

TC ABSTRACT

I. Basic Project Data

▪ Country/Region:	REGIONAL/Regional
▪ TC Name:	Technology Innovations in Urban Planning and Transit
▪ TC Number:	RG-T3266
▪ Team Leader/Members:	Zambrano-Barragan, Patricio Xavier (CSD/HUD) Team Leader; Armijos Leray, Jean Pol (INE/TSP) Alternate Team Leader; Mojica, Carlos Hernan (INE/TSP); Basani, Marcello (INE/WSA); Anta, Rafael (EVP/EVP); Chona, Gilberto E., Gonzalez Herrera, Beatriz Maria; Vera Benitez, Luis Felipe; Rajack, Robin Michael; Adler, Veronica, Uribe, Beatriz H., y Avila, Francy Dianela (CSD/HUD); y Chretien, Louis-Francois (LEG/SGO).
▪ Taxonomy:	Client Support
▪ Number and name of operation supported by the TC:	N/A
▪ Date of TC Abstract:	May 14, 2018
▪ Beneficiary:	LAC countries
▪ Executing Agency:	Inter-American Development Bank
▪ IDB funding requested:	\$450,000.00
▪ Local counterpart funding:	\$0.00
▪ Disbursement period:	36 months
▪ Types of consultants:	Individuals; Firms
▪ Prepared by Unit:	Housing & Urban Development
▪ Unit of Disbursement Responsibility:	Climate Change & Sustainable Development Sector
▪ TC included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Social inclusion and equality; Climate change

II. Objective and Justification

- 2.1 The purpose of this Technical Cooperation (TC) is to enable the use of digital platforms in the design and implementation of urban development and mobility projects in Latin American and Caribbean cities. Specifically, this TC seeks to support the following activities: (i) carry out dynamic modeling of the impact of new mass transit systems on central districts in Latin America and the Caribbean (LAC) cities, in collaboration with the MIT Media Lab, starting with a first pilot in Quito, Ecuador; (ii) implement new digital tools to measure the efficiency of public transit systems; and (iii) increase inclusion and local knowledge through the development and transfer of open mapping tools for urban transit.
- 2.2 LAC faces considerable challenges associated with rapid urban and population growth. Soaring urbanization rates (over 80% at present) reflect the cities leading contribution toward social and economic development, yet this phenomenon has placed increased demands on urban services and transit infrastructure. LAC has experienced rapid increases in vehicle ownership (120 vehicles per 1,000 people), coupled with mounting issues in public transportation systems. Rising demand in urban mobility has been met with insufficient coordination of land use and urban planning, which in turn has resulted in sprawling urban forms, a further decrease in the use of public transportation, increased congestion, and a rise in emissions from land use changes and motorized transport (CAF 2012). In this context, promoting integrated and data-driven mass urban transport systems is among the most successful policies towards reaching sustainable urban development. Every transport system is potentiated and contributes

demand to systems with more capacity (mass transit) which become the backbone of mobility. The benefits of mass transit are potentiated when cities adopt Transit-Oriented Development (TOD) policies, which are associated with fewer number of trips and shorter travel distances--thus reducing emissions, increasing accessibility to urban services, and contributing to more efficient and compact urban forms. In addition, as the so-called digital “Fourth Industrial Revolution” (WEF 2017), moves forward, more flexible bus services and shared transport services present tremendous opportunities for integrated and more inclusive urban systems, particularly in cities that rely on quasi-formal bus services, entrepreneurial but existing with little coordination or data. In this context, fast-urbanizing LAC cities must ensure hard infrastructure can work seamlessly with operational and digital technologies and help develop better service relationships between public, private, and civil society stakeholders.

- 2.3 This TC seeks to reaffirm the Inter-American Development Bank’s (IDB) commitment to collaborate with partners to help translate the SDGs and the New Urban Agenda (NUA) into meaningful country level targets, policies, and programs and support their effective implementation, particularly SDG Goal 11.2 ("by 2030, provide access to safe, affordable, accessible and sustainable transport systems for all") and the NUA’s commitment to innovative transport technologies to enable cities to improve their service delivery.

III. Description of Activities and Outputs

- 3.1 **Component I: Dynamic Modeling of Urban Transit Systems.** The objective of this component is to carry out the pilot implementation of the MIT Media Lab’s CityScope platform to model the impacts of the metro system on Quito’s Historic District. The specific focus on visualization will allow the city and MIT’s researchers to gather and understand existing datasets; establish partnerships with academia and civil society; and develop a guiding hypothesis/question for dynamic modeling. In addition, the pilot deployment will include a new module focused on water consumption (enabling a three-way partnership with the Housing and Urban Development Division - HUD, Transport Division -TSP, and WSA), explicitly follow open-data standards, help define basic quality and interoperability standards, and become the basis to build a dynamic open data site, thus opening the door for future and more affordable deployments in other cities in the region (potential future partners include Santiago, Chile, and cities in Caribbean countries such as Trinidad and Tobago).
- 3.2 **Component II: Digital Tools for Efficient Urban Transit.** The component will fund the development of a smart-phone based system to monitor public transport performance. Public transport operations have traditionally underinvested in systems to analyze and monitor its efficiency and the outcomes for customers and passengers. In recent years, the introduction of GPS and digital on-board technologies have improved the understanding of vehicle-based indicators such as speed and location. However, the passenger experience is yet under analyzed and key quality indicators such as individual travel times, wait times and overcrowding. The emergence of the smart phones and associated technologies (e.g. bluetooth, wi-fi connectivity) has the potential to convert the passenger experience as the principal element of analysis, as opposed to the vehicle itself (it is expected that this component will seek future co-financing opportunities in 2019, thus, the activities proposed for this TC would function as 'seed' financing).
- 3.3 **Component III: Open Data Resource Center for Inclusive Urban Transport.** The component will contribute to the establishment of a Resource Center, developed in partnership with MIT’s Civic Data Design Lab and World Resources

Institute (WRI). The Center would be an active online platform hosted and managed by MIT and WRI, to aggregate existing open data, knowledge and support, tools and methodologies, and serve as a public forum to assist urban infrastructure mapping in LAC. Specifically, the activities contemplated include: 1) a regional assessment of the use and availability of data for urban mobility in LAC; 2) based on the results of this assessment, select a pilot city to carry out participatory data generation in the region, and 3) use the results from the pilot and training materials to develop Spanish-language tools for the Center.

- 3.4 **Component IV: Coordination and Knowledge-Sharing Support.** This component will support coordination and cross-sectoral knowledge-sharing for the TC's innovations and pilots. Specifically, it will finance support activities and individual consulting engagements to support the implementation of the TC, including: (i) technical support for ongoing data management and data quality control through individual contractual support; and (ii) other knowledge-sharing activities, such as participation of government counterparts in regional urban mobility dialogues, including the 2019 Transforming Transportation conference.

IV. Budget

Indicative Budget

Activity/Component	IDB/Fund Funding	Total Funding
Dynamic Modeling of Urban Transit Systems	\$300,000.00	\$300,000.00
Digital Tools for Efficient Urban Transit	\$5,000.00	\$5,000.00
Open Data Resource Center for Inclusive Urban Transport	\$100,000.00	\$100,000.00
Technical and Knowledge-Sharing Support	\$45,000.00	\$45,000.00

V. Executing Agency and Execution Structure

- 5.1 The Bank will execute the operation through the CSD/HUD and the INE/TSP.
- 5.2 This executing strategy will allow the Bank to facilitate effective dialogue between in-country partners and academic partners. In late 2016, the IDB became a member of the MIT Media Lab, with the goal of exploring the potential application of a variety of technology innovations in LAC; HUD has since worked with the Media Lab's City Science Group to deploy its digital platforms in support of urban development projects in the region. In addition, HUD since 2017, HUD and TSP have also engaged with MIT's Civic Data Design Lab, which has been at the forefront of open-data mapping exercises in support of urban and transit planning. Bank execution will enable regional-level dialogue with MIT's Media Lab and the Civic Data Design Lab while also working toward scalability and eventual implementation in additional cities beyond Quito, Ecuador.

VI. Project Risks and Issues

- 6.1 One of the primary risks associated with these innovations is counterpart capacity to manage and maintain new platforms, from an operational and financial perspective, particularly regarding a potential lack of long-term budgetary commitment and a relative lack of specialized human talent. To minimize this risk, the work proposed with our academic and municipal actors specifically involve the development of open-source datasets that operate with existing systems that minimize the reliance on proprietary and costly technologies, while also involving the development of training materials and knowledge-transfer activities.

VII. Environmental and Social Classification

- 7.1 The ESG classification for this operation is "C". [SSF report](#) and [SPF Report](#)