

Integrating Popular Transport Systems into Global NDCs



Transformative Urban Mobility Initiative

*Enhancing Global Climate Action through
Adaptation and Mitigation of Popular Transport Systems*



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Background paper

Integrating Popular Transport Systems into Global NDCs:

Enhancing Global Climate Action through Adaptation and Mitigation of Popular Transport Systems

Authors

Transport for Cairo (TfC): Farida Moawad, Mohamed Hegazy, Ghada Abdulaziz

Global Network for Popular Transport (GNPT): Andrea San Gil León, Camila Barquero

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Abbreviations and acronyms

2Ws/3Ws	Two- and three-wheelers
A-S-I	Avoid-Shift-Improve
COP	Conference of Parties
GHG	Greenhouse Gases
GNPT	Global Network for Popular Transport
GST	Global Stocktake
HDV	Heavy-Duty Vehicle
HICs	High-Income Country
ITF	International Transport Forum
LDV	Light-Duty Vehicle
LICs	Low-Income Countries
LOTUS	Low Carbon Transport for Urban Sustainability
MICs	Middle-Income Countries
NAPs	National Adaptation Plans
PATH	Partnership for Active Travel and Health
SURGe	Sustainable Urban Resilience for the next Generation
TUMI	Transformative Urban Mobility Initiative
UIC	International Union of Railways
UITP	International Association of Public Transport
UNFCCC	United Nations Framework Convention on Climate Change
WRI	World Resources Institute

I Introduction

By early 2025, countries are due to unveil new national climate commitments under the Paris Agreement, known as Nationally Determined Contributions (NDCs). This presents a timely opportunity to address and decarbonise a sector that has been largely overlooked by policymakers: popular transport.

Popular transport are local transport services, which are publicly provided but privately operated, emerging in nearly every city in medium- and low-income countries (MICs and LICs).

These transport services are commonly referred to as “informal transport,” “paratransit,” “intermediate public transit,” or “artisanal public transportation.” To avoid negative connotations and to recognise the vital role popular transport services play in the majority of people’s daily mobility worldwide, the Global Network for Popular Transportation (GNPT) advocates for the use of “popular transport” instead (GNPT, 2024).

An analysis into the modal split of 30 cities across, Africa, Asia and Latin America showed that on average 68% of motorised trips in these cities are made using popular transport (GNPT calculation based WRI (2023a) adapted from Behrens et al. (2016) and Salazar (2015).¹). However, only Uganda and Angola include popular transport in their NDCs, highlighting a significant gap in global climate action and a missed opportunity to engage with a sector already mobilising millions of people worldwide.

Recognising the pressing need to improve, integrate, and mobilise investments for popular transport systems, including commitments and goals for the sector into Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs) is key. To formally recognise Popular Transport in Global Climate Action and integrate these systems into NDCs and NAPs, the Global Network for Popular Transport (GNPT) along with Transport for Cairo (TfC) developed a global NDC template for Popular Transport, an initiative funded by the Transformative Urban Mobility Initiative (TUMI). Considering that incorporating popular transport into climate action efforts is a relatively new topic in international conversations, this background paper aims to provide information, context and insights to understand the importance, relevance and opportunities for developing an NDC template for this sub-sector and for raising ambition in transport and climate goals in partnership with popular transport.

2 Background: NDCs

Adopted by all signatory countries, the Paris Agreement is a legally binding international treaty, which requires each Party, i.e. country to prepare, communicate and maintain successive Nationally Determined Contributions (NDCs) that it intends to achieve (Art. 4.2). Thus, an NDC is a government obligation under the Paris Agreement. The purpose of NDCs is to reduce global greenhouse gas emissions (GHG) and adapt to climate change by ensuring that the global average temperature increase is maintained well below 2°C as compared to pre-industrial levels while further pursuing efforts to limit the increase to 1.5°C (UNDP, 2023).

NDCs are thus essentially climate action plans where each country summarises and communicates their post-2020 climate actions and targets (UNFCCC, 2024). They represent efforts by each country to reduce national emissions and adapt to climate change by setting targets and defining how to reach them.

¹ The calculation is based on the non-weighted average of the modal share of annual popular transport trips made in 30 cities across Africa, Asia and Latin America, as presented in the figure adapted by WRI (2023a) from Behrens et al (2016) and Salazar (2015). The figure can also be further be found below.

2.1 Formulating NDCs

NDCs should include both mitigation and adaptation targets and measures. **Mitigation** refers to the reduction of greenhouse gas (GHG) emissions, which cause climate change. In the context of mitigating emissions from the passenger transport sector, these measures typically rely on the **Avoid-Shift-Improve (A-S-I)** framework.²

Adaptation measures, on the other hand focus on how to adapt to the impacts of climate change. The concept of **just transition** is relevant here, where the aim is to ensure the rights and socio-economic well-being of vulnerable persons during the climate transition. This implies that the shift to a zero-carbon future should proceed in a manner that, on the one hand, reduces potential and existing negative impacts on local communities including workers, users and overall value chains, and on the other hand, also ensures that the benefits of the decarbonisation are fairly distributed. (WRI, 2023b).

Ideally, NDCs should include climate actions and goals for multiple priority sectors depending on the country's context, economy, most relevant sources of emissions and abatement possibilities, including the energy, transport, agriculture, health, water, infrastructure, and tourism sectors. The formulation of NDCs should be based on a sound analysis process backed by sufficient data. That way, elaborate systems to monitor and verify a country's progress towards its targets can be established (UN, 2024). NDCs should be ambitious and based on a detailed financing strategy. Therefore, the role of climate finance tools is instrumental to achieve the goals and actions defined in the NDCs. Additionally, NDCs should ideally connect and bridge the gaps between national, regional and local policies (UITP, 2023).

In practice, however, ambition levels of NDCs across countries may vary due to the lack of finance, capacity and sometimes insufficient political commitment (UN, 2024). In fact, it is commonly agreed on that the peaking of and subsequent reduction of emissions will take longer for developing countries (UNFCCC, 2024). Therefore, emission reductions should be undertaken on the basis of equity and organised under the umbrella of sustainable development and poverty eradication (ibid.). Consequently, NDCs can include unconditional and conditional targets, i.e., those that are dependent on external financial support (UNDP, 2023).

2.2 Submission of NDCs

NDCs are submitted every five years to the UNFCCC secretariat. Regardless of their implementation time frames, countries are requested to submit their NDCs by 2020, 2025, and 2030 (UNFCCC, 2024).

Based on the so-called ratcheting mechanism, or ambition mechanism, successive NDCs should represent a progression compared to the previous one, i.e. newer NDCs should be more ambitious than their predecessors (ibid.). According to Article 4.1, countries can adjust their existing NDC to enhance its level of ambition (UNFCCC, 2024).

Submitted NDCs are recorded in the [NDC registry](#), which is publicly accessible and maintained by the UNFCCC. During COP28 in Dubai in 2023, governments agreed that they would take stock of the

² In the transport field, “avoid” refers to measures, which reduce the need to travel and commute thereby making the transport system more efficient (TUMI, 2023). Travel demand management (TDM) as well as urban planning support avoid measures. “Shift” focuses on improving “individual trip efficiency” by affecting a modal shift away from the most energy consuming towards more environmentally friendly modes, i.e. shifting individuals from cars to public transport and active mobility (ibid.). Finally, “improve” refers to improving the efficiency of vehicles and fuels by optimising operations including the improvement of energy sources. Renewable energy-based transport for motorised modes should be the “basic principle” (ibid.).

implementation of the Agreement through the [Global Stocktake](#) (GST) starting in 2023 and every five years (UNFCCC, 2024). The objectives of the GST are to assess the collective progress and to inform the preparation of subsequent NDCs.

As seen in the graph below, the next round of NDCs, NDC 3.0, will be submitted by February 2025 in advance of COP30 in Brazil. These NDCs should have updated targets to be implemented by 2030 and 2035.

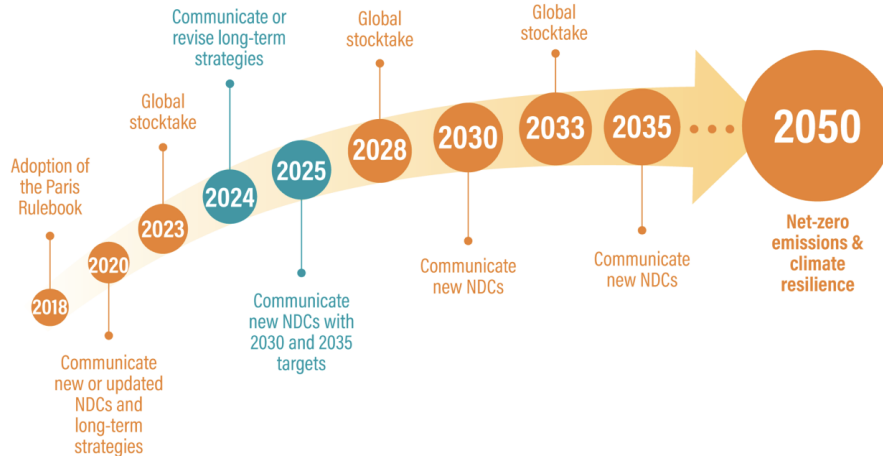


Figure 1 NDC timeline - Source: WRI, 2024

The UNFCCC Secretariat and the NDC Partnership³ have further launched the [NDC 3.0 Navigator](#), an interactive online tool that brings together knowledge and resources to help countries prepare their NDC submissions.

2.3 Assessing submitted NDCs

As of November 2021, all 193 signatory countries to the Paris Agreement had issued a first NDC, and 151 had communicated a new or updated one (UN, 2024).

Despite the requirement that NDCs need to be ambitious, a significant gap between required and planned emissions reductions was evident. That is why the Glasgow Climate Pact was signed in November 2021, where all countries were asked to revisit and strengthen the targets in their NDCs in 2022 (UN, 2024).

Two reports released ahead of COP28 in 2023 in Dubai based on the GST emphasised that countries are significantly off-track (UN, 2024).

Further, with regards to just transition, it was noted that except for South Africa’s plan, “explicit attention to this concept was almost non-existent in the initial NDCs” (WRI, 2023b). Currently, 45 NDCs explicitly mention a just transition, but at varying degrees. With regards to the transport sector, it has been noted

³ “Launched in 2016 at COP22 in Marrakesh, the NDC Partnership was founded on the idea that technical assistance, expertise, and financing for climate action were not being deployed in an effective or coordinated way [...], and that greater support was urgently needed. In response, the NDC Partnership was established to facilitate collaboration between country governments, international institutions, non-state actors, and other partners to provide timely support for accelerated climate action” (NDC Partnership, 2024). The organisation currently consists of 200 members including 120 countries and 80 institutions.

that “concrete plans and policy measures for a just transition for transport workers are conspicuously absent.” (SLOCAT, 2023b).

3 NDCs focusing on sustainable mobility modes

Urban transport accounted for 8% of global CO₂ emissions and around 40% of global transport emissions in 2020 (UITP, 2024). It is estimated that in the business-as-usual (BAU) scenario, motorised transport in cities could surge 94% in the next 25 years, which would lead to undesirable consequences with regard to energy consumption, air pollution, and emission levels, thus jeopardising the climate targets set forth by the Paris Agreement (PATH, 2024). Thus, the new round of NDCs to be submitted in 2025 offers a most timely opportunity to halt this scenario by formulating and implementing more holistic and ambitious transport targets.

Zooming in on transport, the [International Transport Forum](#) as well as [GIZ and SLOCAT](#) have launched online transport NDC trackers.

Advocates of sustainable mobility including the International Association of Public Transport (UITP), the International Association for Rail (UIC), and the Partnership for Active Travel and Health (PATH) have published documents reviewing submitted NDCs and proposing an NDC template for their respective modes of interest, i.e. public transport (UITP, 2023; 2024), rail (UIC, 2023) and active mobility (2023; 2024). The three organisations did so by adopting a unified set of assessment factors, which was first identified by PATH during its review of national policies for walking and cycling in ITF member countries (PATH, 2023)

Table 1: Assessment factors for Transport NDCs - Source: Adapted from PATH, 2023

Assessment factor	Guiding question
1. Status	Does the NDC mention [sustainable mobility modes/services]? Are there specific targets for it?
2. Leadership	Who oversees the NDC process?
3. Duration	What is the timeframe for achieving targets for the development of [sustainable mobility modes/services]?
4. Ambition	Are [sustainable mobility modes/services] addressed in a mitigative and/or adaptive context?
5. Action	What kind of concrete action do they focus on?
6. Investment	Is funding in place to implement plans for the development of [sustainable mobility modes/services]?
7. Evaluation	Is there a clear evaluation framework in place to track progress on [sustainable mobility modes/services] targets?

By applying these assessment factors, UITP (2024) finds that current efforts and plans are insufficient to reach the climate goals. In fact, one in three countries fails to mention public transport in their NDCs. Only one third of NDCs mention a delivery timeline, mostly 2030, without having more long-term timelines planned out, and only 20% of NDCs have specific public transport targets. Looking more closely at the measures, a trend is clear in which HICs prioritise targets related to electrification and clean vehicles, whereas developing countries focus on increasing public transport coverage and other infrastructure investments (UITP, 2024). Yet, it is assumed that to achieve the climate targets, a combined

mode share of active travel and public transport of between 40% to 80% is needed (PATH, 2024; UITP, 2024). Thus, an increased focus on shift measures is required .

HOW MANY NDCs INCLUDED PUBLIC TRANSPORT POLICIES OR MEASURES?

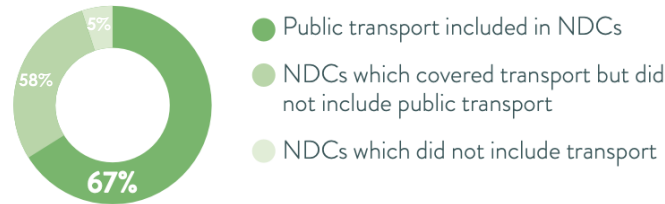


Figure 2 Share of NDCs mentioning Public Transport - Source: UITP, 2024

It is further noted that targets related to active mobility, freight, shipping and aviation “appear in only a handful of NDCs” (WRI, 2023b). Therefore, more “ambition, action and investments” within the upcoming NDCs are necessary for the transport sector (PATH, 2024).

Number of current NDCs with different types of transport measures

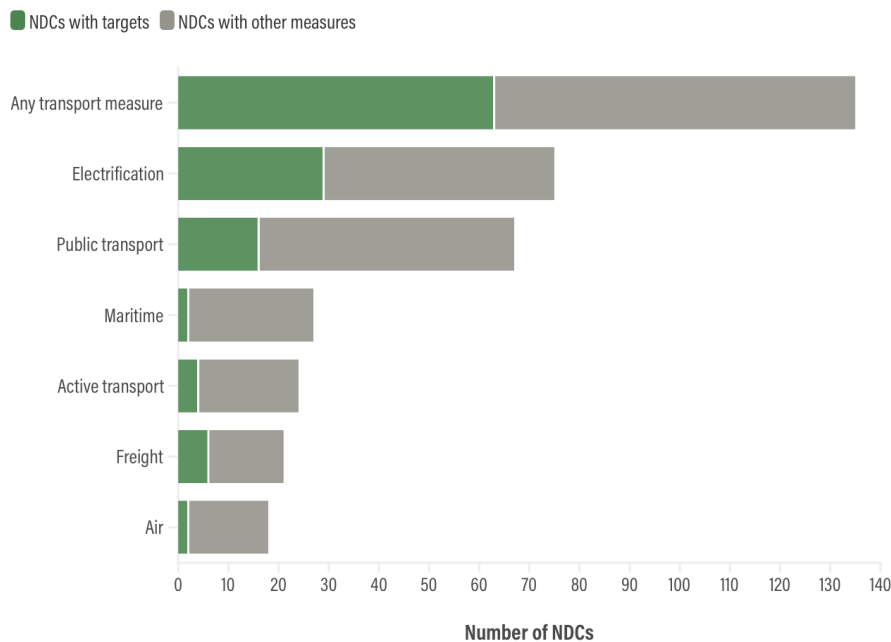


Figure 3 Number of NDCs with different types of transport measures - Source: WRI, 2023b

4 Background: Popular transport

Popular transport is essentially public transport. However, a different term is used to address it as a sub-sector because popular transport services tend to be provided by individuals or associations rather than transport companies or governments. Their operations, including business models, vehicles, routes, schedules, tariffs, speeds, etc., are carried out in ways that are often minimally or not supported by,

authorised and/or recognised by authorities and/or regulations. These services provide access to education, job opportunities, and health care services in places without sufficient government-provided or supported public transport systems.

Popular transport is a term used for public transport services serving the public while being operated by private local entrepreneurs with some degree of informality (SLOCAT, 2023a). The informality may reflect in how the services can flexibly adjust the routes, fares and schedules they operate on based on local passenger demand. Further, as opposed to traditional public transport, popular transport services are not provided by large companies, but instead by smaller companies or single entrepreneurs. Popular transport services are commonly referred to as “informal transport”, “artisanal,” “intermediate public transit” or “paratransit” services.

4.1 Rationale

It has been noted that popular transport services typically arise when the government-supported public transport service offer did not sufficiently address local transport needs (SLOCAT, 2023a). This implies that certain areas are not covered by public transport or that their locations, timetables and/or fares do not meet user needs or expectations (WRI, 2023b). To put this into perspective, literature notes that in Latin American cities for example, 20% of residents lack access to public transport within a ten minute walk from their homes, while 15% of residents in informal settlements lack any access at all (UNDP & GNPT, 2024).

4.2 Prevalence

Popular transport services fill a critical market gap, accounting for approximately 68% of road trips in cities in LMICs (GNPT calculation based WRI (2023a) adapted from Behrens et al. (2016) and Salazar (2015)). In countries in Africa, Latin America, and in Asia, where there is significant population growth rates, rapid urbanisation and urban sprawl, popular transport often represents the only public transport mode (MobiliseYourCity, 2023). In the absence of government-supported public transport services in select African cities (see below), up to 100% of daily motorised trips are made by residents using popular transport services (SLOCAT, 2023a). Thus, popular transport services cover not only first- and last-mile trips, but often cover the entire journey.

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

Source: See endnote 5 for this section.

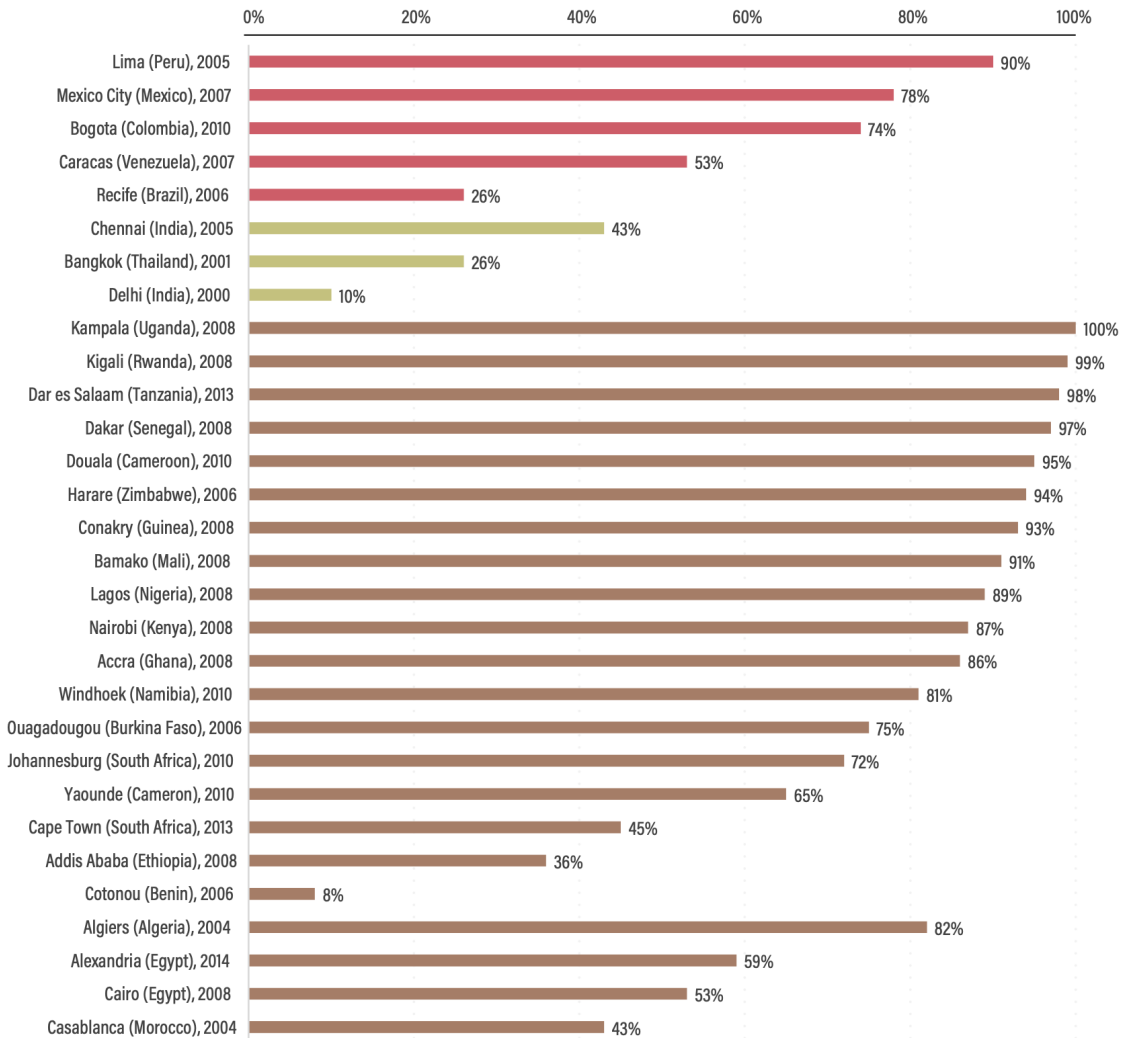


Figure 4 Market shares of popular transport among motorised trips in 30 cities, selected years - Source: SLOCAT, 2023a⁴

However, popular transport services are not only present in medium- and low-income countries, but they can also be found in “underserved fringes of cities in high-income countries” (SLOCAT, 2023a). In fact, app-based ride-hailing services are “often grafted onto existing informal transport systems,” and drivers and operators of informal transport services are recruited onto these ride-hailing platforms as service providers (SLOCAT, 2023a).

⁴ The color coding follows the regions of these cities: Red is used for cities in Latin America, green is used for cities in Asia, and brown is used for cities in Africa.

- In 2020, there were 27 million registered two- and three-wheelers in **Africa**, up from 5 million in 2015 (Courtright et al., 2023). 80% are used for passenger & goods transport (Cerulli, 2024).
- **South Africa** is 80% reliant on the minibus taxi industry (Walters & Pisa, 2023). This translates to more than 280,000 minibus taxis and 600,000 minibus drivers in South Africa (Kriel, 2023).
- In **Lagos**, more than 75,000 buses and minibuses (called molues and danfos) are available for transport. Each day, 69% of all trips are made using these popular transport options (Otunola et al., 2019).
- There are 200,000 minibuses (matatus) in **Kenya** and 70% of Kenyans rely on them for transportation (Dianah, 2023).
- There are more than 4 million auto-rickshaws (tuk-tuks) in **India** serving 230 million passengers a day. This number is expected to rise to 430 million passengers daily by 2031 (Statista, 2019).
- There are 100,000 motorcycle taxis in **Thailand** (Sereerat & Sirijintana, 2020).
- In **Jakarta**, minibuses (angkots or mikrotrans), now carry 60% of TransJakarta passengers, which is equivalent one million passengers per day (C40 Knowledge Hub, 2023).

Figure 5: Overview of the size of popular transport in different cities

The popular transport sector does not only “move millions of people” around the world, but it also employs millions thus providing a significant contribution to local workforces and economies (SLOCAT, 2023a). For example, over 500,000 jobs are secured by the 75,000 mini-buses and 200,000 motorbike taxis in Lagos, Nigeria (MobiliseYourCity, 2021).

Popular transport services are described as “homegrown, emergent, widespread, self-organising and self-sustaining” transport modes (SLOCAT, 2023a). Despite their prevalence, popular transport systems lack integration into formal transport policies, contributing to urban congestion and pollution (MobiliseYourCity, 2021). The matrix below aims to give an overview of how different popular transport modes can be positioned based on the degree of the regularity of service levels (fixed routes, timetables, frequencies), as well as on their degree of public regulation.

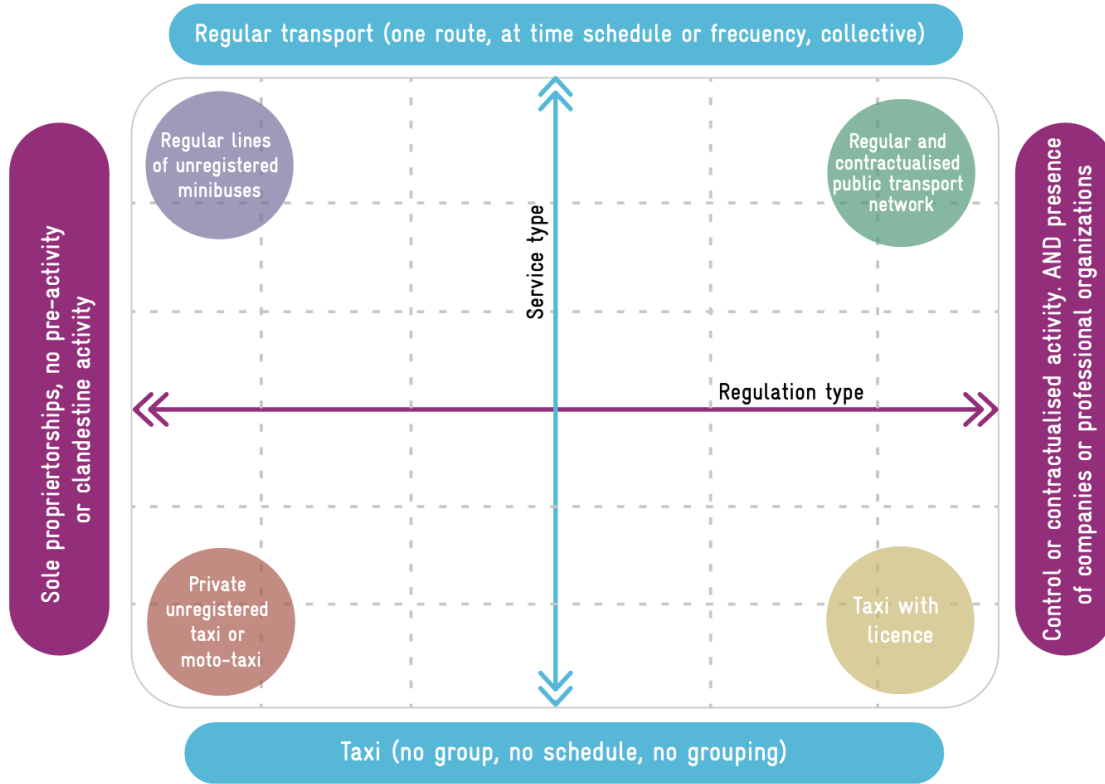


Figure 6 Overview matrix - Source: MobiliseYourCity, 2021

4.3 Fleet

The vehicles used by popular transport providers are based on the context they operate in. While mini- and microbuses are the most used popular transport modes in Africa and in Latin America, two- and three-wheelers (2/3Ws), including tuk-tuks and motorcycles are prevalent in Asia (SLOCAT, 2023a). Literature also references boats being used as a popular transport mode (ibid.; MobiliseYourCity, 2021). Hence, popular transport covers more than road-based services and are provided using both light- and heavy-duty vehicles (LDVs and HDVs) (SLOCAT, 2023a).

The table below depicts the different vehicle types used for popular transport along with their average passenger capacity and their different local names from one region and country to another.

Table 2: Overview of average capacity and terminology for popular transport modes - Adapted from: SLOCAT, 2023a; WRI, 2023c

Modes	Avg. capacity	Local names
Minibuses and buses 	10-70	<ul style="list-style-type: none"> Africa: Candongueiros (Angola), Gbaka (Côte d'Ivoire), Esprit de Mort (Democratic Republic of the Congo), Mashrou, Microbus, Service or Tomnaya (Egypt), Trotro (Ghana), Matatu (Kenya), Sotramas (Mali), Chapa (Mozambique), Car Rapide (Senegal), Dala Dala (Tanzania), Danfos or Molue (Nigeria), Minibus-Taxi (South Africa), Kombi (South Africa, Zimbabwe). Asia: Mikrotrans, Angkot, Pete-pete or Sudako (Indonesia), Jeepney (Philippines). Latin America and the Caribbean: ZR Van/Minibus (Barbados), Surubí/Mini (Bolivia), Chiva/Chivero (Colombia), Busito, Minibus, Ruletero or Chicken Bus (Guatemala), Diablo Rojo (Panama), Maxi taxi (Trinidad and Tobago), Camioneta (Venezuela).
Pick-up trucks 	6-12	<ul style="list-style-type: none"> Latin America and the Caribbean: Pick-up (Guatemala), Tap-tap (Haiti).
Cars 	3-5	<ul style="list-style-type: none"> Africa: Woro-woro (Côte d'Ivoire), Amaphela (South Africa), Taxi (Sierra Leone), Mshikashika (Zimbabwe). Asia: Service (Lebanon). Latin America and the Caribbean: Taxi Pirata or Colectivo (Central America, Ecuador), Trufi (Bolivia), Guala (Colombia), Concho (Dominican Republic), Robot (Jamaica), Ferry (Panama), Porcoico (Nicaragua).
Motorcycles 	1-2	<ul style="list-style-type: none"> Africa: Boda boda (East Africa), Jakarta (Senegal), Okada (West Africa). Asia: Lemorque, Motodop, or Remork (Cambodia), Ojek (Indonesia), Motosai (Thailand).
Three-wheelers 	1-2	<ul style="list-style-type: none"> Africa: Pragia (Ghana), Hende moto (Nigeria), Kekeh (Sierra Leone), Bajaji (Tanzania), Tuk-Tuk (various countries). Asia: Baby Taxi or Mahindra (Bangladesh), Bajaj (Cambodia, Indonesia), Sān Lún Chē (China), Chang Gari or Chingchi (Pakistan), Tuk-Tuk or Auto-rickshaw (various countries). Latin America and the Caribbean: Coco Taxi (Cuba), Mototaxi (Ecuador), Motocarro/Mototaxi (various countries), Torito or Tuk-Tuk (various countries).
Bikes 	1-2	<ul style="list-style-type: none"> Africa: Cyclo-Pousse (Madagascar) Latin America and the Caribbean: Bicitaxi (Colombia, Guatemala), Bicitaxi or Ciclotaxi (Mexico)
Boats 	Varies	<ul style="list-style-type: none"> Africa: Akro or Piroue (Togo) Asia: Abra (UAE) Latin America and the Caribbean: Lancha (Costa Rica, Guatemala)

Zooming in on environmental pollution, popular transport services are typically provided using ageing vehicles running on diesel and low-stroke engines (UITP, 2019). The vehicles purchased are often used vehicles, typically mini- and minibuses, which entrepreneurs import from HICs. In many cases, it has

been reported that these used vehicles do not undergo roadworthiness tests before being deployed in LICs and MICs for popular transport purposes (SLOCAT, 2023a). The aging fleets and the network inefficiencies contribute significantly to local air pollution and GHG emissions, which leads to popular transport vehicles being branded as “gross polluters” (UITP, 2019).

4.4 Regulation

The regulatory setting in which popular transport systems operate varies from country to country. While it is known that popular transport systems typically operate with “limited regulations” (SLOCAT, 2023a), local authorities regulate market entry by controlling the number of operating vehicles, the number of licenses granted and renewed each year as well as the criteria to obtain such licenses (MobiliseYourCity, 2021). More specific regulations may be in partially in place for the vehicles used, fares charged, drivers and other staff hired as well as on areas and routes served. Typically, however, fares, routes and schedules are flexible based on local market demand (ITF, 2023).

Like other transport services, popular transport systems are, however, subject to local traffic laws and regulations. As such, if a country were to introduce vehicle regulations and emission standards, these would apply to popular transport providers.

4.5 Business models

Popular transport operators typically do not receive government subsidies. Their main source of revenue to cover operational costs are the fares collected from passengers (MobiliseYourCity, 2021; UITP, 2021). Capital costs are usually also borne by the operators and/or vehicle owners themselves (ibid.).

For these reasons, the popular transport sector is characterised by many operators with small fleets of one or two vehicles per operator (GIZ, 2024). In some cases, vehicle owners are the operators themselves, but more commonly, the vehicle owner rents out the vehicle to drivers (SSATP, 2021). In these cases, drivers can be considered “unsalaried entrepreneurs” who pay the basic lease as well as the expenses including fuel (ibid.). To increase their daily income, drivers are incentivised to work long hours, and to operate on a “fill and go” basis while competing for the areas they serve with other operators and drivers (MobiliseYourCity, 2021; SSATP, 2021).

Further, sometimes the vehicle owner is not the license owner either and has to pay the license owner fees as well. In some countries, operators form driver unions, area-based associations or cooperatives to self-organise (MobiliseYourCity, 2021; SLOCAT, 2023a).

A simplified table of the different stakeholders and their typical roles in the popular transport sector is depicted below:

Table 3: Paratransit actors and their respective objectives - Source: MobiliseYourCity, 2021

Paratransit actors and their respective objectives (these objectives are indicative and must be adapted to the context and the local ecosystem of actors)		
Participants	Objectives	Sources of income
Passengers	Getting around	Personal
Drivers/riders	Optimising the number of passengers carried per day	Passenger revenue
Touts	Attracting passengers and optimising occupancy	Passenger revenue
Owners	Making a profit on the investment as quickly as possible	Passenger revenue or driver fees
Associations	Representing owners' interests, optimising the organisation of the service	Members' contributions
Mechanics, repairers	Selling services with an optimised margin	Cost of repairs (owner or driver)
Licence holders	Renting the licence to a driver	Passenger revenue or driver fees
Local authorities	Regulating the number of vehicles and ensuring mobility for city dwellers	Fuel taxes, licence costs, permits
Police	Enforcing regulations	Wages and fines
Financiers (banks or others)	Selling credit and securing repayments	Interest
Insurers	Increasing the number of insured vehicles	Owners' investments
Manufacturers	Selling vehicles - Increasing the number of vehicles	Owners' investments
Energy providers	Increasing the number of vehicles on the road	Buying fuel (driver)

Working conditions for transport workers are described as being “generally awful” (SSATP, 2021) characterised by low incomes, long working hours, lacking economic, legal and social protection, as well as facing harassment from local authorities (GNPT, forthcoming).

Transport workers may face “police harassment, criminal extortion, job insecurity, low incomes, discrimination, and no access to social security (ITF, 2017).” The situation is further aggravated for female transport workers as well as youth workers.

In the context of climate change, urban transport workers are further highly exposed to extreme weather conditions including flooding, air pollution and draughts, which may constitute as health and safety hazards, and commonly without being equipped with the appropriate protection (ibid.). Especially for days with hotter temperatures, the lack of shelter, cooling, hydration and sanitary facilities is noteworthy (ibid.). Climate resilient infrastructure and sustainable working practices are needed.

4.6 Lack of government support

Although popular transport modes provide essential mobility services, their somewhat unregulated operational arrangement poses several negative externalities for both their users (passengers) and providers (operators). Some negative externalities include: the low-quality service, including low safety standards for workers and users, precarious working conditions, as well as overall environmental pollution (MobiliseYourCity, 2023). The low-quality service usually refers to the deteriorating condition of the vehicles, driver behaviour, and limited passenger information among others (MobiliseYourCity, 2021).

However, the cost-based entrepreneurial set-up of popular transport does not generate enough turnover to warrant investments (UITP, 2021). The business model and lack of access to non-farebox revenues

limits the possibility of adequately maintaining vehicles or changing them to newer models, which results in the continued use of very old and polluting vehicles, often two to three times more polluting than their original version (SLOCAT, 2023a). Other negative externalities resulting from the cost-based business model entail competition for passengers leading and the “fill and go” model of operating often leading to passenger overcrowding, and congestion, etc.

Thus, it is important to realise that the current business model is the reason why negative externalities associated with popular transport systems appear.

The popular transport sector, comprised of SMEs, cannot be expected to deliver a high-quality public service when there aren't any public funds, subsidies, investments or other channels to support and compensate the providers of popular transport for their public service.

Thus, the main issue at hand is the lack of public support, investment and integration of these modes into national and local transport systems.

5 Bridging the gap: Incorporating Popular Transport into NDCs

As popular transport modes often do not align with policymakers' expectations of modern public transport systems, it has been noted that “most urban transport reform projects aimed to eradicate the paratransit sector” (MobiliseYourCity, 2021). However, instead of banning or attempting to fully replace popular transport vehicles, policymakers should set realistic reform expectations, recognise paratransit in policy especially with regards to their decarbonisation potential, and leverage paratransit dividends by investing and improving existing informal services and infrastructure.

According to research from the International Transport Forum (ITF-OECD, 2023), if the same rate of technology improvements were applied to popular transport fleets as is applied to formal bus transport, overall transport CO₂ emissions could drop by more than 12% compared to the business-as-usual (BAU) scenario. The improvement in the efficiency of popular transport vehicles represents 4% of the 12% reduction in CO₂ emissions globally and can have a significant effect in emerging economies where they are most used (ITF-OECD, 2023).⁵

Further, in 2022, a milestone was achieved for the popular transport sub-sector where the Low Carbon Transport for Urban Sustainability (LOTUS) initiative⁶ was launched during the COP27 Presidency in 2022. The initiative contained three strategic action points, including one to “empower and invest in informal transportation” to decarbonise and mobilise towards SDG 11 (UITP, 2022).

Current NDCs do not adequately address the role and potential of popular transport systems in achieving sustainable mobility, nor do global goals such as the 2030 Climate Solutions or Sharm Adaptation Agenda frameworks adequately address them. Only Angola and Uganda mention popular transport in their NDCs, one of them only recognising emissions from the sub-sector's vehicles, the other one proposing electrification measures for them.

⁵ To make this estimate, the ITF-OECD makes assumptions on the evolution of the fuel economy for urban minibuses used for popular transport services.

⁶ LOTUS has since been subsumed into the SURGe initiative, a second COP27 Presidency Initiative dedicated to connecting the local, national, and global levels with the vision to achieve global climate goals by using effective multi-level governance to transform cities to be healthy, sustainable, just, inclusive, low-emission, and resilient urban systems for a better urban future for all. Efforts regarding popular transport linked to the LOTUS initiative are being led by GNPT, in articulation with the SURGe initiative through UN-Habitat (UN-Habitat, 2023).

Effective climate action in the popular transport sector would further align with the Sustainable Development Goals (SDGs), such as:

- SDG #3: by improving air quality, road safety and health in cities,
- SDG #5 by making services more inclusive and safer for women,
- SDG #8 by improving working conditions, supporting the formalisation and strengthening of SMEs,
- SDG #10 by reducing transport inequalities and improving livelihoods,
- SDG #11 by improving transport accessibility and the quality of existing services, and
- SDG #13 by decarbonising the most popular transportation means in the world and avoiding car dependency.

Thus, integrating popular transport systems into NDCs and National Adaptation Plans (NAPs) can align sustainable urban mobility development with global mitigation, adaptation and just transition goals, and international funding efforts can then be coordinated to support low- and medium-income countries achieve their targets related to popular transport.

6 Conclusion and way forward

Given that the LOTUS initiative called for investments to support the decarbonisation of popular transport in 2022 and bearing in mind how the GST in 2023 demonstrated that the NDCs submitted thus far are not ambitious enough to meet the climate goals, now would be the opportunity to leverage the potential of decarbonising popular transport.

Including transport targets in NDCs is essential to elevate the ambition in climate action. As popular transport modes are the most prevalent transport modes in the Global South, incorporating targets for them in the NDCs presents an opportunity to achieve ambitious transport targets and to comply with the Paris Agreement. Continuing to overlook popular transport as an ally for climate action is a missed opportunity for much needed ambition required to comply with the Paris Agreement. **In other words, actions to decarbonise the transport sector without including the popular transport sub-sector, especially in LMICs, will fail to be ambitious enough.**

Further, by focusing on popular transport, global climate actions would empower and enable a sub-sector that is highly vulnerable and has been overlooked in planning and regulations for decades.

Therefore, the Global Network for Popular Transport (GNPT) along with Transport for Cairo (TfC) have developed a Global NDC Template for Popular Transport, an initiative which was partly funded by the Transformative Urban Mobility Initiative (TUMI).

Developing a Global NDC Template for Popular Transport is a key step to creating the conditions to empower and invest into the sub-sector on the national policy level, and to leverage support and funding from international partners.⁷ Following this template will allow countries to be ambitious and comply with the Paris Agreement.

⁷ The Global NDC Template for Popular Transport can now be found on the GNPT and TfC websites.

7 References

Cerulli, N. (2024, February 8). E-mobility in Sub-Saharan Africa: Electric Two Wheelers Gaining Momentum. Cleantech Group. <https://www.cleantech.com/e-mobility-in-sub-saharan-africa-electric-two-wheelers-gaining-momentum/>

C40 Knowledge Hub (2023): C40 Knowledge. Link: www.c40knowledgehub.org/s/article/How-Jakarta-integrated-informal-microbuses-into-the-public-transportation-network?language=en_US.

Dianah, E. (2023): Matatu investors feel electric buzz. Link: https://transformative-mobility.org/wp-content/uploads/2023/06/230125_NAIROBI_TheStandard_News.pdf

GNPT (2024): What is Popular Transportation? Link: <https://www.populartransport.net/what-is-popular-transportation> (Accessed on 18 July 2024)

GNPT [forthcoming]: The Economics of Two and Three-Wheeler Popular Transport Ecosystems in Cities of the Global South.

GIZ & SLOCAT (2023): NDC Transport Tracker (vs 2.0). Link: www.changing-transport.org/tracker. (Accessed on 18 July 2024)

GIZ (2024): Discussion Paper: Minibus Electrification in Africa. Link: <https://changing-transport.org/publications/discussion-paper-minibus-electrification-in-africa/>

ITF (2017): The Power of Informal Transport Workers – An ITF Education Booklet. Link: <https://www.itfglobal.org/sites/default/files/resources-files/informal-transport-workers.pdf>

ITF (2022): A Just Transition for Urban Transport Workers. Link: <https://www.itfglobal.org/en/resources/just-transition-urban-transport-workers-0>

ITF-OECD (2023): How Improving Public Transport and Shared Mobility Can Reduce Urban Passenger Carbon Emissions – Scenario Results and Policy Findings. Link: [How Improving Public Transport and Shared Mobility Can Reduce Urban Passenger Carbon Emissions](https://www.itf-oecd.org/publications/how-improving-public-transport-and-shared-mobility-can-reduce-urban-passenger-carbon-emissions)

ITF-OECD (2024): Transport NDC Tracker. Link: <https://www.itf-oecd.org/ndc-tracker/en>. (Accessed on 18 July 2024)

Kriel, R. (2023): Electrifying South Africa's minibus taxi industry: A Data-Driven Approach. DigitalTransport4Africa. Link: <https://digitaltransport4africa.org/electrifying-south-africas-minibus-taxi-industry/>

MobiliseYourCity (2021): Understanding Paratransit. Link: <https://www.mobiliseyourcity.net/mobiliseyourcity-paratransit-toolkit>

MobiliseYourCity (2023): Developing Sustainable Urban Mobility Plans - Guidelines for MobiliseYourCity geographies. Link: <https://www.mobiliseyourcity.net/developing-sustainable-urban-mobility-plans-guidelines-mobiliseyourcity-geographies>

Otunola, B., Kriticos, S., & Harman, O. (2019): The BRT and the danfo: a case study of Lagos' transport reforms from 1999-2019. Cities That Work. Link: <http://eprints.lse.ac.uk/103047/>

PATH (2023): National Policies for Walking and Cycling in ITF Countries. Link: <https://pathforwalkingcycling.com/wp-content/uploads/PATH-ITF-policies-report.pdf>

PATH (2024): Active Travel NDC Template. Link: <https://pathforwalkingcycling.com/wp-content/uploads/PATH-Active-travel-NDC-template-080524.pdf>

SLOCAT (2023a): Informal Transport. Global Status Report on Transport, Climate and Sustainability – 3rd edition. Link: <https://tcc-gsr.com/wp-content/uploads/2023/09/3.4.2-Informal-Transport.pdf>

SLOCAT (2023b): A just transition for transport workers: The foundation for sustainable and decarbonised transport pathways. Link: <https://slocat.net/a-just-transition-for-transport-workers-the-foundation-for-sustainable-and-decarbonised-transport-pathways/>

Sereerat, S., & Sirijintana, W. (2020). Bangkok motorcycle taxis as eyes on the street? Transportation Research Interdisciplinary Perspectives, 7, 100220. Link: <https://doi.org/10.1016/j.trip.2020.100220>

SSATP (2021): Myths and Realities of “Informal” Public Transport in Developing Countries: Approaches for Improving the Sector. Link: https://www.ssatp.org/sites/ssatp/files/publication/SSATP_Informal_v_final_double_compressed.pdf

Statista (2020): India - Projected Three-Wheeler and Auto Rickshaw Market Size 2020-2030. Link: 2020, www.statista.com/statistics/1029864/india-projected-electric-three-wheeler-and-auto-rickshaw-market-size/.

TUMI (2023): Sustainable Urban Transport: Avoid-Shift-Improve (A-S-I). Link: https://www.transformative-mobility.org/wp-content/uploads/2023/03/ASI_TUMI_SUTP_iNUA_No-9_April-2019-Mykme0.pdf

UIC (2023): Rail in Nationally Determined Contributions (NDCs) Analysis and recommendations. Link: https://uic.org/events/IMG/pdf/rail_in_nationally_determined_contributions_ndcs_vfinal.pdf

UIC (forthcoming): Rail NDC Template

UITP (2019): Informal Transport in MENA. Link: <https://www.uitp.org/publications/informal-transport-in-mena-report-is-out-now/>

UITP (2021): Key Insights Into Transforming The Informal Transport Sector. Link: <https://cms.uitp.org/wp/wp-content/uploads/2021/02/Knowledge-Brief-Informal-transport.pdf>

UITP (2022): Press Release: The Role of Public Transport Increases In Cop27 Initiatives. Link: https://cms.uitp.org/wp/wp-content/uploads/2022/11/COP27_PR.pdf

UITP (2023): Nationally Determined Contributions & Public Transport – Analysis Report for COP28. Link: <https://cms.uitp.org/wp/wp-content/uploads/2023/12/Analysis-report-for-COP28-1.pdf>

UITP (2024): Public Transport National Determined Contributions Template. Link: https://cms.uitp.org/wp/wp-content/uploads/2024/06/20240627_AnalysisReport-PT-NDC-template-JUN24-v4.pdf

UNFCCC (2024): Nationally Determined Contributions (NDCs). Link: <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs> (Accessed on 18 July, 2024)

UNFCCC (2024): Global Stocktake. Link: <https://unfccc.int/topics/global-stocktake> (Accessed on 18 July, 2024)

UN (2024a): All About the NDCs. Link <https://www.un.org/en/climatechange/all-about-ndcs> (Accessed on 18 July 2024)

UN (2024b): Global Stocktake reports highlight urgent need for accelerated action to reach climate goals. Link: <https://www.un.org/en/climatechange/global-stocktake-reports-highlight-urgent-need-for-accelerated-action-to-reach-climate-goals>

UNDP (2023): Explaners: What are NDCs and how do they drive climate action? <https://climatepromise.undp.org/news-and-stories/NDCs-nationally-determined-contributions-climate-change-what-you-need-to-know> (Accessed on 18 July, 2024)

UNDP & GNPT (2024): A Closer Look at Informal (Popular) Transportation: An Emerging Portrait. Link: https://www.undp.org/sites/g/files/zskgke326/files/2024-03/informal_transportation_report_march_2024.pdf

UN-Habitat (2023): Sustainable Urban Resilience for the next Generation (SURGe). Link: https://unhabitat.org/sites/default/files/2023/06/cop27_surge_initiative_updated_concept_note.pdf

Walters, J., & Pisa, N. (2023): Review of South Africa's public transport system. Research in Transportation Economics, 100, 101322. Link: <https://doi.org/10.1016/j.retrec.2023.101322>

WRI (2023a): The Market Share of Informal Transport Ranges from 8 to 100 Percent. <https://thecityfixlearn.org/lessons/the-market-share-of-informal-transit-ranges-from-8-to-100-percent/> (Accessed on 6 November, 2024).

WRI (2023b): Finding: 9 Things to Know About National Climate Plans (NDCs). Link: <https://www.wri.org/insights/assessing-progress-ndcs> (Accessed on 18 July, 2024)

WRI (2023c): Explainer: From Minibuses to 'Boda Bodas,' Informal Transport Could Be an Untapped Climate Change Solution. Link: <https://www.wri.org/insights/informal-transport-climate-benefits> (Accessed on 11 August 2024)

WRI (2024): Next Generation NDCs. Accelerating climate action under the Paris Agreement. Link: <https://www.wri.org/ndcs> (Accessed on 18 July, 2024)

VREF (2023): Connecting Informal Transport to Climate Action. Link: https://vref.se/wp-content/uploads/2023/03/Connecting-Informal-Transport-to-the-Climate-Agenda-Key-Opportunities-for-Actions_fin.pdf

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Bonn and Eschborn

E info@giz.de

I www.giz.de

Friedrich-Ebert-Allee 32 + 36
53113 Bonn
T +49 228 44 60-1047

Dag-Hammarskjöld-Weg 1 – 5
65760 Eschborn
T +49 6196 79-2650

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Author

Transport for Cairo (TfC): Farida Moawad, Mohamed Hegazy, Ghada Abdulaziz

Global Network for Popular Transport (GNPT): Andrea San Gil León, Camila Barquero

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