Colombia

Partner country

Status of the project: **ongoing technical assistance**

Basic Information

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

Percent of urban population: **77.1%**

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

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

Annual average infrastructure expenditures as percent 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: **HIGH**

Context

Colombia is the third most populated country in Latin America after Brazil and Mexico. The capital city Bogota has the biggest population number and is the centre of the economic, political and financial activities in the country. About 77.1% of its citizens live in cities and the remaining 22.9% in rural areas where access to education, public health and other basic services is still limited in many regions. Poverty and inequality are big 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. The Gross Domestic Product has been growing for the last two decades, with an average annual growth rate of 3.8%, according to the reports of the National Ministry of Finance and Public Credit. This is a remarkable achievement given the country's long-standing internal conflict. Colombia is an upper middle-income country. Historically, petroleum and other energetic products have played an important role in Colombia's economy. The country's priority exports and industrial growth areas are petroleum, electronics, agriculture, information technology, and shipbuilding.

Since road transportation in Colombia was responsible for 12% of the overall country GHG emissions (29 $MtCO_2e$) in 2017, tackling the transport sector is crucial for complying with climate change mitigation goals and electric mobility can be a major tool for achieving this. Additionally, public concern about the negative impacts of air pollution on public health has increased over the past years. The transport sector (Diesel freight and public transport, mainly) is responsible for 25% of $PM_{2,5}$ emissions in large cities, which is the most relevant air pollutant in the Colombian context.

Buses play an important role in Colombia's transport landscape. However, given the increasing urban population densities and the deteriorating air quality (23% of Bogota's local air pollution is generated by buses), the bus systems' various configurations – from small feeder buses to bi-articulated high frequency buses – together 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 considered to be key for complying with climate commitments, for promoting green growth, and for 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 compared to traditional technologies and the technology is relatively new in Colombia, the aim of the technical assistance is to overcome these barriers with a program that supports the electrification of Colombia's public passenger transportation systems.

The technical assistance has 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 financial conditions of public passenger transportation in Colombia, to construct in conjunction with our counterparts an instrument to facilitate investments on electric fleet and infrastructure.
- Design of coordination and governance scheme: Through a systemic process with the national government counterparts, define the decision-making frameworks and processes to approve and follow up on the policies and plans that enable technological advancement.
- Design of 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

Main purpose of the NUMP:

The TRANSfer project is developing a National E-Bus Promotion Program that comprises national investment program for clean transport systems, enabling institutional arrangements and capacities for large scale and a monitoring, reporting and verification methodology for e-buses deployment.

Supported activities:

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

Status of implementation

Project start: 2019 Q1

Expected project completion: 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 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, Ministry of Transportation, and academia)

NUMP key measures and cost estimates

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

Measure	Cost Estimate[1]
Public fund to finance bus fleet renewal	USD 595 million

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

Urban transport investment measures	CAPEX Estimate (€M)
Nation-wide bus fleet renewal	USD 715,000
Street shaping urban roads and traffic management	0
Other measures	0
Total	**USD 715,000**

Finance leverage

Financing resulting from the NUMP	Source	Amount
E-motion project funding proposal for Latin America to the Green Climate Fund	AFD	EUR 570,000
Financial analysis and pre-feasibility study of the renewal e-bus fund	Closing Investment Gap	EUR 57,000
Renewal e-bus fund structuration	National government	USD 127,000

Projected impacts

Indicator	Impact 2030 (NUMP vs BAU)	Baseline - 2018	Projected 2030 BAU	Projected 2030 NUMP scenario
Total annual GHG emissions (Mt CO_2eq)	-1.80 Mt CO_2eq	1.27 Mt CO_2eq	2.04 Mt CO_2eq	1.48 Mt CO_2eq

1 1 EUR = 4,429.65 COP – 31/01/2022

Highlights

Electrification of public transport in Colombia still needs public investment to cover capital costs

Studies indicated that the difference in the total cost of ownership between 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 could not cover electrification's capital costs through soft loans. Instead, a considerable package of subsidies is required to make the e-bus technology competitive regarding its capital cost investments.

The national fund for e-bus renewal was legally created through a the enaction of a national law

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

This law builds upon the efforts of the Colombian government adopting the National Strategy of Electric Mobility. Its objective is the incorporation of 600,000 electric vehicles until 2030 through an adequate regulatory framework, economic and market-based mechanisms, the establishment of technical guidelines, and the deployment of charging infrastructure.

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

The technical assistance delivered in Colombia did not follow the traditional approach to formulate a NUMP, but tried to meet the needs of four pre identified barriers for the deployment of electric mobility at the national scale, and subsequently the achievement of effective mitigation outcomes. Thus, the four workstreams of the project (finance, governance, capacities and MRV) interacted harmonically to deliver concrete results related to political and financial commitment to the renewal of public transport fleet in the country. However, the project did not follow the traditional guidelines to formulate a NUMP.

Sustainability of electrification goes beyond ensuring funds and includes support infrastructure, capacity development, and systemic change

Building capacities in electric mobility within the transport sector is key to ensure the sustainability of a strong fleet-renewal policy. Transport authorities need to interact with the energy sector in order to enable fertile conditions for electromobility deployment. Moreover, operators and technicians need to be trained in the maintenance and mechanics of electrical vehicle systems, so operation management is ensured. The inclusion of a gender focus in this component intended to close the gap for women to access jobs in the transport sector.