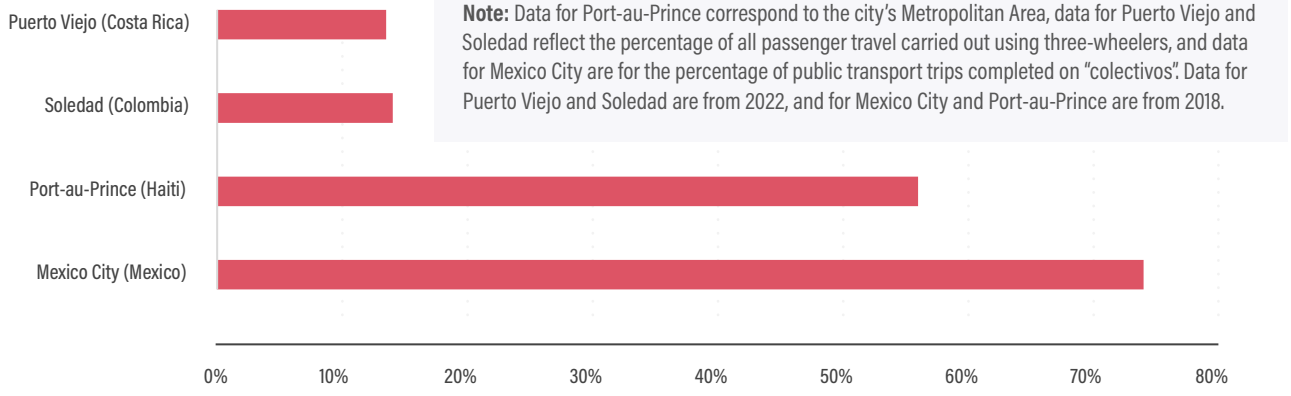
FIGURE 6. Common informal transport modes and local names for these services in Latin America and the Caribbean

Source: See endnote 32 for this section.

Automobiles	Concho (Dominican Republic), Ferry (Panama), Guala (Cali, Colombia), Porcoico (Nicaragua), Robot (Jamaica), Taxi Pirata/Colectivo (Central America, Ecuador), Trufi (Bolivia)
Bikes	Bicitaxi (Colombia and Guatemala), Bicitaxi/Ciclotaxi (Mexico)
Boats	Lancha (Costa Rica and Guatemala)
Minibuses or buses	Busito/Minibus/Ruletero/Chicken Bus (Guatemala), Chiva/Chivero (Colombia), Camioneta (Caracas, Venezuela), Diablo Rojo (Panama), Maxi taxi (Trinidad and Tobago), Surubíe/Mini (Bolivia), ZR Van/Mini bus (Barbados)
Three wheelers	Coco Taxi (Cuba), Motocarro/Mototaxi (various countries), Torito / Tuk Tuk (various countries), moto taxi (Ecuador)
Pick-up/Trucks	Pick-up (Guatemala), Tap-tap (Haiti)

FIGURE 7. Estimated modal shares of informal transport in cities in Latin America and the Caribbean

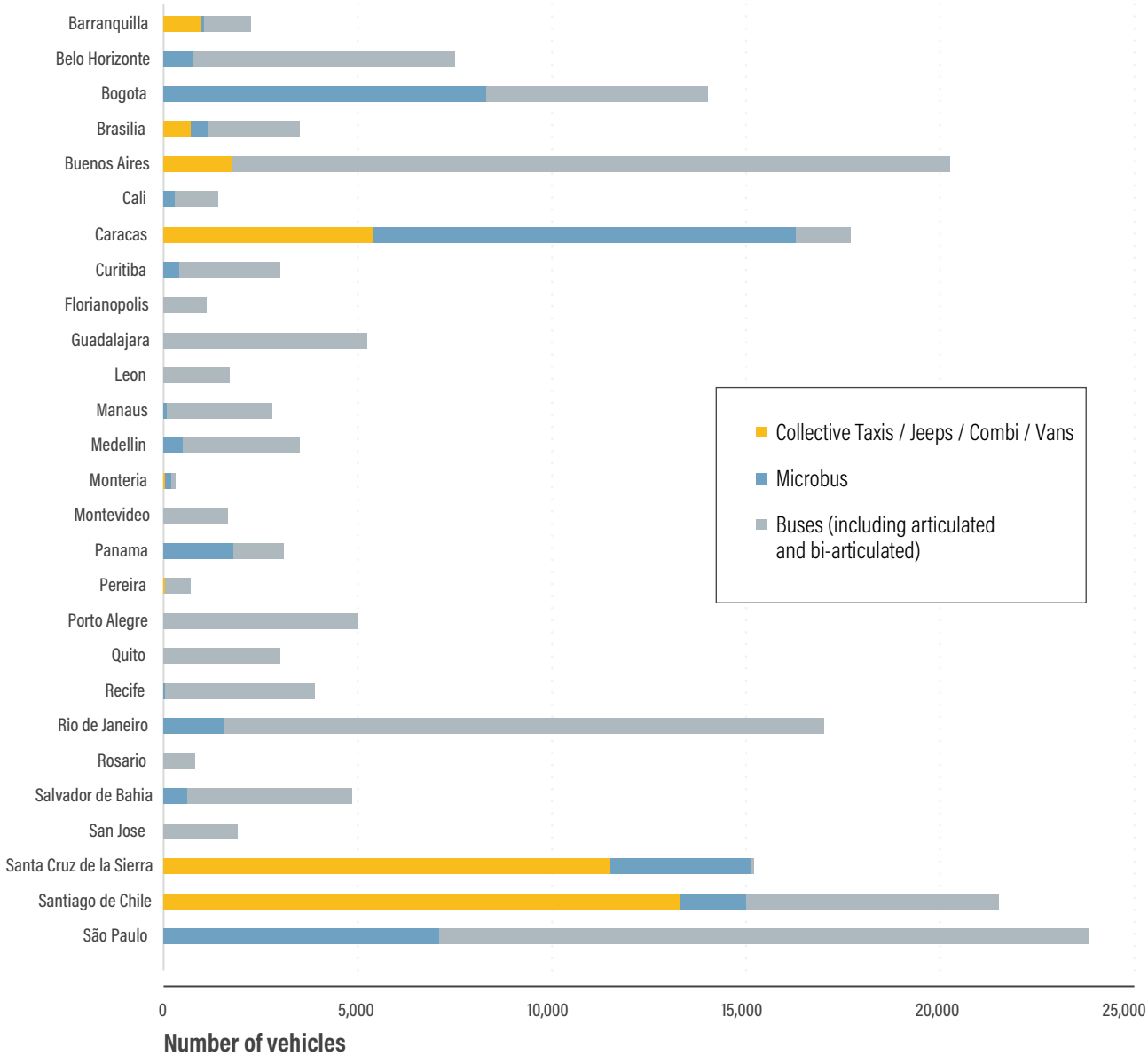
Source: See endnote 33 for this section.



Note: Data for Port-au-Prince correspond to the city's Metropolitan Area, data for Puerto Viejo and Soledad reflect the percentage of all passenger travel carried out using three-wheelers, and data for Mexico City are for the percentage of public transport trips completed on "colectivos". Data for Puerto Viejo and Soledad are from 2022, and for Mexico City and Port-au-Prince are from 2018.

FIGURE 8. Motorised collective transport vehicle fleets in different cities in Latin America and the Caribbean, 2020

Source: See endnote 34 for this section.



Informal transport in high-income countries

Informal transport can also be found in high-income countries, although to a far lesser extent. When such services are linked to the use of technology or digital platforms, they either are part of government-supported pilots or services, or are quickly regulated under categories such as app-based mobility, demand-responsive transport, ride-hailing or mobility-as-a-service. However, examples do exist of more informal transport services.

- In New York City (USA), the commuter transit network Dollaride comprises 500 drivers who make more than 120,000 van trips daily in underserved areas; the vans complement the city's subway system and meet the needs of people who live in "transit gaps", including residents located farther from the city centre who have longer and more expensive daily commutes.[43]
- In Brussels (Belgium), Bruxelles Mobilité licenses "navette" taxi services (usually shared through an agreement between the driver and passengers); they operate informally given that sharing a taxi is banned by formal regulations and that drivers cannot officially offer a shared service.[44]

Emission trends

In general, data on emission trends for informal transport are lacking, and few countries collect disaggregated data for the sector. However, this does not mean that there is no progress towards decarbonisation.

Significant efforts have been made to collect information, conduct research and implement actions to reduce emissions from informal transport around the world. In New York City (USA), Dollarides estimates that its commuting vans emit more than 27,000 tonnes of carbon dioxide (CO_2) equivalent annually and has devised a plan to fund both vehicle electrification and related charging infrastructure, with the first electric fleets and charging stations planned in Brooklyn and Queens in late 2023.[45]

Africa

Angola is the only country in the world to acknowledge the greenhouse gas emissions caused by informal vans in its Nationally Determined Contribution (NDC) towards reducing emissions under the Paris Agreement (although it does not provide numerical data).[46] Beyond this, no data were found on emission trends from the informal transport sector in Africa. Most efforts to decarbonise informal transport in the region focus on gathering data to better understand these systems on the path towards greater efficiency and electrification.

A study found that the fuel economy of vehicles used for informal transport in Africa (boda-bodas, tuk-tuks, passenger cars and matatus) is two to three times worse than in the countries the vehicles are imported from.[47]

- In South Africa, the entire fleet of minibus taxis consumes 10% of the daily national energy production, which is enough to cover 70% of all commuter trips.[48]
- Research on the electrification of minibus taxis in Sub-Saharan Africa has used GPS data to identify which mobility patterns have a significant impact on energy consumption.[49]
- Solar photovoltaics is suggested as a viable renewable energy source for electric informal transport in Sub-Saharan Africa.[50]
- GoMetro, an initiative to electrify informal transport in South Africa, tested various electric vehicles suitable for minibus and minivan operations and built the country's first public

charging station for minibus taxis.[51] **The potential to electrify informal transport is enormous: the country's minibus taxi industry emits 34 million tonnes of CO_2 equivalent per year, and each electric minibus in operation could reduce tailpipe emissions by 13 tonnes of CO_2 equivalent annually.**[52]

- In El Kelaa des Sraghna (Morocco), 25 electric tricycles, charged using local solar panels, were introduced in 2021 as part of a pilot to transport people and goods in the town and nearby rural municipalities.[53]

Asia

The available information on emissions from informal transport in Asia focuses mainly on specific vehicle types. Across the region, initial steps are being made towards electrifying informal transport.

- In Bengaluru (India), a study found that the city's 120,000 auto-rickshaws emitted an estimated 0.45 million tonnes of CO_2 equivalent, 1,445 tonnes of nitrogen oxides and 164 tonnes of particulate matter (PM_{10}) in 2017.[54]
- A study of motorcycle taxis (ojeks) in Bandung (Indonesia) found that the vehicles have poor fuel efficiency and release a total of 11,199 tonnes of CO_2 equivalent annually.[55]
- The Transformative Urban Mobility Initiative (TUMI) helped introduce 10 electric rickshaws in Singra (Bangladesh) to provide public transport and emergency health services (including during the COVID-19 pandemic); as of 2021, the e-rickshaws accounted for 6% of all trips.[56]
- China was home to 9.5 million electric two- and three-wheelers in 2021, accounting for the bulk of the global fleet and for 95% of new registrations; most of the vehicles are used for delivery purposes rather than passenger transport.[57] The electrification of two- and three-wheelers has contributed nearly half (45%) of China's total emission reductions from vehicle electrification.[58]
- In 2021, sales of electric two- and three-wheelers reached 230,000 in Viet Nam and nearly 300,000 in India.[59] By 2018, almost 40% of India's three-wheeler fleet was electric.[60]

Latin America and the Caribbean

In Latin America, efforts to calculate emissions from informal transport or to electrify these modes remain scarce, although some examples exist.

- A study in Puerto Viejo (Costa Rica) estimated that if the three-wheeler trips providing informal transport were instead taken using government-regulated taxis, the total emissions would more than double.[61]
- In Guatemala, an initiative to retrofit a tuk-tuk to run on solar power was undertaken to generate experience and know-how for replication in other cities in Latin America and the Caribbean.[62]

Policy developments

Governments and other stakeholders can take wide-ranging actions to enhance the quality of informal transport services, facilitate their integration into wider transport networks, improve working conditions, and contribute to emission reductions and climate resilience and adaptation.[63] **The most common policy measures and innovations are mapping, digitalisation, and the introduction of technological platforms to improve the experience of users and service providers** (see Table 1)**.**[64] **Less common but very relevant efforts include organisational and financial support to reform the sector in certain cities.**

As of early 2023, no countries worldwide had included measures to reduce emissions from informal transport in their NDCs under the Paris Agreement. By viewing existing informal transport services as an asset, stakeholders can work with these systems as a baseline for action, contributing to emission reductions through efforts to "Avoid" private vehicle travel, "Shift" towards shared mobility and "Improve" fleets through both electrification and efficiency.[65]

Attempts to adequately incorporate the informal transport sector into global and local decarbonisation efforts have been hampered by the lack of consolidated and robust information (see Box 1)**.**[66] Better documentation of the trends, policy measures, and mobility and emissions data associated with the sector can help guide decision making and next steps, enabling informal transport to play a more prominent role in climate action, funding and strategies, particularly for low- and middle-income countries.

TABLE 1. Example policy measures and strategies to improve informal transport and include it in climate action

Source: See endnote 64 for this section.

Area	Measures/Strategies	Examples
Data and information	■ Build a dashboard or observatory of informal transport. ■ Carry out recurrent surveys to understand demand and modal share for these modes. ■ Map local informal transport offerings.	In 2021, the World Bank shared how it collected **mobility data on tap-tap operations** in Cap-Haïtien, Haiti with the support of companies such as DataFromSky, Mobile Market Monitor and WhereIsMyTransport. GoAscendal, a South Africa-based technology company, mapped 528 minibus routes in Cape Town during 2020-2022 and established the **African Urban Mobility Observatory**.
Regulatory recognition and integration	■ Recognise and establish the function of informal transport in the public transport system. ■ Define specifications for the quality of service for these modes. ■ Define the authorities responsible for regulating the sector. ■ Define the regulatory framework for carrying out the activity.	In 2020, Mexico City's Mobility Secretariat (SEMOVI) used a participatory process to develop a regulation for **bike taxi operations** in the city. The regulation requires operators to organise in co-operatives and to define the number of vehicles in operation and the tariff. The regulation also provided training to co-operatives to attain operating permits and defined an operation area for bike taxis. It was accompanied by a vehicle substitution programme that provides government funding to support the shift to electric pedal-assisted vehicles. **Angkots** (minibuses) have been integrated in the public transport system of Indonesia, as feeders for the Teman Bus service, through a government-funded programme launched in 2020 and the support of the Institute for Transportation and Development Policy (ITDP).
Business development	■ Engage in business consolidation and co-operatives. ■ Establish transport workers' unions.	The **Boda Boda Safety Association of Kenya (BAK)** maps its members across the country's 47 counties, with a mandate that includes training, advocating for the sector's needs, and working with governments and communities to develop projects and policy. In Cochabamba (Bolivia), three-wheeler drivers have organised in **associations or unions to support each other** and have gained a minimum legal coverage against persecution by authorities. In South Africa, in 2021, the World Bank and the Development Bank of Southern Africa launched an initiative to better understand how to support and improve the minibus taxi industry in South Africa. After an **assessment of their business models, finances and operations**, the initiative has supported taxi associations in migrating into companies, rationalising their vehicle fleet, and implementing more effective operational processes as well as improving the working conditions for drivers and personnel.
Fleet improvement and electrification	■ Provide vehicle renewal or recapitalisation incentives for upgrading to cleaner and safer vehicles. ■ Offer co-operative loans.	The Indian government has enacted a **subsidy scheme** called FAME II (Faster Adoption and Manufacturing of Hybrid and EV) until 2024, while increasing by 50% the credit ceiling for two-wheelers to support this transition. In northern India, the Rejuvenation of Auto-Rickshaw in Amritsar through Holistic Intervention (RAAHI) project was launched in 2019 to switch the city's three-wheeler transport system to electric vehicles. The project provides vehicle owners with **subsidies for the electric vehicle cost and low-interest loans** to those replacing diesel three-wheelers that do not meet the Bharat Stage (BS) III emission standard. Three Wheels United, based in Bangalore, India, promotes the use of electric vehicles and works with stakeholders to provide **loan options, savings accounts and recurring deposit accounts** to improve the quality of life of drivers, making them more financially secure and increasing their sense of ownership.
Operations	■ Offer safe driver training and improve labour conditions. ■ Provide salaries to drivers and improve workers' rights. ■ Consolidate driver recruitment and management. ■ Support vehicle management and route rationalisation. ■ Offer cashless and integrated ticketing. ■ Support mapping and digitalisation of transport routes and improved data on operations. ■ Implement passenger information systems. ■ Provide open public transport data. ■ Support first-/last-mile connectivity.	The **Trufi** app is a journey planner that covers both government and informal transport services in different cities around the world. In 2020, Maha Metro in India launched a mobile app to enable passengers to **book auto-rickshaw trips**, helping the company improve its feeder service and to integrate informal transport services with the public transport service. In the Philippines, Sakay.ph has mapped routes for road-based informal transport modes, such as jeepney and UV Express services, as part of a **journey planner app** used by around 500,000 commuters in Metro Manila. In 2021, the Philippines' Land Transportation Franchising and Regulatory Board and the Department of Transportation launched a technology to optimise jeepney services and provide drivers with a **daily payment contingent on their kilometres travelled**, rather than drivers only earning what is left over after paying rent to operators. Earnings for drivers could increase further based on service quality, commuter feedback and performance.

BOX 1. Key indicators for informal transport

Data regarding informal transport are often non-existent or are not disaggregated from public transport data. Gathering data on these systems could allow for countries to improve electrification and decarbonisation targets based on a clear baseline, understanding the current state of their systems, using the current assets (informal transport providers and vehicles), improving transparency, and preventing potential emissions leakages that can affect countries' NDCs and global decarbonisation goals.

Data could help entrepreneurs, governments and banks build new (and locally appropriate) financial products, subsidies, and market incentives that encourage asset owners to convert to electric vehicles, allowing the aggregation of demand to increase supply and production of these vehicles. It could also facilitate the integration of informal transport into planning transport systems that are not only zero emissions, but demand-oriented, agile and flexible to users' needs. It sets the foundations to engage and recruit informal transport's labour, associations, owners, firms, and investors in decarbonisation efforts, contributing to a more just transition. Finally, it can help in gauging progress towards the United Nations Sustainable Development Goal 11 (SDG 11.2), taking into consideration existing urban mobility systems.

This box suggests key data and indicators that can be used to guide different stakeholders in gathering information on informal transport in a standardised, comparable way, and explains why these are important.

1. **Characteristics of the informal transport vehicle fleet:** Activity data are essential to estimate the sector's greenhouse gas emissions. These emission estimates will provide a baseline for climate action and decarbonisation strategies for the sector. Key information to collect includes:
    a. Number of vehicles
    b. Type of vehicles
    c. Average age of vehicles
    d. Average operational lifespan of vehicles
    e. Type of fuel used
    f. Fuel efficiency (miles/gallon or kilometres/gallon)
    g. Number of electric units (if any)
    h. Average kilometres travelled (daily or annual) per vehicle type
2. **Modal share and/or number of daily trips taken in informal transport:** Understanding the scale of use of the mode, adequately reflecting the importance of the sector in providing transport access (SDG 11.2) and understanding the potential impact of decarbonisation strategies in terms of social and economic components, not only emission reductions.
3. **Operational characteristics:** These are essential to understand the service coverage (geographic and territorial) of these systems, ascertain how they interact with government-run systems and how they provide access to employment, public services, and community amenities. This is necessary to move towards greater systemic integration and optimisation to reduce emissions, improve transport services for users and operators, and improve user experience with available information for better trip planning, potentially leading to increased ridership of shared mobility services, reducing or preventing private vehicle trips. Key information to collect includes:
    a. Routes
    b. Stops
    c. How operators connect to clients
4. **Characteristics of the workforce:** Adequately understanding the scale of the market, as well as the size and needs of the labour sector that is directly and indirectly employed by informal transport will create the space for innovative approaches to labour policy and social support systems for workers in the sector, translating into a more just transition. Key information that should be collected includes:
    a. Number of people working in the sector
    b. Gender
    c. Age
    d. Nationality
    e. Race
    f. Average income
5. **Organisation dynamics:** There is a need to better understand how these systems are organised, including how associations facilitate (or block) benefits for labourers and owners and how they wield (or lack) political power; and to understand the dimensions and operations of the micro-, small-, and medium-sized enterprises that serve informal transport, their economic impact, and the motivations and dynamics of the small investors. Doing so is foundational to creating policy and regulatory frameworks that bring these enterprises on board and guarantee their involvement in the road to zero, as well as business and technology innovations that can help improve the businesses, the quality of services, and safety of informal transport. Key information to collect includes:
    a. Type(s) of organisation(s) (if any)
    b. Number of organisations and members
    c. Business model and key details of operations
    d. Political influence or lack thereof.
    e. Main causes, motivations or agendas for which they fight.

Source: See endnote 66 for this section.

Partnership in action

- The **Asian Development Bank's Asian Transport Outlook Database** is an open resource that provides national-level data on the transport sector in 51 economies in the Asia-Pacific region, including data on modal share and motorisation for informal transport modes such as two- and three-wheelers, intermediate public transport and non-motorised two-wheelers (pedicabs and bike rickshaws).[67]
- Two joint initiatives – **Digital Transport for Africa (DT4A)** and **Datos Abiertos de Transporte Urbano y Movilidad (DATUM)** in Latin America – use open data and peer-to-peer knowledge sharing to scale up and support urban mobility projects. The initiatives collect GTFS (General Transit Feed Specification) data on informal transport systems and are supported by global partners such as France's AFD, the World Resources Institute, the Institute for Transportation and Development Policy, the Mastercard Foundation, multilateral banks and several universities worldwide.[68]
- The **Global Labour Institute** and the **International Transport Workers Federation's Informal Transport Programme** support the representation, livelihoods and organisation of informal transport workers, undertake research on the potential impact of bus rapid transit projects in cities, and provide practical steps towards the formalisation of informal transport based on the inclusion of democratic workers' organisations in policy development, planning and implementation.[69]
- The **Global Network for Popular Transportation** – a project of the Shared-Use Mobility Center initiated by Agile City Partners and supported by CoMotion Inc. – aims to transform the global narrative on popular transport, highlight successful efforts and advocate approaches to improve the sector. It does this by creating networks and communities of practice, bringing popular transport into global discussions and events, fostering conversations and collaborations across sectors involved with popular transport, disseminating knowledge, conducting research and providing technical advice and support to initiatives on popular transport.[70]
- The **International Association of Public Transport's (UITP) Informal Transport Working Group** aims to reconcile the interests of operators, passengers and employees and to tackle informal transport by transforming services and enabling regulatory and structural reforms.[71]
- The **International Transport Forum's (ITF) Transportation Outlook** provides an overview of trends and prospects for the global transport sector and includes databases on modes often used for informal transport, such as three-wheelers and minibuses.[72] ITF's **Decarbonisation Transport Initiative** promotes carbon-neutral mobility to fight climate change and helps decision makers select mitigation measures that they can use to act on their climate commitments.[73] The initiative has supported projects such as the 2022 award-winning "Transition to Electric Boda Boda in the Nairobi City County, Kenya".[74]

- **Low Carbon Transport for Urban Sustainability (LOTUS)** is an initiative by the Egyptian Presidency of the 2022 UN Climate Change Conference (COP 27) aiming to activate systemic change to improve and decarbonise the urban mobility landscape. Among its three strategic aims are to "Empower and invest in informal transportation to decarbonise, and mobilise towards SDG 11".
- **MobiliseYourCity Partnership** has developed an Informal transport Toolkit to guide the development of the informal transport sector, as well as a catalogue of 50 practical measures to help local and national governments drive reforms in the sector. This initiative supports the development of sustainable urban mobility plans (SUMPs), which helps local governments identify measures to support informal transport and integrate it in the local mobility systems. MobiliseYourCity has also organised and supported webinars, workshops and events linked to the digitalisation, mapping and integration of informal transport services.[75]
- The **Transformative Urban Mobility Initiative (TUMI)** of the **German Agency for International Cooperation (GIZ)** has supported projects such as rickshaw electrification in Singra (Bangladesh), the development of a trip planning app that integrates informal transport service information in Nagpur (India), and the introduction of electric three-wheelers for shared transport and delivery services in El Kelaa des Sraghna (Morocco).[76] TUMI also initiated a global **Mobility Data Hub** – which covers both government and informal transport – alongside partners such as CAF, ETH Zurich, the New Urban Mobility Alliance, Trufi Association and WhereIsMyTransport.[77]
- The **United Nations Environment Programme's Global Working Group on Electric 2&3 Wheelers** seeks to advance the transition to electric and non-motorised two- and three-wheelers in 17 countries (Bangladesh, Burundi, Ethiopia, India, Kenya, Madagascar, Maldives, Morocco, Nepal, the Philippines, Rwanda, Sierra Leone, Tanzania, Thailand, Togo, Uganda and Viet Nam). It supports the development of global and regional targets for the shift to electric mobility, facilitates discussions around the global harmonisation of e-mobility standards and regulations, and develops tools to support e-mobility projects worldwide.[78]
- The **Volvo Research and Educational Foundations' Informal and Shared Mobility in Low- and Middle-Income Countries (ISM)** initiative will support an International Research Program from 2023-2026, and contributes to strengthening equity and sustainability in urban transport by supporting research that creates new knowledge to better inform stakeholders in the target countries to govern, design and develop informal and shared mobility, thereby contributing to better access to goods and services for all.[79]

3.4.2
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