Global NDC Template for Popular Transport

*Guidance and Recommendations
for including Popular Transport into NDCs*

tumi

Transformative Urban Mobility Initiative

Federal Ministry
for Economic Cooperation
and Development

gíz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

GlobalNetwork for
PopularTransportation

**Transport
for Cairo**

مواصلات
للقاهرة

Global NDC Template for Popular Transport

Guidance and recommendations for including popular transport into NDCs

Authors

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

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

Table of Contents

List of Tables

1   Introduction

By February 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 sub-sector that has been largely overlooked by policymakers: popular transport.

Popular transport are local transport services, which are publicly provided, but privately owned and operated, emerging in nearly every fast-growing city in low- and medium--income countries (LICs and MICs). 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, referred to as boda boda in Kenya or ojek in Indonesia, are prevalent in Asia (SLOCAT, 2023a).[1]

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), and their operations (including business models, vehicles, routes, schedules, tariffs, speeds, etc.) are carried out in ways that are 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.

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 people's daily mobility, the use of "popular transport" is preferred over other terms (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 (2023) adapted from Behrens et al. (2016) and Salazar (2015).[2] Despite the significant prevalence of popular transport services in low- and medium-income countries, only two countries, Angola and Uganda, mention popular transport in their NDCs. This highlights a significant gap in global climate action and a missed opportunity to engage with a sector already mobilising millions of people worldwide (VREF, 2023).

Further, the popular transport sub-sector has significant decarbonisation potential. 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 CO_2 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 CO_2 emissions globally, and can have a significant effect in emerging economies where they are most used (ITF-OECD, 2023).

In an effort to increase the ambition of transport climate action in NDCs, several advocates for sustainable mobility have published global transport templates. The Partnership for Active Travel and Health (PATH, 2024) published a global NDC template focusing on Active Mobility, the International Association of Public Transport (UITP, 2024) published one focusing on mostly "formal" public transport. The International Rail Association (UIC, forthcoming) and the International Transport Forum (ITF, forthcoming) are in the

---

[1] Popular transport services are used for both passenger and goods transport, however, the scope of this template will focus on passenger transport.

[2] 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 (2023) from Behrens et al (2016) and Salazar (2015). The figure can also be found below.

process of publishing additional global NDC templates, covering rail and all transport modes, respectively.[3] With a goal to integrate popular transport within country NDC goals and actions, as well as its national policies, the Global Network for Popular Transport (GNPT) and Transport for Cairo (TfC) developed this global NDC template for Popular Transport, with support and funding from the Transformative Urban Mobility Initiative (TUMI).Considering popular transport services are in essence public transport, recommendations made in UITP's NDC Template for Public Transport are equally important for popular transport. However, characteristics such as the business models, regulatory frameworks, vehicle types, working conditions in the popular transport operations require approaches and strategies that are very specific to this sub-sector and are not covered by the Template for Public Transport. Therefore, it is recommended that this template be used as a complement to the Template for Public Transport in countries where this sub-sector is prevalent.

Is this template for you?

- This template is recommended for countries where popular transport modes make up a significant share of motorised trips

---

[3] SLOCAT provides an overview of all global transport NDCs on their NDC library (SLOCAT, 2024).

Federal Ministry
for Economic Cooperation
and Development

tumi
Transformative Urban
Mobility Initiative

GlobalNetwork for
PopularTransportation

Transport
for Cairo
مواصلات للقاهرة

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

Source: See endnote 5 for this section.

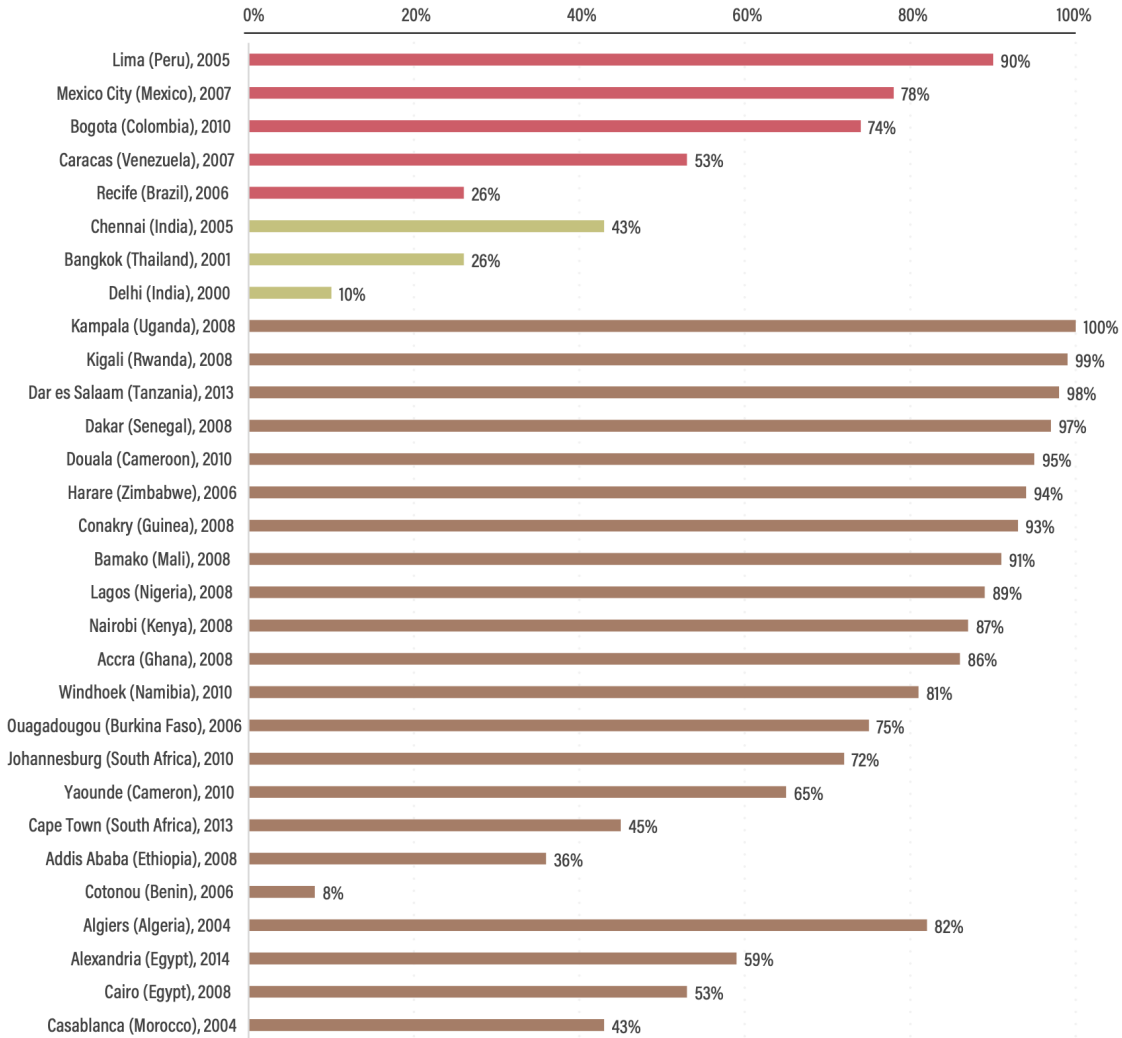| City	Share
Lima (Peru), 2005	90%
Mexico City (Mexico), 2007	78%
Bogota (Colombia), 2010	74%
Caracas (Venezuela), 2007	53%
Recife (Brazil), 2006	26%
Chennai (India), 2005	43%
Bangkok (Thailand), 2001	26%
Delhi (India), 2000	10%
Kampala (Uganda), 2008	100%
Kigali (Rwanda), 2008	99%
Dar es Salaam (Tanzania), 2013	98%
Dakar (Senegal), 2008	97%
Douala (Cameroon), 2010	95%
Harare (Zimbabwe), 2006	94%
Conakry (Guinea), 2008	93%
Bamako (Mali), 2008	91%
Lagos (Nigeria), 2008	89%
Nairobi (Kenya), 2008	87%
Accra (Ghana), 2008	86%
Windhoek (Namibia), 2010	81%
Ouagadougou (Burkina Faso), 2006	75%
Johannesburg (South Africa), 2010	72%
Yaounde (Cameron), 2010	65%
Cape Town (South Africa), 2013	45%
Addis Ababa (Ethiopia), 2008	36%
Cotonou (Benin), 2006	8%
Algiers (Algeria), 2004	82%
Alexandria (Egypt), 2014	59%
Cairo (Egypt), 2008	53%
Casablanca (Morocco), 2004	43%

Figure 1: Market shares of informal transport among motorised trips in 30 cities, selected years - Source: SLOCAT, 2023a[4]

---

[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.

Drawing on global NDC templates focusing on different transport modes, this NDC template consists of a vision, goals, objectives, actions and measures for popular transport. The aim of this template is to:

- Provide a vision for popular transport for all countries to draw lessons and inspiration from, including ways to reduce GHG emissions, increase resilience and ensure a just transition for this sub-sector, including retraining and improving the livelihoods of popular transport workers.
- Recognise the emissions reduction potential of popular transport systems, and successfully reduce global transport CO_2 emissions supporting compliance with the Paris Agreement and the achievement of the Sustainable Development Goals (SDGs).
- Formally embed popular transport into global climate action.
- Ensure that national climate targets, including NDCs the NAPs, and LTS are incorporating goals for all existing transport modes, inclusive of popular transport.
- Ensure that countries that have a high prevalence of popular transport services are including relevant measures and goals for the popular transport sub-sector into their national climate targets (NDCs, National Adaptation Plans (NAPs) and Long Term Strategies (LTS)) in their 3rd and 4th generation NDC exercises. Generate enabling conditions for the popular transport sub-sector to receive national and international support to decarbonise, to adapt to climate change, to improve the resilience of operations and business models, so that future loss and damage from climate change[5] for popular transport users and workers are minimised and avoided, where possible.

2 Assessment of popular transport targets in NDCs

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. By applying these assessment factors (see Table 1 below), it becomes clear that popular transport systems have been mostly neglected in the NDCs, with only two countries, Angola and Uganda (Tables 2 and 3), mentioning them. This template intends to add upon these initial efforts, and increase the number of countries not only mentioning popular transport in their NDCs, but including tangible and ambitious actions to decarbonise this sector and increase its climate resilience

---

[5] Loss and damage from climate change refers to the overall economic and social costs of non-action on climate mitigation and adaptation. For more information, please refer to WRI (2024).

Assessment factor	Guiding question	Assessment
Status	Does the NDC mention popular transport services? Are there **specific targets** for it?	Only two country NDCs (Angola & Uganda) mention Popular Transport.
Leadership	**Who oversees** popular transport in the NDC process?	Neither of these NDCs specify, who would oversee measures related to Popular Transport
Duration	What is the **timeframe** for achieving targets for the development of [sustainable mobility modes/services]?	Neither of these NDCs specify, a timeframe for the measure(s) related to Popular Transport.
Ambition	Are [sustainable mobility modes/services] addressed in a **mitigative** and/or **adaptive** context?	The NDC from Uganda mentions one mitigation measure for Popular Transport services.
Action	What kind of **concrete action** do they focus on?	The NDC from Uganda mentions electrifying motorcycle taxis (boda-bodas) as a mitigation measure.
Investment	Is there a **funding plan** to implement plans for the development of [sustainable mobility modes/services]?	Neither of these NDCs specify dedicated funding plans for Popular Transport measures.
Monitoring & Evaluation	Is there a clear **monitoring & evaluation framework** in place to track progress on [sustainable mobility modes/services] targets?	Neither of these NDCs specify. an evaluation framework for the measures related to Popular Transport.

Table 2: Extract from Angola's NDC (2022)

ANGOLA[6]

> **Mention**: "Public passenger transport is underdeveloped in Angola, with the use of individual transport being primarily to the detriment of collective transport. "Candongueiros", old vans of informal public transport used in Angola, are widely used in the country. At peak times, traffic in urban areas is very intense, and GHG emissions are especially aggravated because a large part of the country's car fleet is made up of old vehicles with old and inefficient engines."

Table 3: Extract from Uganda's NDC (2022)

UGANDA[7]

> ● **Mention**: "The private sector is dominated by micro, small and medium enterprises, which employ about 2.5 million people. The size and strength of the informal economy creates a lot of competition, which constrains the size of the formal enterprises. The inadequate quality transport infrastructure also hinders the connection between cities and external markets."
>
> ● **Action: "**Electric Road vehicles: Electric boda-boda or buses"

---

[6] https://unfccc.int/sites/default/files/NDC/2022-06/NDC%20Angola.pdf
[7] https://unfccc.int/sites/default/files/NDC/2022-09/Updated%20NDC%20_Uganda_2022%20Final.pdf

3 Structure

Further building on the transport NDC templates prepared by PATH (2024) and UITP (2024), this NDC template for popular transport will follow a similar structure consisting of a vision, goals, objectives, actions, measures and outcomes for popular transport.

Table 4: Structure of the NDC template

Building blocks	Guiding thought
Vision	Defining what we want to achieve
Goals	Explaining what success looks like
Objectives	Setting specific intentions to achieve the goals
Actions	Listing the planned activities to achieve the objectives
Measures	Fixing the indicators of successful actions
Outcome	Clarifying the desired level of performance from the measures

Further, this template can help countries meet their Paris Agreement obligations and reporting to the UNFCCC on the sub-sector's decarbonisation. The structure proposed can support compliance with Decision 18/CMA.1. of the UNFCCC (2018). Specifically, the building blocks (actions, measures, and outcomes) could serve as key inputs for reporting under Section D (Mitigation policies and measures), thus elevating the role of popular transport actions in climate reports.

4 Vision

Defining what we want to achieve

We imagine a future in which popular transport is sustainable, decarbonised, resilient, safe, comfortable, accessible, affordable, inclusive, publicly supported and integrated into urban transport planning and national climate action, sustaining vibrant local economies and ensuring decent jobs and conditions for workers and users in the sector.

5 Goals

Explaining what success looks like

- Measuring and understanding baseline CO_2 emissions for the popular transport sub-sector.
- Reducing car dependency and increasing public transport modal share.
- Reducing CO_2 emissions from the popular transport sub-sector.
- Reduce vulnerability of popular transport operators, workers and users.

6 Objectives

Setting specific intentions to achieve the goals

Table 5: Objectives for Popular Transport NDCs

Data collection and maintenance	Generate, gather and maintain key data to facilitate a better understanding and decarbonisation of the sector.
Recognise and integrate	Fully recognise popular transport systems into urban transport and national climate actions and integrate them with national and urban transport offers including "formal" public transport, taxi or ride-hailing services and active travel modes through planning, infrastructure and operational improvements.
Clean vehicles	Reduce greenhouse gas (GHG) emissions of popular transport vehicles through regulating vehicle and emission standards, fuel quality, as well as fleet renewal and electrification. Any new regulations should be paired with the participation, support and financial mechanisms for popular transport operators and workers to be able to comply with them.
Just Transition	Ensure the participation, inclusion, support, safety and socio-economic well-being of popular transport workers and users in the transition towards decarbonising the transport sector.

7 Actions

Listing the planned activities to achieve the objectives

Bearing in mind the NDC assessment framework by PATH (2024), as well as recommendations made by SLOCAT (2024), GIZ (2024a) and the ITF-OECD (2024) to strengthen transport NDCs, climate action targets focusing on popular transport should:

- Be based on key data (see Monitoring & Evaluation chapter).
- Be SMART (specific, measurable, actionable, realistic and time-bound).
- Focus on mitigation and adaptation measures based on the concept of just transition.
- Be connected to a sound funding and financing plan.
- Have a main national entity overseeing the process.
- Ensure a just transition.

Data collection and maintenance

Rationale: A prerequisite to decarbonising popular transport and measuring the GHG emission reduction potential is to first have a baseline determination[8] of the current situation in each country/city. Data is essential to develop the baseline scenario in order to set ambitious goals, prioritise actions and leverage funding. These data collection actions fall in line with the enhanced transparency framework (Article 13 of the Paris Agreement), posing an opportunity for capacity building and collaboration between developed and developing countries. Most of this data is currently not being collected, therefore countries including these types of actions in their NDCs will likely require support and capacity building to implement them.

- **Capacity building**
  - Provide capacity building for policymakers, government stakeholders, popular transport operators and local practitioners on how to collect popular transport data (trainings, guidance documents etc.).
  - Provide capacity building for policymakers and popular transport operators on how to measure the emission reduction potential of mitigation actions for popular transport in tCO_2.[9]
  - Increase capacities of public stakeholders on how to incorporate the popular transport sub-sector in climate action.
  - Increase the capacity of popular transport providers in implementing decarbonisation actions.
- **Data identification**
  - Identify key data needed to measure, or rather estimate, the current situation.[10]
- **Data collection**
  - Defining and assigning institutional capacity, resources and responsibilities for data collection.
  - Collecting, analysing and using the key data on a regular basis via digital mapping exercises, traffic, worker and user surveys etc.

---

[8] The concept of baseline determination is key for recognition and formulating a national climate narrative for mobilising climate finance, i.e. applying for global climate funding such as the Green Climate Fund (GCF).

[9] When preparing the NDC Synthesis Report, the UNFCCC Secretariat will need to put numbers and quantify each mitigation measure for each country. For this, it is certainly good practice and a transparency exercise that a country itself indicates the emission reduction potential estimated for each mitigation measure considered in the NDC.

[10] A list of suggested data to collect can be found in the annex.

- Engaging with other relevant institutions and stakeholders to utilise the data collected.
- Develop and adopt of innovative methodologies to accurately capture and subsequently model popular transport services.

- **Data analysis and benchmarking**

  - Compare the current situation with the desired situation.

- **Funding and financing**

  - Ensure sustainable funding and human resources to maintain data collection and analysis.

Recognition and integration

Rationale: Recognise and acknowledge that popular transport services are public transport services. Promote the use of sustainable and integrated transport modes, i.e. active mobility modes and public transport including popular transport, by ensuring a smooth and sustainable multi-modal transport experience.

- **Capacity building**[11]

  - Raise awareness among policymakers of the role popular transport can play in national climate agendas as well as how to integrate them in planning by organising trainings and exchanges between cities, public and private stakeholders, organising working groups, and establishing stakeholder dialogue with decisionmakers.
  - Provide capacity building for operators and workers regarding requirements for their recognition, support and integration into the transport system (administrative and legal requirements, training, licensing, vehicle operations, business models, vehicle scrapping, etc.).

- **Regulation, policy and planning**

  - Adjusting legislation to including and recognise popular transport modes and services.
  - Ensure that popular transport is included in mobility plans, strategies, investment and interventions along with other transport modes such as active travel and "formal" public transport, to ensure connectivity and accessibility in a multi-modal system.

- **Participatory model**

  - Engaging with popular transport operators and workers in the development of regulation or policy aiming to integrate their services into the transport system, or establish requirements for operations, vehicle characteristics, etc.

- **Infrastructure**

  - Integrate multimodal transport stops and stations with facilities for workers and users (such as access to toilets and water).
  - Establishing prioritisation for public transport including popular transport, and for active travel through signal prioritization, as well as dedicated and segregated road space.
  - Integrate multimodal fare systems and passenger information systems.

---

[11] For more information on capacity building for electrification of popular transport fleets, please refer to Carbon Tracker Initiate (2023) and GIZ (2024b).

- **Operations**
  - In cities, where popular transport is the main public transport option (due to limited access to mass transit systems incl. BRT, metro etc.), optimising route design and operations to increase efficiencies in distances, fleet numbers, fuel consumption, trip duration.
  - In cities where mass transit systems exist, integrating popular transport into the larger multimodal transport system including but not limited to incorporating them in operating mass transit or complementing them as feeders, first- and last-mile solutions, on-demand services for off-peak hours or low-demand areas etc.

- **Funding and financing**
  - Support popular transport operations through public investments (subsidies, investment in infrastructure, incentives, service contracts, etc.) while ensuring affordable fares.
  - Allocate funds to subsidise or cover capital costs for new vehicles and/or equipment for popular transport operators.

Clean Vehicles

Rationale: Gradual phase-out of internal combustion engine (ICE)-vehicles and shift towards cleaner vehicles including low- and zero-emission vehicles to reduce GHG emissions of popular transport sector.

- **Capacity building**
  - Organising awareness campaigns for popular transport operators and businesses on costs and benefits of deploying clean vehicles including e-vehicles.
  - Organising training programmes for popular transport workers and operators on how to deploy, operate and maintain clean vehicles including e-vehicles.
  - Training operators and governments in estimating emissions reduction potential for vehicle substitution projects to help them access capital and funding for implementation.
  - Training and technical support for operators wishing to participate in vehicle scrapping schemes or other incentives and programs for vehicle modernization and electrification.

- **Regulation, policy and planning**
  - Setting and enforcing goals and incentives for the modernization and electrification of popular transport vehicle fleets.
  - Regulating maximum fleet age.
  - Restricting used vehicle imports.
  - Setting and enforcing phase-out goals for ICE vehicles.
  - Setting and enforcing emission standards.
  - Setting and enforcing fuel economy standards.
  - Conducting road worthiness tests.
  - Establishing low-emission zones (LEZ).

- **Participatory model**
  - Involve popular transport operators and workers in discussions regarding a transition to cleaner and safer vehicles, considering the potential impacts to their business models and other local economies and jobs connected to used and ICE vehicle imports.

- **Infrastructure**
  - Fostering the integration of e-vehicles into the grid (when available) and contributing to its gradual decarbonisation.
  - Improving access to charging stations.
  - Enabling battery swapping initiatives, when viable.

- **Funding and financing**
  - Providing tax incentives.
  - Providing subsidies.
  - Providing investments in charging and battery swapping stations.
  - Providing guarantee funds.
  - Providing vehicle scrapping schemes.
  - Providing vehicle and battery leasing programmes.
  - Providing Insurance.

Just transition and adaptation

Rationale: Ensuring that the transition to a low-carbon and climate-resilient economy is fair and inclusive, considering the well-being of popular transport workers and users, reducing their vulnerability and increasing their resilience in the face of climate change.[12]

- **Capacity building**
  - Enhancing government capacities to plan and manage the public transport system including popular transport.
  - Providing support and training to popular transport operators to transform their business models and become transport companies, changing business models from target systems[13] and individual ownership to professional transport companies.
  - Working with popular transport providers and workers to develop strategies on how to best handle climate emergencies.
  - Training and supporting popular transport workers for the transition to electric vehicles.
  - Building local capacities and technical expertise for the production, assembly and maintenance of electric vehicles, in particular in countries where there is no local production of e-vehicles and the economy of popular transport is entrenched in used, imported ICE vehicles.

---

[12] For more information on Just Transition, please refer to the ILO Guidelines for a Just Transition towards environmentally sustainable societies for all (ILO, 2016) and to the ILO Resolution concerning a just transition towards environmentally sustainable economies and societies for all (ILO, 2023).

[13] In a target system model, workers rent vehicles for a specific daily amount, the "target", and their earnings are based on the number of additional passengers they collect after they reach such target. This often causes competitive and risky driving practices in popular transport workers to gain as many passengers as possible to increase their income.

- **Regulation, policy and planning for decent working conditions**[14]
  - Ensuring that the industry transitions from engaging the workforce under the target system to having formal labour contracts.
  - Improving wages, working hours, rest breaks, facilities, social security including pension, etc.
  - Implementing processes and safeguards to anticipate and protect worker and user health and safety against extreme weather events, with social protections and extreme weather compensation and parametric insurance.
  - Incorporating measures such as gender and labour impact assessments to improve job conditions and participation for groups such as female workers, migrant workers, and young workers. These can also improve the passenger experience.

- **Business models and finance**
  - Assisting popular transport operators in consolidating to form companies or organisations.[15]
  - Improving the business model for popular transport operations: shifting from net cost contracts to gross cost contracts, i.e. establishing service contracts with the government where operators are compensated based on the vehicle kilometres operated, rather than relying on the number of passengers.
  - Developing incentives and financing mechanisms to support the development of local enterprises and businesses around the production, assembly and maintenance of electric vehicles that can be used for popular transport

- **Participatory model**
  - Ensuring planning, financing, operations and monitoring processes incorporate social dialogue with representative organisations such as trade unions and associations.
  - Establishing an institutional relationship and frequent communication with the popular transport sub-sector to ensure sub-sector's voice and knowledge are incorporated in policy and planning for climate action.
  - Where there is no worker representation, supporting the establishment of popular transport worker unions and associations to ensure worker needs are reflected and considered in policy and planning for climate action.
  - Conducting social dialogue with popular transport worker unions and associations on planning, implementation of resilient infrastructure.
  - Frequently conducting user and worker surveys as well as labour impact assessments and especially prior to launching new projects and transport services.

- **Improving and climate proofing popular transport stops and rest areas**
  - Establishing rest areas for popular transport workers to make working conditions more decent and comfortable.
  - Providing sufficient weather protection (shading and rain and snow protection) at popular transport stops and rest areas to protect workers and users.

---

[14] It should be noted that the improvement of working conditions for popular transport workers is intrinsically linked to the transformation of business models and receiving adequate financial support to do so.

[15] The consolidated entities will have a greater ability to finance fleet acquisition (including e-buses), perform preventative maintenance of the fleets from central depots, and enter formal labour contracts with the public transport workforce. For more information, please refer to ITDP Africa (2020).

- Integrating popular transport services into public transport infrastructure such as multimodal stations, interchanges etc. to improve worker and user experience and facilitate access to clients (passengers).
- Providing temperature control (cooling and heating facilities) and other climate protection measures at popular transport stops and worker rest areas to protect workers and users.
- Providing sanitation facilities and water at popular transport stops and worker rest areas to improve working conditions.

- **Climate adaptation**

  - Climate-proofing (road) transport infrastructure development.
  - Assessing risks for popular transport modes.
  - Providing resilient transport technologies for two- and three-wheelers and minibuses.
  - Providing a monitoring system for transport systems to identify, manage and mitigate climate risks or areas where popular transport operators and workers can be impacted.
  - Providing notification systems for (popular) transport users and operators regarding climate risks and/or impacts.
  - Developing emergency and disaster plans with popular transport operators and users.
  - Including popular transport in adaptation and resilient transport planning strategies and plans.
  - Designing standards and guidelines for more resilient infrastructure, working conditions and vehicles in the transport sector, including popular transport.

8 Measures

Fixing the indicators of successful actions

Table 6: Overview of measures for popular transport

Measures	Actions
Improved planning of transport decarbonization, tracking of efforts and decision-making process	Through data collection and maintenance actions such as: increasing the availability and quality of data related to popular transport
	Through including GHG emissions and reductions in the National Greenhouse Gas Inventory of countries.
Overall reduction of GHG emissions in tCO$_2$ and reduction of air pollution	Through recognition and integration actions for popular transport
	Through clean vehicle actions for popular transport
Reducing road crashes	Through recognition and integration actions such as integrating popular transport stops with public transport
	Through just transition actions including changing business models from a target system to formal working contracts, while setting and enforcing safety regulations for popular transport services
	Through clean vehicles actions including deploying better vehicles, training drivers
Reducing vehicle breakdowns	Through clean vehicle actions such as deploying newer and safer vehicles for popular transport
Reducing trip duration	Through recognition and integration actions such as: integrating popular transport stops with mass transit modes and by implementing signal and lane prioritisation
Accelerating the use of e-vehicles	Through clean vehicles actions such as: ensuring access to funding and launching attractive financing schemes for popular transport license holders and operators.[16]
Reducing health and safety hazards for popular transport workers and users (such as dehydration and heat strokes)	Through Just transition actions such as providing temperature-control measures (shading, cooling), water, sanitation, other facilities
Improve the livelihoods, job security and working conditions of popular transport workers	Through just transition actions such as improving labour regulations and working conditions while maintaining social dialogue
Increasing the share of female popular transport workers and the pathways for young workers	Through just transition actions such as acting on issues identified through social dialogue and impact assessments, including improving working conditions

---

[16] It should be noted that any electrification measures should be paired with efforts to shift to renewable energies.

9   Monitoring & Evaluation

Clarifying the desired level of performance from the measures

To measure the baseline GHG emissions and other socio-economic characteristics of popular transport systems and to plan their decarbonisation targets, it is recommended to collect key data for the popular transport sub-sector.[17]

Countries likely already have transport goals and are gathering transport data. But it is unlikely that the data is disaggregated for popular transport. For instance, if a country has a general GHG reduction target or an overall transport objective, popular transport could already implicitly fall under this umbrella.

However, in order to explicitly reduce emissions from popular transport services, the below indicators represent a non-exhaustive list of data that most countries may not have but should start collecting to get a realistic understanding of the baseline emissions of the sub-sector.

The below indicators are suggested to identify the potential of the actions and to measure their impact, i.e. how much the different actions can achieve GHG reductions, reduce vulnerability, and thus better track countries' progress towards transport decarbonisation, adaptation and resilience.

Table 7: Overview of data requirements for popular transport - Adapted from: SLOCAT, 2023a

Areas	Indicators
Business model	▪ Types and characteristics of business models ▪ Share of public transport fleet operating under the target system vs service contracts ▪ Share of operators registered as companies, associations or entities that are legally recognised by local regulations
Fleet	▪ Number of vehicles ▪ Type of vehicle ▪ Avg. age of vehicles (by vehicle type) ▪ Share of fleet that is accessible (by vehicle type) ▪ Avg. operational lifespan of vehicles (by vehicle type) ▪ Type of fuel used (by vehicle type) ▪ Avg. on-road fuel efficiency (100km/litre) (by vehicle type) ▪ Number of electric vehicles (if any) (by vehicle type) ▪ Avg. vehicle occupancy (as a share of vehicle capacity) per vehicle type, averaged to daily operations ▪ Vehicle ownership breakdown, i.e. percentage of owned and leased-to-own vehicles (per vehicle type)
Trips	▪ Disaggregated modal share of popular transport from modal share of public transport (by vehicle type) ▪ Disaggregated share of female passengers

---

[17] The indicators suggested in this section and template focus mainly on actions with impacts related to mitigation, adaptation and just transition. The list of indicators might however be expanded to include other potential impacts that intersect with the SDGs and other sustainability goals, such as how popular transport improves access, safety, livelihoods, etc.

	▪ Avg. annual distance travelled (by vehicle type) in vehicle-kilometres travelled (VKT)
Operations	▪ Routes ▪ Stops ▪ How operators connect to clients, i.e. on-street ride-hailing, at designated stops, or app-based etc. (share in % by vehicle type)
Workforce	▪ Number of people working in the sub-sector (by vehicle type) ▪ Gender of people working in the sub-sector (by vehicle type) ▪ Age of people working in the sub-sector (by vehicle type) ▪ Avg. weekly income (farebox revenue) of people working in the sub-sector (by vehicle type) ▪ Avg. weekly operational expenses of people working the sub-sector (by vehicle type) ▪ Working conditions of popular transport workers[18]
Organisational dynamics	▪ Type(s) of organisations (if any) ▪ Number of organisations and members ▪ Share of popular transport operators and workers represented by organisations (unions and associations) ▪ Main causes, motivations or agendas for which sector stakeholders (unions, associations, spokespersons) advocate

Clear data is essential to understand the emission reduction potential for the sub-sector and how different mitigation actions will contribute to increasing the level of ambition of transport decarbonisation efforts on a global and local level.

Finally, decarbonising the popular transport sub-sector will bring about several co-benefits including:
▪ Promoting sustainable development and well-being
▪ Ensuring cohesive climate action that addresses people's needs
▪ Enabling access to climate funding for popular transport projects

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,
▪ SDG7 by promoting the use of renewable energy and energy efficient vehicles,
▪ SDG #8 by improving working conditions, supporting the formalisation and strengthening of small- and medium-enterprises (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 used motorised transport service in the world and avoiding private car use.

---

[18] For more information on measuring working conditions, please refer to the International Transport Workers' Federation on Global Labour Impact Assessments (ITF, 2024).

10 Relevant case studies

10.1 From Africa

10.1.1 Minibus fleet renewal programme in Dakar

Location	Dakar, Senegal
Objective(s) and action(s)	**Clean vehicles** ▪ **Funding and financing:** Driver leasing programme for 505 new minibuses ▪ **Funding and financing:** Scrapping programme for old vehicles **Recognition and Integration** ▪ Standardisation of bus stops and ticketing operations

According to 2010 data, the popular transport sector in Dakar comprised a fleet size of around 3,000 mini-buses or cars rapides. This fleet of older and high-polluting vehicles provides over 80 percent of the public transport demand in the city.

In response to declining service operation standards, the Senegalese government proposed a programme for financing a mini-bus fleet renewal as part of the Urban Mobility Improvement Project. The World Bank supported the Senegalese government to finance 505 new vehicles, which could be leased by the operators, and to implement a scrapping programme for the old vehicles. This was the first program to implement a public sector financed fleet renewal for popular transport operators. The program, which promoted a standardisation of bus stops and ticketing operations besides the vehicle renewal, showed to increase the level of service (SSTAP, 2010).

10.1.2 Advancing E-Mobility in Kenya: Leveraging Renewable Energy and for Sustainable Transportation

Location	Nairobi, Kenya
Objective(s) and action(s)	**Clean vehicles** ▪ **Funding and financing:** Tax incentives for electric vehicles ▪ **Funding and financing:** Shared ownership model of electric motorcycles

Renewable energy sources account for 90% of Kenya's energy generation (Our World in Data, 2024), positioning the country to reduce its dependence on oil imports while promoting domestic energy resources. To further support e-mobility, the Kenyan government has introduced tax incentives, including VAT exemptions for electric bicycles, motorcycles, and busses, and excise duty exemption for electric motorcycles – although these gains are currently being challenged in court (International Trade Administration, 2022; Ministry of Roads and Transport, 2024). This favourable economic and political environment has encouraged private companies to invest in electric vehicle ventures, and over 40 EV companies are currently operational in the country. A notable example is the 2023 partnership between Uber and Green Wheels, which has introduced over 500 electric boda bodas (motorcycle taxis) in Nairobi. Green Wheels has purchased motorcycles from Arc Ride, Roam, and One Electric, and uses a mixture of business models – all including battery swapping – to ensure their motorcycles are on the road. Green Wheels then employs drivers who work 12 hour shifts, matching the current labour patterns of ICE riders. Drivers receive benefits such as social security and insurance, and overtime for working longer shifts (Green Wheels Africa, 2024).

10.1.3 Nairobi BRT Labor Impact Assessment

Location	Nairobi, Kenya
Objective(s) and actions	**Just Transition**

- **Participatory approach:** Labor Impact Assessment

In Nairobi's Bus Rapid Transit (BRT) system implementation, the Labor Impact Assessment was conducted to address how formalising the transport sector would affect informal workers, such as matatu drivers, conductors and other popular transport occupational groups. The assessment involved key stakeholders: trade unions, such as the Transport and Allied Workers' Union (TAWU), Matatu Workers' Union (MWU) and the Public Transport Operators' Union (PUTON), representing workers' interests, and social researchers, who studied employment relationships, working conditions, job displacement, skill gaps, and training needs. This collaboration aimed to create a socially equitable transition while promoting sustainable transport systems, aligning with NDC goals for decarbonisation.

Implementing mass transport networks in areas where informal or popular transport thrives, such as Nairobi, can pose a threat to the livelihoods of those involved in the sector. To ensure a fair transition, Labor Impact Assessments (LIA) were commissioned by the International Transport Workers Federation (ITF) who worked with the Global Labour Institute and the University of Nairobi to assess the impacts of Nairobi's BRT. This included engaging drivers, conductors, stage workers, and popular transport service providers in the dialogue. The project fostered greater understanding of the micro-economy of popular transport operations, empowered workers and unions, and laid the basis for social dialogue. This collaborative process ensured the protection of vulnerable actors while advancing sustainable urban mobility (Global Labour Institute, 2019). Labour impact assessments have also been conducted in Dakar, Abidjan, Kampala and Accra (ITF, 2024).

10.1.4 BasiGo's deployment of e-buses

Location	Kenya
Objective(s) and actions	**Clean vehicles**

- **Funding and financing:**
  - E-bus battery leasing
  - E-bus charging and servicing subscription model

BasiGo, a Kenyan start up, had deployed 19 e-buses in Kenya by January 2024, with ambitious plans to scale up to 1,000 by 2025. The company sells e-buses to Matatu operators while offering a pay-as-you-drive model allowing the operators to purchase an electric bus for a similar upfront cost to a diesel bus. Operators pay the company a kilometre-based subscription fee, which includes leasing of the e-bus battery, charging at BasiGo charge stations, and comprehensive service and maintenance provided by the company. The company aims to localise e-bus production and has also expanded its services to Rwanda in its approach to service the wider Sub-Saharan Africa region.

10.1.5 Electrifying South Africa's Minibus Taxis

Location	South Africa
Objective(s) and actions	**Data collection and maintenance** ▪ **Capacity building:** for policymakers on how to collect and measure data ▪ **Data identification:** to measure/estimate the current situation ▪ **Data collection:** via innovative methodologies such as digital mapping **Clean vehicles** ▪ **Capacity building:** Raising awareness of costs and benefits of deploying e-vehicles including economic and environmental benefits

With a fleet of 250,000 employing about 600,000 drivers, minibus taxis represent the main mode of public transport in South Africa (The CityFix, 2023).

To support the industry in transitioning towards electrification, a local start-up called GoMetro, collaborated with Stellenbosch Municipality and WRI. This initiative included installing on-board diagnostic devices for 50 minibus taxis for a period of 14 days to collect data on operational aspects such as range, dwell times, trip duration and frequency, and utilizing GoMetro's mobile phone application, GoMetro Pro, to collect additional trip data including passenger counts and demographics.

Overall, the study provided evidence that electric minibus taxis but could be highly beneficial for the city. With e-minibus taxis, data indicated significant monthly fuel cost savings (up to $12,500 ZAR), as well as the potential to save 760,000 kg of CO_2 emissions annually. The study found that the conversion would be feasible indicating that 86% of tracked minibus taxis could complete their daily operations on a single charge of an e-MBT.

10.2 From Asia

10.2.1 Integration of Informal Transportation into Mass Transport Systems – The RAAHI Project in Amritsar

Location	Amritsar, India
Objective(s) and action(s)	**Recognition and Integration** • **Operations**: Reorganising routes to integrate with public transport. **Clean Vehicles** • **Funding and financing:** Subsidies and low-interest loans for electrification • **Infrastructure**: Charging stations **Just Transition** • **Participatory approach:** Formation of a cooperative

In 2018, Amritsar launched the RAAHI (Rejuvenation of Auto-Rickshaw in Amritsar through Holistic Intervention) project to transition its three-wheeler popular system to electric vehicles and integrate as a first- and last-mile solution. This initiative, led by Amritsar Smart City Limited (ASCL) and supported by the Ministry of Housing and Urban Affairs' (MoHUA) CITIIS program, focuses not only on electrification but also on the crucial role these vehicles play in areas where public transport is limited.

The project offers financial assistance to help owners replace diesel vehicles with electric ones, including subsidies, scrapping value and low-interest loans from the empanelled banks (RAAHI Amristar, 2021). It also includes setting up charging infrastructure and organising routes to better connect with formal public transport systems. To bring more structure to this informal sector, a cooperative society was formed, and skill development programs for female family members of drivers were introduced to improve livelihoods. By August 2023 210 electric three-wheelers had been delivered in the city (WRI, 2024). By addressing both the environmental and social aspects of the paratransit system, RAAHI ensures that these vehicles continue to be a vital link for many residents while promoting cleaner, more efficient transportation (RAAHI Amristar, 2021, UITP, 2022).

10.2.2 Integrating Electric Auto-Rickshaws for Last-Mile Connectivity in Hyderabad and Bengaluru

Location	Hyderabad and Bengaluru, India
Objective(s) and action(s)	**Clean vehicles:** - **Infrastructure**: Provision of charging spaces **Clean vehicles:** - **Funding and financing:** Grant funding to test and demonstrate e-auto rickshaw last-mile services, with support to train women drivers and to provide minimum income guarantee to drivers **Recognition and Integration** - Space for parking/charging provided at metro stations, and last-mile services advertised in metro rail.

In Hyderabad and Bengaluru, a collaborative initiative was launched in 2022 to introduce electric auto-rickshaws for last-mile metro connectivity, aiming to create a sustainable transport model while promoting economic opportunities for women drivers. Led by WRI India, the project brought together multiple stakeholders to ensure its success. Metro rail organisations provided charging spaces and aimed to integrate e-auto services into their apps, while last-mile service providers managed operations, sourced drivers, and supported women drivers by training them to operate electric 3Ws and providing them with driving licenses. Local governments supported the initiative through enabling policies. The financing model combined grant funding to reduce risks and low-interest loans to help drivers purchase electric vehicles. This approach not only improved driver incomes by 40-50% but also reduced waiting times for commuters and cut GHG emissions by 35 metric tonnes in one year. The project underscores the importance of partnerships between transit agencies, operators, and financial institutions in making electric vehicles a viable and accessible solution for urban mobility (WRI India, 2022).

10.2.3 Mexico City's Popular Transport Modernization Strategies

Location	Mexico City, Mexico

Objective(s) and action(s)	**Recognition and Integration**
	
	▪ **Regulation**: Legal recognition of bike taxis and providing licenses to operate in the city centre
	▪ **Participatory model:** engaging with the bike taxi associations to define new models to be recognised by new regulations for licensing
	
	Clean vehicles
	
	▪ **Funding and financing:**
	   • Scrapping Programme
	   • Investing in the purchase of new buses with automatic fare collection (AFC), global positioning systems (GPS) etc..
	▪ **Participatory model:** involving popular transport operators in the design and requirements for bike taxis to be legally recognised
	
	Data collection and maintenance
	
	▪ Data collection to better understand popular transport modes
	
	Just transition
	
	▪ Incorporating gender perspective for workers and users

Mexico City's strategies to modernise their popular transport aim to address the unique mobility challenges faced by its 22 million inhabitants, particularly in peripheral neighbourhoods, through the integration and modernisation of informal transportation modes. With 70% of the city's 34 million daily trips made by walking, cycling, or using public transport, including microbuses and moto-taxis, Mexico City has focused on decarbonising and improving these popular modes of transport.

The backbone of the city's popular transport system includes microbuses, which account for 4 out of 10 trips in the city, and are heavily used by women, with 33% of their trips being made on microbuses. However, many of these microbuses are outdated, with 94 transport routes relying on vehicles whose permits have expired. To modernise the system, Mexico City has launched a scrapping program for old microbuses, offering a public bonus of USD 26 million, along with introducing new buses equipped with GPS, surveillance systems, and the use of a mobility card payment system. This modernisation not only aims to improve service frequency, schedule regulation, and safety but also extends social security benefits to drivers.

In addition to microbuses, moto-taxis and bike taxis play a crucial role in providing transportation options in peripheral neighbourhoods and for first and last-mile connectivity. Bike taxis have recently been legally recognised by the authorities after a process of engagement with the operators to agree on minimum vehicle safety, efficiency and quality requirements, and a contest to select designs for new bike taxis. One of the selected designs was proposed by one of the local cooperatives, Los Mosquitos. Operators wishing to change their vehicles to the new designs received a bonus to purchase this new vehicle, and afterwards, a license to operate legally. Despite their importance, moto-taxis currently lack legal recognition, with over 10,000 counted in use, many of which are independently operated by cooperatives.

Another component the city's strategy is the Neighbourhood Mobility Census, an effort to gather data and better understand the needs of these popular transport modes, ensuring they are counted and recognised in mobility planning. The initiative also incorporates a gender perspective, acknowledging

the care trips predominantly made by women and focusing on social justice for operators who rely on this sector for their livelihoods.

By working closely with operators, modernising vehicles, and incorporating a gender-sensitive approach, the city is making strides toward more sustainable, accessible, and equitable transportation solutions (Ciudad de Mexico, 2024).

11 References

Carbon Tracker (2023): Driving Change: How Electric Vehicles can rise in the Global South. Link: https://carbontracker.org/reports/electric-vehicles-in-the-global-south/

Ciudad de Mexico (2024): Diagnóstico del Servicio de Transporte de Pasajeros Público de Ciclotaxi, Mototaxi y Golfitaxi en la Ciudad de México Link: https://movilidaddebarrio.cdmx.gob.mx/

GIZ (2024a): Enhancing Ambition and Transparency in the Next Round of NDCs. Link: https://changing-transport.org/publications/enhancing-ambition-and-transparency-in-the-next-round-of-ndcs/

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

GLI (2019): Nairobi Bus Rapid Transit: Labour Impact Assessment - Research Report. Link: https://gli-manchester.net/wp-content/uploads/2019/04/Nairobi-Bus-Rapid-Transit-Report.pdf

Green Wheels Africa. (2024). Drivers. https://greenwheels.africa/#drivers

ILO (2015): Transition from the Informal to the Formal Economy Recommendation (No. 204). Link: https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:R204

ILO (2016): Guidelines for a Just Transition towards environmentally sustainable societies for all. Link: https://www.ilo.org/publications/guidelines-just-transition-towards-environmentally-sustainable-economies.

ILO (2023): Resolution concerning a just transition towards environmentally sustainable economies and societies. Link: https://www.ilo.org/resource/ilc/111/resolution-concerning-just-transition-towards-environmentally-sustainable.

International Trade Administration (2024): Kenya E-Mobility. https://www.trade.gov/market-intelligence/kenya-e-mobility (Accessed on 11 October, 2024)

ITDP Africa (2020): Quick Guide to Bus Sector Modernisation. Link: https://africa.itdp.org/publication/quick-guide-to-bus-sector-modernisation/

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

ITF (2024): Labour Impact Assessments. Link: https://www.itfglobal.org/en/sector/urban-transport/bus-rapid-transport.

ITF-OECD (2024): How serious are countries about decarbonising transport? Link: https://www.itf-oecd.org/ndc-tracker/en (Accessed on 12 October, 2024)

ITF-OECD (Forthcoming): Transport NDC Guide.

Ministry of Roads and Transport (2024). Draft National e-Mobility PolicyFor Circulation. https://transport.go.ke/sites/default/files/Draft%20National%20e-Mobility%20Policy_For%20Circulation%2027.03.2024.pdf

Our World in Data. (2024, October 17). Share of electricity production from renewables. https://ourworldindata.org/grapher/share-electricity-renewables

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

RAAHI Amristar (2021): Subsidy Loan. Link: https://raahiamritsar.wixsite.com/ascl/subsidy-loan. (Accessed on 14 October, 2024).

RAAHI Amristar (2024): About | RAAHI. Link: https://raahiamritsar.wixsite.com/ascl/about (Accessed on 14 October, 2024).

SLOCAT (2023): 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 (2024): Ten Recommendations to Raise Ambition for Transport in NDCs, https://slocat.net/ndcs/ (Accessed on 12 October, 2024).

SSATP (201): The Dakar Bus Renewal Scheme. Link: https://www.ssatp.org/sites/default/files/publication/DP11-Bus-Renewal-Scheme-Dakar-with-cover.pdf

Sustainable Bus (2022): Kenyan startup BasiGo awarded $6.6 million funding to bring e-buses to the country. Link: https://www.sustainable-bus.com/electric-bus/basigo-electric-buses-kenya/

The CityFix (2023): Electrifying South Africa's Minibus Taxi Industry: A Data-Driven Approach. Link: https://thecityfix.com/blog/electrifying-south-africas-minibus-taxi-industry-a-data-driven-approach/ (Accessed on 12 October, 2024)

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 (2022): Rickshaws, three-wheelers and vans; electrifying India's paratransit through Amritsar's RAAHI project. Link: https://www.uitp.org/news/rickshaws-three-wheelers-and-vans-electrifying-indias-paratransit-through-amritsars-raahi-project/

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 (2018): Decision 18/CMA.1: Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement. Link: https://unfccc.int/resource/tet/0/00mpg.pdf#:~:text=Decision%2018/CMA.1%20Modalities,%20procedures%20and%20guidelines%20for%20the%20transparency%20framework

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

WRI (2023): 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 India. (2024, October 17). Launching 3I Mobility for Hyderabad Metro. https://wri-india.org/events/launching-3i-mobility-hyderabad-metro%E2%80%AF

WRI (2024): What Is 'Loss and Damage' from Climate Change? 8 Key Questions, Answered. Link; https://www.wri.org/insights/loss-damage-climate-change (Accessed on 12 October, 2024)