

# BUENOS AIRES / ARGENTINA

SOLUTIONSPLUS | SCALE-UP CONCEPT NOTE



## PROJECT PARTNERS



## ABOUT

This is a summary of the paper, submitted to the journal ‘Sustainable Earth Review’ developed under SOLUTIONSplus project. Currently the paper is under peer review.

## TITLE

Capacity and market potential for local production and distribution of electric two-wheelers in Southeast Asia, focused on Thailand, Indonesia, and Vietnam

## PREPARED BY

Hyung Ju Kim, Wuppertal Institute (Visiting scholar)/ National Institute of Green Technology Korea  
 Shritu Shrestha, Wuppertal Institute  
 Kanya Pranawengkapti, Wuppertal Institute

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## LAYOUT

Yasin Imran Rony, WI

## PICTURES

All the pictures are provided by the ITDP

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# Scale-Up Concept Note

Project Title: “Support the uptake of (light) electric vehicles for urban logistics in Buenos Aires”

City/Country: Buenos Aires / Argentina

<b>Purpose</b>	Support and accelerate the adoption of electric vehicles for urban logistics, thus reducing fossil fuel consumption, greenhouse gas emissions and air pollution from the sector in the City of Buenos Aires
<b>Coordination</b>	UNEP
<b>SOLUTIONSplus partners</b>	TU Berlin UEMI CODATU WI
<b>Contributors</b>	Ari Rizian (TU Berlin)
<b>Reviewers</b>	Annika Berlin (UNEP) Lucile Boudet (CODATU) María Rosa Muñoz B. (WI)

## 1. Background

The SOLUTIONSplus project aims to enable a transformative shift towards sustainable urban mobility through innovative and integrated electric mobility solutions, which are implemented as pilots in 10 cities globally. It was funded by the European Union's Horizon 2020 research and innovation program and ran from January 2020 to June 2024. The project encompassed city-wide demonstrations to test different types of innovative and integrated e-mobility solutions, complemented by a comprehensive toolbox, capacity building, business model development and policy, scale-up and replication activities. In addition, the project provided technical and financial support to the local actors, relying on the knowledge and expertise of a consortium of 46 partners that bring together some of the main research and industry players in electric mobility. The project was implemented in 10 demonstration cities, i.e.: Kigali (Rwanda), Dar Es Salaam (Tanzania), Hanoi (Vietnam), Pasig (Philippines), Kathmandu (Nepal), Najing (China), Quito (Ecuador), Montevideo (Uruguay), Hamburg (Germany) and Madrid (Spain), and in more than 15 replication cities around the globe.

In Latin America, the SOLUTIONSplus carried out demonstration activities in Ecuador and Uruguay and replication in Colombia and Argentina focusing on the five main action lines depicted in Figure 1.

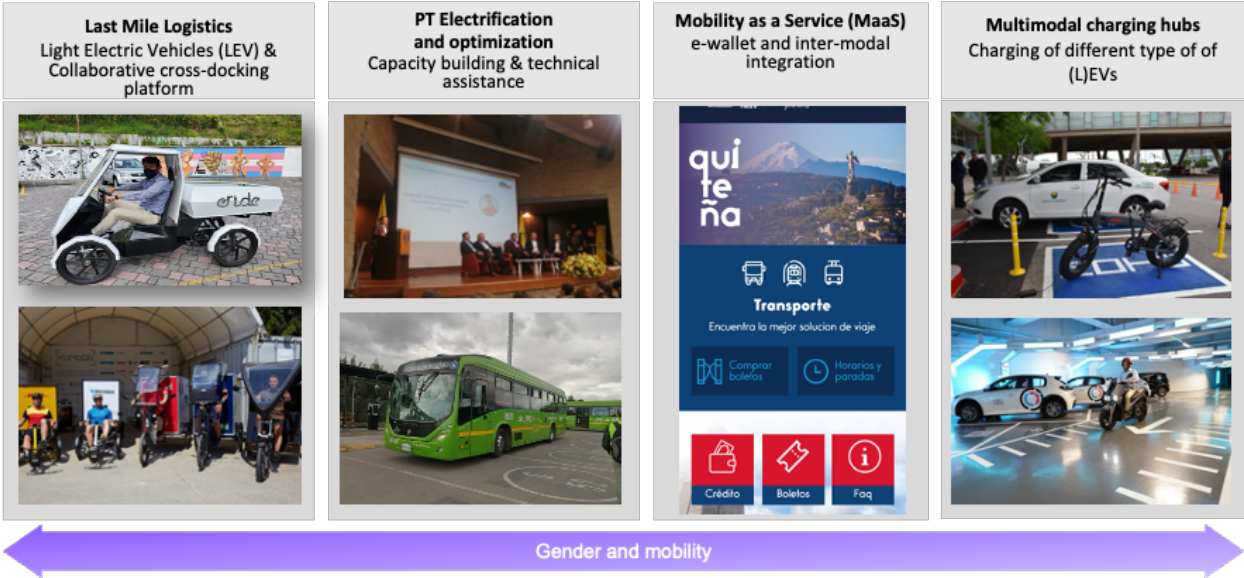


Figure 1: SOLUTIONSplus action lines in Latin America

In this context, SOLUTIONSplus provided seed funding for the manufacturing of 15 different types of LEVs (Figure 2) by a total of 11 local SMEs. These vehicles were tested in 12 different use cases, mainly in logistics operations, but also in passenger transport. The results of the pilots carried out in 2 demonstration cities (Quito, Ecuador and Montevideo, Uruguay) and in 9 replication cities (Escobar and Buenos Aires in Argentina, Cuenca in Ecuador, Bogotá, Medellín, Barranquilla, Bucaramanga and Sabanalarga in Colombia) show high scale-up potential of this solutions in Latin America. However, one of the main barriers identified in most of the cases was the lack on national and local regulations to enable the widespread use of LEV in logistics and passenger transport.

In Argentina, the use cases focused on agroecological gardens in Escobar, a municipality in the Metropolitan Area of Buenos Aires, and on parcel distribution in the city of Buenos Aires by the National Postal Services (Correo Argentino). In both cases, L7 cargo vehicles were used, one from Coradir (pick-up) and one from Sero electric (e-mini van), which are depicted in Figure 2 in the bottom left corner.



Figure 2: LEVs funded by SOLUTIONSplus in Latin America

### Experiences on e-logistics in Buenos Aires

The government of the City of Buenos Aires has already been monitoring the performance and results of new urban logistics operational models (specifically Microhubs + Electric Vehicles) together with private logistic operators. The “Microhub model” includes reduced inventory cross-docking operations, sustainable last mile (electric vehicles, forklifts, bicycles or on foot) and are often located in historic or traffic-restricted areas.

In the specific case of beverage distribution, the company Express Logística initially operated 2 SERO Electric vehicles (locally manufactured) in 2 Microhubs located in high-density residential and commercial neighborhoods (Palermo and Recoleta). After recording satisfactory results during the pilot phase, the company is looking to upscale the model to other locations in Buenos Aires.

Some of the positive results identified by Express Logística include:

- Reduced environmental pollution (CO2 emissions, particulate matter, noise pollution)
- Road Safety (speed limited to 45km/h, vehicle dimensions at pedestrian and cyclist scale)
- Coexistence on streets (size of the vehicle allows for agile movement and facilitates parking reduces traffic congestion)
- Better service (hours of operation are adapted to the reception hours in stores)
- Better ergonomics (height of the cargo box facilitates the driver's work)



Figure 3: Express Logística EV operations on Microhub (left) and commercial street (right) in Buenos Aires

Other institutions are also advancing in the same direction. Correo Argentino is the official courier service of the Argentine Republic, with operations throughout the country. The sustainability area of Correo Argentino is working on a Plan to modernize the parcel distribution Hubs in the Buenos Aires metropolitan area, incorporating digitalization into the process and replacing polluting vehicles with low-CO2-emission alternatives. This includes the implementation of a Pilot Hub and then continuing with the modernization of the 7 Hubs in the metropolitan area.

According to their analysis, the electrification together with dynamic routing of circuits would significantly reduce greenhouse gas emissions (over 20% of savings from dynamic routing and up to 75% of savings from electric vehicles (local emissions, not considering energy production). While digital tools allow dynamic routing to Hubs, avoiding inefficient fixed circuits and scheduling, to minimize the carbon footprint of delivery, it is necessary to replace the fleet with electric vehicles.

SERO Electric is the Argentine company that in 2010 started a project to develop “Microcars”, inspired by vehicles that circulate in Europe. The objective of the company is to locally manufacture this kind of vehicles in Argentina (also developing local suppliers) and scale up to different markets. Today the company offers 5 different models approved for passenger and cargo transportation.



Figure 4: Pilot vehicle of Correo Argentino (left) and SERO electric vehicle for urban logistics (right).

## Barriers for the introduction of EVs for urban logistics in Buenos Aires, Argentina:

The deployment of low-carbon and electric vehicles for urban logistics in Buenos Aires is still underdeveloped and its potential remains untapped. Some identified barriers for the uptake of low-carbon fleets for urban logistics are the following:

- Fragmented institutions lacking resources and capacities for coordination & planning
- Unclear distribution of competences
- Lack of capacities in the private sector to facilitate the transition to electric mobility
- Lack of social acceptance & change resistance
- Lack of visibility of available e-mobility solutions and environmental benefits
- Limited funding and financing options (including fiscal benefits)
- Lacking regulatory framework for EVs (favoring traditional ICE)
- Lack of adequate Business Models and legal framework for the adoption of e-mobility
- Insufficient development of end-of-life vehicle management (and regulation)
- Shortcomings in energy generation and distribution (including EV charging infrastructure)

It is important to note that as long as the TCO (Total Cost of Ownership) of electric vehicles (all types) remains higher than traditional ICE (Internal Combustion Engine) vehicles and no progress can be achieved regarding domestic production, barriers will be encountered because of higher upfront investments and the resistance of local industrial stakeholders. Despite having the necessary infrastructure, the most traditional local manufacturers and OEMs are still hesitant to reconvert their business models and manufacturing processes towards electric technology.

A transition toward electric vehicles would require an important financial inflow, as well as investments in research and development, mainly from the traditional automotive companies based in the country, small and medium national companies that are a part of the automotive supply chain and emerging start-ups.

## Capacity building activities

The SOLUTIONSplus project has been supporting local actors in the region by providing capacity building, technical support related to business model development, innovation management, advisory services and in some cases even European vehicle components, as part of its Start-up Incubator and matchmaking program.

In this context, the second module of the SOLUTIONSplus Regional Training for Latin America 2021, focused on low-carbon urban logistics and regulations for LEV. In 2022, the Regional Training was dedicated to e-buses, and charging infrastructure. The above-mentioned stakeholders participated in these capacity building activities.

Additionally, both the government of the City of Buenos Aires (Urban Logistics Department) and the company Express Logística have participated and presented in 2021 their above-mentioned case in a workshop of Connective Cities, an initiative that seeks to share positive experiences from different cities around the world, through peer-to-peer exchange.

## 2. About the Project

### 2.1 Goal

The objective of the project is to accelerate the introduction and adoption of electric vehicles for urban logistics, thus reducing fossil fuel consumption, greenhouse gas emissions, noise and air pollution from the transport sector in the metropolitan area of Buenos Aires, the capital city of Argentina.

To do so, all the learnings and outputs from the different work packages of the SOLUTIONSplus project will be applied and continued through new projects, existing projects and other initiatives carried out in the city of Buenos Aires. The components of this scale up are detailed below.

In relation to the SOLUTIONSplus project, several stakeholders in the Buenos Aires metropolitan region showed interest in applying for funding for a replication project in the framework of the SOLUTIONSplus Replication Calls. A total of 5 proposals were submitted, all of them related to sustainable urban logistics with electric vehicles. Correo Argentino and SERO Electric, were indeed selected as one of the winners of the Open Call and received 30,000 Euros in funding to carry out the proposed pilot. SERO Electric provide 2 electric vehicles and Correo took the responsibility for the set up and design of the pilot –meeting all SOLUTIONSplus requirements-, definition of methodology and KPIs (Key Performance Indicators), implementation, monitoring and reporting. The pilot test is expected to be launched in October 2023 and finished in March 2024.





Figure 5: Pilot vehicle for the SOLUTIONSplus Replication Activity in Buenos Aires (Correo Argentino, 2023)

The Pilot's objective was to evaluate the performance of LEVs for the delivery of parcels for Correo Argentino in selected areas, replacing internal combustion (Diesel) vans. Through the analysis of indicators and KPIs defined by the SOLUTIONSplus team (operational, environmental, financial and user perception indicators), it was possible to understand the performance of these vehicles in real operation conditions. After completing the monitoring phase, the possibility of scaling up this type of operations to other Hubs and distribution centers of the company was assessed. A total of 2t CO2 emissions were avoided during the pilot. A comparison of the operational indicators of the LEV used vs the ICE van used previously is presented in Table 1.

Unit	↕	Baseline ICV ↕	EV vehicle ↕	% change ↕
# deliveries / hour		7.3	6.6	-9.6%
deliveries / km		0.81	1.02	26.5%
hours and minutes		6.87	6.52	-5.1%
kg / hour		20.1	10.95	-45.5%
kg / km		3.41	1.65	-51.6%
km / hour		5.9	6.55	11%
km/h		11.1	13.15	18.5%

Table 1: Operational KPIs

In addition to the Replication activities, and also within the framework of SOLUTIONSplus, a Roadmap for Buenos Aires was elaborated with a focus on the adoption of electric vehicles for urban logistics. This document was co-produced together with local authorities and drew on the experiences of the Buenos Aires demo, regional experiences on e-logistics (Latam) and the various initiatives and activities mentioned in this Scale-up concept note. The content was validated with officials from the government of the City of Buenos Aires, specifically from the area of Urban Logistics and Low Emissions of the Secretariat of Transportation and Public Works and aligned with the objectives set forth in the Buenos Aires 2050 Climate Action Plan.

The ACCESS project, which will start by the end of 2024, will continue some of the activities and initiatives started with SOLUTIONSplus. It is important to note that this project focuses on the digitalization of transportation to achieve the decarbonization of the sector. Therefore, there are synergies and many points of contact with SOLUTIONSplus.

ACCESS has 3 working packages and a regional component, which serves as a platform for sharing the experiences of 6 Latin American countries. In the specific case of Buenos Aires, urban logistics has been identified as a key element for the work packages related to public policy and enabling frameworks at national and sub-national levels (Loading and Unloading Zones, Urban Logistics Carbon Footprint, Cross-docking and last mile logistics, among others).

In addition, 2 of the 3 pilots that are part of the remaining work package of the ACCESS project involve activities related to urban logistics:

- Buenos Aires (Pilot 1): Fleet tracking and dynamic route planning enabling higher operational standards and lower GHG (greenhouse gas) emissions (Correo Argentino - National Postal Service)
- Buenos Aires (Pilot 2): Digital tool for reservation, management and fiscalization of loading and unloading areas within the city parking structure (Urban Logistics - Buenos Aires City Government)

The scale up project will utilize all the findings, structure, lessons learnt, stakeholders already developed within the SOLUTIONSplus project to accelerate the transition to EVs for urban logistics and also adding the digitalization layer with the ACCESS project



Figure 6: SOL+ and ACCESS project

## 2.2 Scale-up Approach

### Consistency with Local and National priorities

This scale-up approach shows consistency with different policies and plans that have been developed at national and local (Buenos Aires) levels in recent years. A relevant national document for the decarbonization of transport (people and freight), which also lists the national commitments to the Paris Agreement is the PANTyCC (National Transportation and Climate Change Action Plan).

The goal of the updated NDC (Nationally Determined Contributions) is not to exceed a net emission of 349 million tons of carbon dioxide equivalent (MtCO<sub>2</sub>e) by 2030. The country emphasizes the promotion of effective energy efficiency measures in all transport modes with an Avoid-Shift-Improve approach to reducing greenhouse gas emissions in the transport sector (people and freight) and promoting the Sustainable Development Goals.

The city of Buenos Aires presented in 2021 its revised [Climate Action Plan 2050](#) with an overall goal of reducing emissions by 84% by 2050.

Within this document, great importance is given to urban logistics (action number 11 of the PAC 2050), an issue that was not previously considered very much. Some specific objectives are listed in this plan, which are aligned to this scale-up concept

- 2 Ultra LEZs (Low Emission Zones) by 2030
- Regulation of loading and unloading in commercial areas
- Incorporation of delivery lockers
- Use of garages in LEZs for cross-docking or stockpiling centers
- Improvement of "blue boxes", areas in the street for loading and unloading
- Implementation of nighttime loading and unloading
- Last mile deliveries on e-vehicles and motorcycles
- Promotion of sustainable logistics plans in the private sector & incorporation of electric fleets

### 2.3 About the scale up project

As mentioned under section 2, the SOLUTIONSplus project will be continued and supported in Argentina by the ACCESS project.

- **Component 1:** Supports Buenos Aires (local government) and Argentina (national government) in the institutionalization of low carbon urban logistics by supporting and strengthening key capacities in technical, financial, and regulatory aspects, designing and implementing a communication and engagement campaign, and through the establishment of a Knowledge Management System that will compile, process and make available key sectoral information.

Output 1.1: An Urban Logistics Masterplan is designed and adopted to optimize operations, develop and favor the overall planning and management of urban logistics in the City of Buenos Aires.

Output 1.2: A multi-stakeholder consultation, communication, and engagement strategy is made available to support the government in scaling up low-carbon urban logistics through a just transition.

Output 1.3: Private and public stakeholders increase awareness, capacity & knowledge on technical, financial and regulatory aspects of low-carbon urban logistics through a capacity building mechanism thus strengthening institutional linkage between private actors

Output 1.4 A gender-sensitive mobility knowledge management system is made available for use by policy makers and key stakeholders

This component will benefit from the inputs from numerous meetings, workshops, regional trainings and site visits that the SOLUTIONSplus team conducted with national and local authorities, utility companies, local vehicle manufacturers, logistics companies, PTOs, universities, development banks, international cooperation agencies, NGOs, and other stakeholders in Argentina and Latam.

Furthermore, in order to help the implementation of the project, ACCESS will establish a working group between the academia, the municipal authorities and transport service providers to build models that reflect the needs of the different users and create the required capacities for their operation.

Regarding gender sensitive mobility planning and management, a binational workshop (Ecuador-Argentina) took place in 2022 within the framework of the ACCESS project, which built upon three topics. These topics were: issues faced by vulnerable transport users (women, children, elderly people and people with reduced mobility); digital gap – digitalization for social inclusion and working conditions for everyone. The result of the workshop as well as the organizations involved will be available for this project.

- **Component 2:** aims at reducing short-run barriers through a demonstrative pilot, including the design and implementation of its own monitoring mechanism.

Output 2.1: The viability of light duty electric vehicles for urban logistics and parcel distribution is demonstrated to local and national stakeholders in the logistics and services sector in the Buenos Aires metropolitan area.

Output 2.2: Data from the pilots/demo is collected, analyzed, and disseminated to key stakeholders

This component will contribute with 1 or 2 electric vehicles (depending on funding) for a pilot on parcel distribution in a selected Hub in the metropolitan area of the City of Buenos Aires. The pilot design, implementation and monitoring will be designed by the operator (Correo Argentino) with support of SOLUTIONSplus consortium members, with the objective of validating the feasibility of upscaling this operating model to other locations throughout the country.

This Pilot fits within an ongoing Plan run by Correo Argentino aiming to modernize the parcel distribution Hubs, incorporating digitalization into the process and replacing polluting vehicles with low CO2 emission alternatives. According to their analysis, electrification together with dynamic routing of circuits would significantly reduce greenhouse gas emissions.

Additionally, within the framework of the ACCESS project, a complementary phase of this pilot will be conducted incorporating a digitalization layer, by adding fleet tracking and dynamic routing / route planning, with the objective of enabling higher operational standards and lower GHG emissions.

In this way, both the SOLUTIONSplus project and the ACCESS project would be collaborating with a specific pilot/demo that brings together components of electric vehicles and digitalization for the decarbonization of urban logistics.

- **Component 3:** Focuses on the regulatory and enabling framework for EVs and low-carbon urban logistics, new operational models (Microhubs and Cross-docking) aiming mainly at leveling the total cost of ownership with existent internal combustion engine vehicles through reforms in vehicle efficiency, fuel quality, charging infrastructure and the regulation of alternative commercialization methods and business models.

Output 3.1: The generation of a Sustainable Mobility Pole/Center (focus on e-logistics) supporting Business models and a policy and fiscal framework for leasing, renting and subscription to electric vehicles, with participation the government, logistic companies, car dealers, financial institutions, and insurance companies.

Output 3.2: Standards and a new policy framework for regulating electric vehicles (LEV) for urban logistics are updated and adopted by the STyOP

Output 3.3: Building and Traffic & Transport regulations are modifications are adopted by the City of Buenos Aires, favoring new operational models for urban logistics, including Microhubs and Cross-docking operations.

Output 3.4: A just transition strategy for the up-scaling of low-carbon urban logistics is adopted by the STyOP

Regarding regulatory framework in Latin American countries, the second module of the SOLUTIONSplus Regional Training for Latin America 2021, focused on low-carbon urban logistics and regulations for LEV. Additionally, ACCESS will also work on the national policy framework and will establish a sustainable urban mobility monitoring framework with all relevant national institutions.

## 2.4 Timeframe

The present scale-up for Buenos Aires, Argentina involves two different projects (SOLUTIONSplus and ACCESS), enabling a continuity until 2029, year in which the ACCESS project ends.

## 2.5 Stakeholder Engagement

There are different stakeholders, both from the public and private sectors, academia and NGO that have shown interest in participating in initiatives to promote the adoption of electric and low-carbon mobility in Buenos Aires.

During 2022, virtual and on-site meetings as well as field visits have been carried out with these institutions, which have also participated in SOLUTIONSplus Workshops and other activities carried out by consortium partners.

This has made it possible to assess the level of interest and compromise of these institutions and enabled the possibility to learn about existing programs and find synergies to ensure the continuity of the different initiatives around electric and low-carbon mobility.

Below the list of the most important stakeholders involved in the scale-up for Buenos Aires, Argentina:

- Correo Argentino: The official postal service of the Republic of Argentina is carrying out various initiatives that have points of contact with the SOLUTIONSplus and ACCESS projects and is therefore a strategic implementation partner.
- Sero Electric: This local company is one of the pioneers in the local manufacture and homologation of light electric vehicles for the transportation of people and cargo. It has a very valuable experience and trajectory and collaborates with initiatives aimed at the growth of the national electric vehicle industry.

- Secretariat of Transport and Public Works (City of Buenos Aires): Is the local partner in the City of Buenos Aires. Specifically, the Urban Logistics Operational Management and the Low Emissions Coordination are the most active and relevant departments for the projects in the pipeline. The main supporting document is the Plan de Acción Climática 2050 (Climate Action Plan) with specific objectives in the field of mobility and urban logistics.
- Ministry of Transport (Argentina): At the national level, the main partner is the Ministry of Transport, which has shown interest in the various initiatives presented in relation to electric mobility and urban logistics. The main supporting document, which is in line with the national commitments to the Paris Agreement, is the PANTyCC (National action plan for transportation and climate change).
- Ministry of Productive Development (Argentina): this other national Ministry has produced in 2021 the plan for promotion of sustainable mobility, which tries to encourage, through fiscal incentives, the transition towards low-emission transportation in the country.
- Universidad Nacional de San Martín: The Instituto del Transporte of the Universidad Nacional de San Martín (UNSAM) is a relevant local partner. Its role will be to support the coordination of local activities, to provide technical assistance, as well as to facilitate political liaison, taking into consideration UNSAM’s experience supporting distinct levels of national and local governments in the transport field.
- Ualabee: This local start-up, which develops MaaS (Mobility as a Service) application and has experience working with local and national government in Argentina has shown interest in supporting the activities of SOLUTIONSplus and ACCESS in the region.
- Asociación Sustentar: Is a local NGO with a focus on sustainability and a dedicated transportation unit which participates in various initiatives in Argentina and the Latin American region (both in the area of urban mobility and freight). Its experience is valuable for the coordination of local activities, capacity building, networking and political liaison.

### 3. Budget

The available budget for the Buenos Aires, Argentina scale-up combines funding of 2 different projects: SOLUTIONSplus and ACCESS.

Total budget SOLUTIONSplus (Argentina)	Total Budget ACCESS (Argentina)
€50,000 approx. (for replication activities)	€ 2,400,000 approx. (for 3 Work Packages)

