Colombia

Partner country

Status of the project: **Completed National Urban Mobility Policy or Programme**

Basic Information

Population: **50,662,678 (2020)** | Growth rate: **0.8%**

Percentage of urban population: **77.1%**

GDP per capita: **USD 5,334**

Percentage of the population living below the national poverty line: **27%**

Annual average infrastructure expenditures as a percentage of GDP: **1.8%**

Nationally Determined Contribution (NDC): **Committed reduction of 51% of overall GHG emissions compared to BAU by 2030, unquantified mobility target**

National GHG emissions per capita: **3.75 (tCO_2eq)**

Proportion of transport-related GHG emissions: **12%**

Exposure to climate change: **Very High**

Context

Colombia is Latin America's third most populated country after Brazil and Mexico. Bogota is the country's capital, the most populated city, and economic, political, and financial centre. 77.1% of Colombian citizens live in cities. Access to education, public health and other essential services is still limited in rural areas. Poverty and inequality are significant challenges for Colombia, with a multidimensional poverty index of 20.2% and a GINI index of 0.522, placing it as the second-most unequal country in Latin America, only after Honduras. According to the National Ministry of Finance and Public Credit reports, Colombia's Gross Domestic Product (GDP) has been growing for the last two decades, with an average annual growth rate of 3.8%. This economic growth is remarkable, given the country's long-standing internal conflict. Colombia is an upper-middle-income country. Historically, oil and other energy products have played an important role in Colombia's economy. The country's exports and industrial growth areas are oil, electronics, agriculture, information technology, and shipbuilding.

In 2018 road transportation in Colombia was responsible for 12% of the overall country-wide GHG emissions (37.8 $MtCO_2e$), and tackling the transport sector is crucial for complying with climate change mitigation goals. Electric mobility can be a powerful tool for achieving such goals. Additionally, public concern about the negative impacts of air pollution on public health has increased over the past years. The transport sector (mainly diesel freight and public transport) is responsible for 25% of $PM_{2,5}$ emissions in large cities, the most relevant air pollutant in the Colombian context.

Buses are important in Colombia's transport landscape, from small feeder buses to bi-articulated high-frequency buses. They contribute to 23% of Bogota's local air pollution. However, given the increasing urban population densities and the deteriorating air quality, the bus systems' various configurations present an untapped potential for providing access to clean urban mobility. Electrification of public transport is an intersectoral priority of at least four national policy agendas (Energy Efficiency, Climate Change, Air Pollution and Urban Mobility) and three international policy commitments: the Paris Agreement, the New Urban Agenda and the Sustainable Development Goals.

Since the electrification of transport is vital for complying with climate commitments, promoting green growth, and protecting human health, the national government has started developing a National E-Mobility Strategy in 2019. As electric buses have considerably higher upfront investment costs than traditional technologies and the technology is relatively new in Colombia, the technical assistance aimed to overcome these barriers with a program that supports the electrification of Colombia's public passenger transportation systems.

The technical assistance had four workstreams aiming at creating a suitable environment for electromobility deployment in cities without significant zero-emission fleets:

- Technical and regulatory design: Identify the technical and regulatory needs that should be located at the transport policy level in the country to enable the transition to electric public transport systems.
- Financial design: Analyse the context, barriers, costs, and economic conditions of public passenger transportation in Colombia to construct, jointly with other counterparts, an instrument to facilitate investments in electric fleets and infrastructure.
- Design a coordination and governance scheme: Through a systemic process with the national government counterparts, define the decision-making frameworks and methods to approve and follow up on the policies and plans that enable technological advancement.
- Design of an MRV system: Build methodologies and capacities to monitor the development of policies and their impacts, especially regarding the mitigation of Greenhouse Gases.

Support from the Partnership

Technical Assistance: National Urban Mobility Policy or Programme (NUMP)

Type of NUMP: Programme NUMP

Funded by: German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV)

Funded amount: EUR 800.000

Implemented by: GIZ through the TRANSfer III project

Local counterpart: Ministry of Transportation

The primary purpose of the NUMP

The TRANSfer project helped develop a National E-Bus Promotion Programme. This programme comprises a national investment fund to finance the upgrade of public transportation fleets. It is intended to set the institutional arrangements and capacities for large-scale monitoring, reporting and verification methodology for e-bus deployment.

Supported activities:

- Financial and economic analysis for e-bus deployment at a large scale.
- Prefeasibility of a public investment fund.
- Support to legally structure a national fund for e-buses.
- Supporting implementation of a national framework on e-mobility and its governance.
- Diagnosis of technical gaps and barriers for policymakers.
- Ex-ante and ex-post MRV system preparation.

Status of NUMP development

Project start date: 2019 Q1

NUMP adoption date: 2022 Q1

Completed outputs:

- Zero emissions vehicles' investment fund for buses and freight legally established
- Fleet replacement and investment scenarios for every transport system in the country
- Prefeasibility, structure proposal and stakeholder awareness for the instrument
- National-scale institutional arrangement for e-mobility
- Operation and maintenance of an e-bus training program in place with an employability and gender perspective
- Course for e-buses system planning and electricity procurement for operators
- Mitigation potential and MRV methodologies for e-buses in line with the National Registry of Emissions Reductions (RENARE)
- Assessment of regulatory and capacity building needs, technical and policy barriers for e-bus deployment
- International course on transport systems based on e-buses (with Moving Chile)
- Employability strategy and technical curriculum with a gender perspective
- Electricity procurement guidelines
- E-bus workshop in Cali, Colombia (24-25 February 2020, 70 participants from cities, the Ministry of Transportation, and academia)
- Fund included in the current Government (2022-2026) plan, extended to fund instruments for taxis.

Next expected outputs:

- The fund design and setting has not been finished by the end of 2024.

NUMP key measures and cost estimates

The following table highlights the most significant measures identified in the NUMP.

Measure	Cost Estimate
Public fund to finance bus fleet renewal (estimated from medium investment scenarios)	USD 460 million

The following table summarises the total capital expenditure (CAPEX) estimates for different types of measures in the NUMP.

Urban transport investment measures	CAPEX Estimate (€M)
Nationwide bus fleet renewal (estimated from medium investment scenarios)	USD 850 million
Street shaping urban roads and traffic management	0
Other measures	0
Total	**USD 850 million**

Finance leverage

Leveraged financing (resulting or enabled by the NUMP preparation process)

Financing resulting from the NUMP	Source	Amount
E-motion project funding proposal for Latin America to the Green Climate Fund	AFD	EUR 570.000
Public fund investment manuals and implementation	IADB	EUR 300.000

Projected impacts

Indicator	Impact 2030 (NUMP vs BAU)	Baseline - 2019	Projected 2030 BAU	Projected 2030 NUMP scenario
Total annual GHG emissions (Mt CO_2eq)	-5.7[1] Mt CO_2eq	34 Mt CO_2eq	43.4 Mt CO_2eq	37.7 Mt CO_2eq
Annual transport-related GHG emissions per capita (kg CO_2eq)	- 113 kg CO_2eq / capita	675 kg CO_2eq / capita	862 kg CO_2eq / capita	749 kg CO_2eq / capita

Insights from practice: lessons learned from the NUMP process

The decision-makers ownership of the project contributes to keeping it alive

The experience with Colombia's technology upgrade fund showed that the key to achieving the project's adoption and implementation is to generate ownership among decision-makers and their advising teams. Also, it is necessary to shield the process from political conditions by achieving their legal approval as part of more significant initiatives.

The electrification of public transport in Colombia still needs public investment to cover capital costs.

Studies indicated that the difference between the total cost of ownership of an internal combustion engine bus and an electric unit was considerably high. As a result, transport authorities and public transport operators in intermediate and small-sized cities cannot cover electrification's capital costs through soft loans. Instead, a considerable package of subsidies from the national government is required to make the e-bus technology competitive regarding its capital investment costs.

Nationwide emission reduction programmes in the transport sector can be comprehensive but flexible.

The technical assistance in Colombia did not follow the traditional NUMP formulation approach. It tried to meet the needs of four pre-identified barriers for deploying electric mobility nationally and achieving effective mitigation outcomes. Thus, the project's four workstreams (finance, governance, capacities and MRV) interacted harmoniously to deliver concrete results related to the political and financial commitment to the renewal of the public transport fleet in the country. However, the project did not follow the guidelines for formulating a NUMP.

[1] Calculations made by the MobiliseYourCity Secretariat based on Colombia's first NDC (https://unfccc.int/NDCREG) and Colombia's MRV method (https://changing-transport.org/wp-content/uploads/Infografia-traCS-EN-1.pdf)

Electrification's sustainability goes beyond ensuring funds and includes support infrastructure, capacity development, and systemic change.

Building capacities in electric mobility within the transport sector is critical to ensuring the sustainability of a solid fleet-renewal policy. Transport authorities must interact with the energy sector to enable fertile conditions for electromobility deployment. Moreover, operators and technicians need to be trained in the maintenance and mechanics of electric vehicle systems so that operation management is not at risk. The inclusion of a gender focus in this component is intended to close the gender gap and enable women access to jobs in the transport sector.

Perspectives for NUMP implementation

The Colombian Congress approved a 2021 Law creating the national fund for e-bus renewal.

In 2021, a national law for climate action (Ley 2169 – 2021) was enacted, aiming to establish goals and actions to achieve carbon neutrality, climate resilience and low-carbon development in Colombia in the short, medium, and medium-long term. The law creates a national fund for the technological upgrading of public transport systems and freight fleets. This fund will promote purchasing low or zero-emission vehicles and the support infrastructure required for the energy supply. The potential financial sources for the fund include local authorities, non-reimbursable technical cooperation, grants, and financial revenues, among others. Together with the government, the implementing partner (GIZ) is committed to keeping the support to find feasible funding alternatives to feed the created fund.

Despite the change in the National Government, GIZ positioned the project on the political agenda for implementation.

The technological upgrade fund for public transportation fleets and light freight was a process approved by Law 2169 in December 2021. Its implementation has been a dynamic process since 2022. This is significant since the country changed its national government, and the new administration reprised its implementation.

The fund was written in law, so its implementation was practically assured. Nonetheless, GIZ carried out the following activities for the project to be kept in the hands of decision-makers:

- Ensuring investment manual resources with other cooperating institutions
- Including the mandate for implementation and potential funding sources as part of the new administration’s government plan
- Adding additional transport modes (Taxis and heavy freight) to the fund's scope.

Highlights from previous years

The technology upgrade fund includes the national government’s (2022-2026) strategic sustainable mobility and decarbonisation tools.

The new government validated the implementation of the fund, including the possible funding alternative that could be used for the investment (General Budget, Demand Management Tools, and green taxes) and broadening the scope to taxis and heavy-duty freight.

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