

TC Document

I. Basic Information for TC

▪ Country/Region:	PARAGUAY
▪ TC Name:	Electric Mobility as a National Opportunity for Green and Resilient Economic Recovery
▪ TC Number:	PR-T1321
▪ Team Leader/Members:	Caldo, Alejandra Anahi (INE/TSP) Team Leader; Aiello, Roberto Gabriel (INE/ENE) Alternate Team Leader; Prado, Veronica Rodrigues Do (INE/ENE) Alternate Team Leader; Ana Vargas Frutos (INE/TSP); Celeste Marzo, Cristina (LEG/SGO); Cristaldo Cantero, Osvaldo Alfonso (CSD/HUD); Goldenberg Lopez, Federico (INE/ENE); Grunwaldt, Alfred Hans (CSD/CCS); Marquez Barroeta, Fidel (INE/ENE); Molina Vintimilla, Maria Emilia (INE/TSP); Piras, Claudia (SCL/GDI); Silva Casseb, Marcia Maria (CSD/HUD); Sosa Sartori, Martin Daniel (INE/TSP); Urquidi Zijderveld, Manuel Enrique (SCL/LMK)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	NA
▪ Date of TC Abstract authorization:	13 Jul 2021.
▪ Beneficiary:	Republic of Paraguay
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	Strategic Climate Fund(SCX)
▪ IDB Funding Requested:	US\$450,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	24 months
▪ Required start date:	15 Jan 2022
▪ Types of consultants:	Individuals; Firms
▪ Prepared by Unit:	INE/TSP-Transport
▪ Unit of Disbursement Responsibility:	CSC/CPR-Country Office Paraguay
▪ TC included in Country Strategy (y/n):	Y
▪ TC included in CPD (y/n):	N
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Environmental sustainability; Gender equality; Institutional capacity and rule of law; Productivity and innovation

II. Objectives and Justification of the TC

- 2.1 This Technical Cooperation (TC) aims to support a green economic recovery and the decarbonization of Paraguay transport system through the promotion of electric mobility in Paraguay. The specific objectives are: (i) to strengthen the regulatory framework, institutional and technical capacity of public agencies to design and implement electric mobility projects and policies; (ii) to provide alternative investment and financial models for Electric Vehicles (EV) deployment in public transit and the electric mobility industry and its value chain; and (iii) to generate capacity building programs for labour promotion with a gender-based perspective.
- 2.2 The pandemic led to an economic recession in Paraguay, and higher levels of unemployment and gender inequality: Paraguay's Central Bank expected a

4.1% economic growth in 2020¹. Nonetheless, because of the pandemic and the restrictive measures implemented to reduce transmission, the country faced a reduction of near 0.6% of its GDP² and a rise in unemployment – by the last quarter of 2020, 7.2% of the working population were unemployed³. Unemployment after the pandemic has disproportionately affected Paraguayan women – according to a World Bank Survey implemented in Paraguay more than half of the female surveyed reported becoming unemployed in May 2020 in comparison to 35% of male respondents⁴. Gender disparities constituted a significant challenge before the pandemic. In 2017, women's participation in the workforce in Paraguay was 57% in comparison to men's which was 84%⁵. The participation of women in the transport, storage and communications sectors was of 2.4%, while men's participation in this sector reached 9.5% and in the construction sector the disparity was of 0.3% and 11.3% respectively⁶. These disparities were exacerbated during the pandemic but updated disaggregated data of sector participation by gender has not been released yet.

- 2.3 **The restrictions to reduce transmission of COVID-19 and the perception of risk have altered mobility patterns.** During the first months of the outbreak in 2020, transit ridership in the main cities of Latin America decreased between 60% to 90%⁷. Specifically in Paraguay – it is estimated that public transit ridership in the metropolitan area of Asunción, Paraguay's capital, decreased by 90% between March and May 2020⁸. By February 2021, transit ridership remained at near 40% to 50% of pre-pandemic levels. Even before the pandemic, public transit was already suffering from a reduction in ridership – from 1998 to 2014 public transport decreased its modal participation by 12% among all motorized trips in Asunción's Metropolitan Area⁹. While at the same time, private motorization has been growing across Paraguay– the number of automobiles grew by 150% from 2012 to 2020¹⁰.
- 2.4 Additionally, the economic impact that public transit operators are facing with the low ridership is leading to negative impacts in the quality and the level of services – bus frequencies have decreased leading to longer waiting times and crowding. The poor quality of service and the perception of risk is encouraging users to shift to private modes. Even though there was an overall reduction in congestion due to the pandemic, private modes are recovering their demand faster than public transit globally¹¹. The reduction in public transit ridership is accompanied by an increase in the use of private automobiles and motorcycles. If this permanent modal shift to private vehicles is not easily reversed and, therefore, even higher levels of Greenhouse Gas (GHG) emissions by the transport sector are expected after the pandemic is over and

¹ UNDP, 2020. [Impulsando la recuperación socioeconómica en Paraguay: Estrategias de Reactivación frente al COVID-19](#).

² Agencia de Información Paraguaya, 2021. GDP fell 0.6% in 2020, the year of the pandemic.

³ Instituto Nacional de Estadística, 2019 and 2020. *Encuesta Permanente de Hogares*.

⁴ World Bank, 2021. [A closer look at the gender gaps in Paraguay during the pandemic](#).

⁵ World Bank, 2019. [The Little Data Book on Gender](#).

⁶ OIT, 2019. Employment distribution by economic activity (by sex) – ILO modelled estimates, Nov. 2019 (%) – Annual.

⁷ Statista, [Change in public transport demand due to the COVID-19 outbreak in selected cities in Latin America from March 2 to May 12, 2020](#).

⁸ IDB, 2020. [Billete electrónico en Asunción: entendiendo el impacto del COVID-19 en el transporte público](#).

⁹ IDB, 2014. *Iniciativa Ciudades Emergentes y Sostenibles (ICES): Plan de Acción Area Metropolitana de Asunción Sostenible*.

¹⁰ Dirección del Registro Automotor, 2021.

¹¹ Deloitte, 2020. [Post-pandemic traffic jams: What they might mean for tech, media, and telecom](#).

travel demand resumes to pre-pandemic levels. To contain and reduce emissions in the sector, there must be a comprehensive action to electrify modes of transport, both private and public, and recover mass transit demand.

- 2.5 **Electric mobility as a tool for climate mitigation, job generation and green economic recovery.** Paraguay generates almost 100% of its electricity from clean and renewable sources through two binational hydroelectric plants (*Itaipú* with Brazil and *Yacyretá* with Argentina) and the nationally owned Acaray. However, Paraguay is highly dependent on imported fossil fuels (primary energy consumption is 40% petroleum products, 44% biomass, and 16% electricity). Almost 93% of the fossil fuel consumption in Paraguay occurs in the transportation sector; thus, an ambitious transition to electric mobility (including both battery and hydrogen technologies) can drastically reduce its GHG emissions. Paraguay is uniquely positioned to play a relevant role in the electric mobility value chain (both with electric battery, hydrogen storage and auto parts) as a regional manufacturing hub given its competitive electricity costs, reduced tariffs for export to other Mercosur countries, industrial tax incentives, and strategic geographic location. The electric mobility industry can play a key role in developing a new market in Paraguay, generate formal jobs, and contribute to a clean and sustainable economic recovery. In addition, enhancing economic opportunities and building capacities will strengthen communities to be more resilient to socioeconomic and environmental shocks.
- 2.6 This TC complements the Government's efforts on electric mobility and energy transition and is aligned with the recently developed National Electric Mobility Strategy. Additionally, Paraguay's National Development Plan 2014-2030 (*Plan Nacional de Desarrollo*) outlines goals aligned with a transition to electric mobility: it has the objective of increasing by 60% the consumption of renewable energy and decreasing by 20% the consumption of fossil fuels. It is also linked to existing IDB programs/activities in the Transport, Energy and Urban sectors. Once executed, it is expected to contribute to increased private capital mobilization.
- 2.7 The proposal complements other initiatives under preparation and/or implementation with the support of the IDB and other development partners, including:
- (i) **IDB's regional program RG-T3539.** Incentive Program and Support for the Transition to Electromobility in Latin America and the Caribbean, which aims to strengthen the instruments of public policy and regulation for the correct adoption of electric mobility.
 - (ii) **UNEP and GCF's Advancing a regional approach to e-mobility in Latin America.** A regional project that supports multiple LAC countries, including Paraguay, to identify the barriers to electric mobility and accelerate the transition to this new mobility technology¹².
 - (iii) **UNDP's Asunción Ciudad Verde de las Américas.** A metropolitan project that seeks to mitigate and reduce emissions through reforms in urban planning and land use, public transport, and waste disposal. The project is seeking to support Paraguay to transition to electric bus fleets through public investments and external multilateral grants.

¹² GCF and UNEP, [Readiness Proposal: Advancing a regional approach to e-mobility in Latin America](#).

- (iv) **CAF is developing a GCF proposal to direct resources to multiple LAC countries for electric mobility initiatives.** For Paraguay, CAF is envisioning reforms in public transport, taxi services, and micro mobility (electric bikes and scooters). in the objectives of the National Energy Policy of Paraguay (Approved by decree N.6092/2016) and the National Electromobility Strategy of Paraguay.
 - (v) **EUROCLIMA'S E-Mobility masterplan for public transport and logistic in Paraguay.** Which aims to incorporate all actions linked to electric mobility in the transport sector, including mass transport and freight.
- 2.8 **Strategic Alignment.** The TC is consistent with the Second Update of the Institutional Strategy 2010-2020 (AB-3190-2) and is aligned with the challenge of production development and innovation by fostering the promotion of electric mobility solutions in different segments. The TC is also aligned with the cross-cutting areas of: (i) Climate Change and Environmental Sustainability, as it enables the reduction of GHG by promoting the substitution of fossil fuel use in the transport sector with electricity generated from renewable energy – conventional and non-conventional – sources; (ii) Institutional Capacity and Rule of Law, by promoting new competencies and capacity building activities such as training, labour promotion programs and knowledge exchange in electric mobility, additionally it promotes the development of national standards, improve regulatory frameworks, and incentivize mechanisms for the use and production of EVs; and (iii) Gender Equality and Diversity by promoting upskilling programs targeted to women in non-traditional occupations, fostering participation of women in STEM. The TC is also aligned with the Bank's Vision 2025 pillars of: (i) digitalization, by promoting the use of innovative technologies to optimize and monitor the uptake of EV for the transport sector; (ii) gender, by fostering the participation of women in STEM; (iii) climate change, by the promoting the reduction of GHG; and (iv) small and medium enterprises, as it will support the supply chain of EV production in the country.
- 2.9 The TC is aligned with the Sustainable Infrastructure Strategy for Competitiveness and Inclusive Growth (GN 2710-5) through the priority action areas of: (i) fostering innovative mechanisms for infrastructure financing and leveraging private sector participation; and (ii) adopting and incentivizing a multisectoral agenda. Likewise, this TC is consistent with the Energy Sector Framework (GN-2830-8) on energy sustainability and energy sector governance; the Transportation Sector Framework (GN-2840-12) on promote technological transformation in the sector, as well as the Climate Change Sector Framework (GN-2835-8), by facilitating the use of RE with low Carbon Dioxide (CO2) emissions, contributing to climate change mitigation. Finally, this TC is aligned with the strategic area of Paraguay's Country Strategy (GN-2958) productive and resilient infrastructure specifically with the strategic objective of improving the infrastructure coverage and quality, by promoting efficiency in transportation and an increase in the use of renewable energy, nonconventional.

III. Description of activities/components and budget

- 3.1 **Component 1. Institutional and regulatory strengthening (US\$100,000.00).** This component will support strengthening of transport, energy, urban and industrial agencies, along with municipal governments, to support the deployment of electric mobility programs and regulations that induce the demand of EVs, the implementation of labour promotion programmes in the EV industry, and define the technical standards and requirements for both the use, production and maintenance of EVs in Paraguay that will enhance the country's competitiveness by reducing risks for Original

Equipment Manufacturers (OEMs) by: (i) Supporting public agencies in a study of alternatives for incentives (e.g., reduction or exemption of taxes and fees, preferential parking spaces, exclusive lanes) for EV buyers and disincentives for the use of internal combustion engine (ICE) vehicles (GHG emission regulations such as EURO standards); and (ii) Supporting regulatory agencies to advance in the revision of best practices for technical standards for imported and locally produced EVs – to give the assurance to OEMs of the type of products that will be able to enter the Paraguayan market; The main outputs of this component are: (i) a study focused on incentives for deployment of EVs; (ii) a study for regulatory framework in best practices; and (iii) a multidimensional country diagnostic assessment.

- 3.2 **Component 2: Technical studies for EV deployment (US\$130,000.00).** This component will finance the development of technical studies that support public agencies and local public research entities in the implementation of electric mobility and the development of climate mitigation policies. Priority will be given to technical studies that support analytical and modelling capabilities to understand the impact of transport emissions and to deploy mitigating measures in alternative sustainable transport modes (public transport and micro mobility such as electric bikes and scooters). Additionally, this component will support studies to identify gender gaps of: (i) modal preferences across multiple transport modes and propose measures to ensure safety for women that rely on public transport and micromobility; and (ii) analysis of gender composition of employment across the whole E-mobility value chain to develop recommendations for the design of electric mobility investments, and the development of capacity building and training programs respectively. To achieve the aforementioned this component includes: (i) studies for the design and evaluation of pilot projects of different modes of transport (non-motorized transport, micromobility, public transportation, etc.), considering the different uses and needs of women and men of transport systems; (ii) studies for the design and evaluation innovative tools for pilot programmes of charging infrastructure for EVs; (iii) the design of case studies of EVs implementation by public agencies with focus on green corridors; and (iv) the study of alternatives to reduce the impact of the EV induced electricity demand on the national electricity supply and optimize the grid. The main outputs of this component are: (i) an assessment of modal preferences; (ii) an assessment of gender employment composition across the EV value chain; and (iii) a report presenting the results of the pilot programmes and the recommended roadmap.
- 3.3 **Component 3. Business and financial models (US\$70,000.00).** This component will: (i) assess different contractual/concession models to best suit the sector context and attract private investment to scale up massive deployment of electric busses in Paraguay, and ensure the sustainability of this type of initiative, including the renovation of the public sector transportation fleet for electric busses in the country's main urban centres; and (ii) identify and develop financial models to mobilize private investment in the electric mobility industry and its value chain in Paraguay. The main outputs of this component are: (i) a feasibility study for the gradual shift of the public transport system; and (ii) the optimisation of the energy sector and a report consolidating alternative models and strategies for implementation.
- 3.4 **Component 4. Capacity building program. (US\$100,000.00).** This component aims to: (i) support the strengthening of human capital at public agencies for the development and implementation of electric mobility projects; and (ii) support public agencies in the labour promotion in the electric mobility sector with special emphasis to gender inclusion perspective. For that, this component will finance: (i) technical

training and certification for prospective drivers with a gender quota, previously determined by the government's goals; (ii) technical training and certification for prospective mechanics and professionals responsible of maintenance; and (iii) technical training to local transit and urban agencies for the design and development of urban amenities – smart infrastructure and enhanced physical organization rationale – with a gender perspective to promote safety of women in public transport, and bus stops such as restricted seating and bus areas exclusively for women, reactivation of commercial activity near transit stops, and transit corridors, and measures to ensure safety (lightning, emergency buttons, surveillance cameras, police patrolling). The main outputs of this component are a series of training and certification sessions focused on enhancing the knowledge and skills of EV operational workers and government officials.

- 3.5 **Component 5. Communication (US\$50,000.00).** This component will support the development of a communication strategy for Paraguay's government that will promote the decarbonization of the transportation sector, the transition to electric mobility, and the promotion of green jobs in the EV industry. This communication strategy will include a sub-component to support the inclusion and participation of women in the entire electric mobility market and value chain; also, will include knowledge exchange workshops with public agencies to discuss lessons learned from the implementation of electric mobility programs, policies, and projects with local counterparts. The main outputs of this component are workshops with main stakeholders, dissemination events and publications (blogs).

Indicative Budget

Activity/Component	Description	IDB/Fund Funding	Total Funding
Component 1. Institutional and Regulatory Strengthening	(i) Multidimensional country diagnostic assessment and study of alternatives of incentives for EVs. (ii) Consultancies and other services for capacity building activities and/or analytical inputs for strengthening the institutional capacity of public agencies.	US\$100,000.00	US\$100,000.00
Component 2. Technical Studies	(i) Studies for the design and evaluation of pilot projects of different modes of transport (non-motorized transport, micromobility, public transportation, etc.), considering the different uses and needs of women and men of transport systems. (ii) Studies for the design and evaluation tools for pilot programmes of charging infrastructure for EVs green corridors. (iii) Design of case studies of EVs implementation by public agencies. (iv) Study of alternatives to reduce the impact of the EV induced demand on the national electricity supply and optimize the grid.	US\$130,000.00	US\$130,000.00
Component 3. Business and Financial Models	i. Feasibility study of the planning and implementation of electric mobility in the public transport system in the metropolitan area of Asunción. ii. Identify and develop financial models for private investment in the electric mobility industry and its value chain.	US\$70,000.00	US\$70,000.00

Activity/Component	Description	IDB/Fund Funding	Total Funding
Component 4. Capacity Building Programs	i) Technical training and certification for prospective drivers with a gender quota (previously determined by the government's goals). ii) Technical training and certification for prospective mechanics with a gender quota (previously determined by the government's goals). iii) Technical training to local transit and urban agencies for the design and development of urban amenities with a gender perspective.	US\$100,000.00	US\$100,000.00
Component 5. Communication	Development of communication strategy for Paraguay's government that will promote the decarbonization of the transportation sector, the transition to electric mobility and the promotion of green jobs in the EV industry.	US\$50,000.00	US\$50,000.00
Total		US\$450,000.00	US\$450,000.00

IV. Executing agency and execution structure

- 4.1 The Bank through INE/TSP with the support of the INE/ENE will be the executing agency of this project and will oversee the hiring of individual consultants and consulting firms, the review of technical reports, and the monitoring and evaluation of activities. The execution of this TC is in alignment with the Annex II of the Bank's established Procedures for the processing of TC operations and related matters (OP-619-4).
- 4.2 The Bank will work in close collaboration with the National Electric Mobility Taskforce (NEMTF)¹³, the Transport Sector Working (TSWG)¹⁴. Furthermore, the Bank will engage and include the Viceministry of Mines and Energy (VMME), the Ministry of Women (*Ministerio de la Mujer*), the Ministry of Labor (*Ministerio del Trabajo*) in the implementation of activities. The Bank will coordinate and engage with the main stakeholders from the beginning of the implementation of the TC, seeking feedback and regularly presenting and discussing progress report. The team leader Alejandra Caldo (INE/TSP) will oversee the execution of this TC.
- 4.3 The Bank executes this TC given its broad experience and expertise in: (i) institutional strengthening in the transport and energy sectors; (ii) providing technical assistance on electric mobility in an interdisciplinary environment; and (iii) exchanging experiences and cross-country good practices. Moreover, in Paraguay it is required to obtain legislative ratification of the execution of the TC for which the Bank will give celerity to this matter at beginning of the execution.

¹³ This task force was established for advancing electric mobility in the country and is led by has been established and is led by the President's Office, the Technical Secretariat of Planning (*Secretaría Técnica de Planificación*) and the Vice-ministry of Transportation (*Viceministerio de Transporte*).

¹⁴ This working group is led by the National Directorate of Climate Change under the Ministry of Environment and Sustainable Development (*Ministerio del Ambiente y Desarrollo Sostenible*) and promotes the advancement of Paraguay's National Determined Contributions (NDCs) in the transport sector. The TSWG Group comprises relevant public agencies and Ministries as well as members of the private sector.

- 4.4 The beneficiary has requested that the Bank executes the TC. The Bank has the required experience in executing TC from this donor and the technical capacity to duly and timely execute the activities from this TC.
- 4.5 All activities to be executed under this TC have been included in the Procurement Plan (Annex IV) and will be contracted in accordance with Bank policies as follows: (a) AM-650 for Individual consultants; (b) GN-2765-4 and Guidelines OP-1155-4 for Consulting Firms for services of an intellectual nature; and (c) GN-2303-28 for logistics and other related services.

V. Major issues

- 5.1 The main risks identified in this TC is risk in delays in the implementation due to lack of sufficient technical capacity in the counterparts and public agencies, to mitigate this risk the Bank will follow up closely to ensure hiring the necessary consultant to provide enough resources to the public counterparts and support decision making. Other identified risk are: the political risk due to national elections in 2023 and government changing priorities, this risk is considered low since electric mobility has gained public attention, moreover the government has established its support in the National Development Plan and this initiative is aligned with the recently developed national electric mobility strategy ; the risk of a lack of engagement from the public sector which operate public transportation, this risk will be mitigated by this TC exploring alternatives innovative business models that will leverage public investment to reduce the necessary initial investment of vehicle acquisition, this project will also demonstrate the viability and benefits of electric mobility in the public sector.
- 5.2 Furthermore, the Bank has recognised the existence of several initiatives regarding electric mobility being carried out simultaneously and by different public agencies. This variety of initiatives could lead to an overlap of activities, thus to a misallocation of resources. To address this issue, the government is creating by law a multisectoral technical committee (National Working Group on Electromobility) which will lead and coordinate all efforts and programmes related to electric mobility.

VI. Exceptions to Bank policy

- 6.1 No exceptions to Bank policies have been identified.

VII. Environmental and Social Strategy

- 7.1 The TC has no environmental or social impacts as it will only generate studies and pilot projects without infrastructure. The TC has been classified by ESG as category "C", ratifying an environmental, social and/or cultural impact negative minimum or non-existent.

Required Annexes:

[Request from the Client - PR-T1321](#)

[Results Matrix - PR-T1321](#)

[Terms of Reference - PR-T1321](#)

[Procurement Plan - PR-T1321](#)