

TC Document

I. Basic Information for TC

▪ Country/Region:	URUGUAY
▪ TC Name:	Strengthening Smart City Capabilities in Uruguayan Medium-sized Cities
▪ TC Number:	UR-T1281
▪ Team Leader/Members:	Adler, Veronica (CSD/HUD) Team Leader; Gomez Reino, Juan Luis (IFD/FMM) Alternate Team Leader; Avila, Francy Diana (CSD/HUD); Avila, Krysia A (LEG/SGO); Bouskela, Mauricio Simon (CSD/HUD); Casalino Franciskovic, Juan Manuel (LEG/SGO); Chapuis, Emilie (VPC/FMP); Conrado Mussi (CSC/CUR); Kim, Kida (CSD/HUD); Maria Villota (CSD/HUD); Milicich Nieto-Polo, Allizon Patricia (VPC/FMP); Silvia Perez (CSD/HUD)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	
▪ Date of TC Abstract authorization:	19 Apr 2022.
▪ Beneficiary:	Republic of Uruguay, through its Office of Planning and Budget Office (OPP)
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	Korea Poverty Reduction Fund(KPR)
▪ IDB Funding Requested:	US\$400,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period:	24 months (which includes Execution period)
▪ Required start date:	October, 2022
▪ Types of consultants:	Firms, and individual consultants
▪ Prepared by Unit:	CSD/HUD-Housing & Urban Development
▪ Unit of Disbursement Responsibility:	CSC/CUR-Country Office Uruguay
▪ TC included in Country Strategy:	Yes
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Diversity; Environmental sustainability; Gender equality; Institutional capacity and rule of law; Productivity and innovation

II. Objectives and Justification of the TC

- 2.1 **General Objective.** Strengthen Uruguayan's Departmental Governments (DGs) capabilities in the provision of smart urban services, which would improve investment management, governmental income, gender empowerment, sustainability, and climate action, and contribute to better citizens' services.
- 2.2 **Background. Background.** Uruguay has 3.3 million inhabitants¹, with more than 90% located in urban areas. Montevideo has a 1.3 million population, and 1.5 million inhabit fifty-one (51) cities considered Medium-Sized Cities² (MSC). The United Nations highlighted the role of these medium-sized cities as a space for economic integration and regional cohesion. It remarked on the need to reinforce their position and set the

¹ National Census 2011, INE. <https://www.ine.gub.uy/>

² With more than 5.000 inhabitants.

value of their contribution to the territorial balance during the preparation of the Habitat III meeting. At the sub-national level, Uruguay is organized into nineteen (19) administrative units, named DGs. These DGs have competencies conferred through the Municipal Organic Law in providing urban services, including sanitation services, roads, waste management, traffic control, public lighting, public spaces, and mobility/transportation.

- 2.3 According to the UN e-Government Survey, Uruguay is a leading country in Latin America regarding digital government and a prominent exporter of software. However, Montevideo is the only subnational government contemplated in international evaluations for the use of technology, such as the IESE Cities in Motion Index 2019 and Fast Company Magazine. In this regard, there is a broad heterogeneity between Montevideo and the rest of the 18 DGs of Uruguay. The Planning and Budget Office, in coordination with DGs, has begun some actions aimed at improving the provision of smart urban services in MSC, working primarily on the development of prototypes, such as sensors for waste containers, recycling of lithium batteries for public lighting, development of a chatbot as a digital tour guide, and the application of artificial intelligence for analysis of watercourses and waste, including the idea of being tested and evaluated for later scaling.
- 2.4 However, the development of Information and Communication Technologies (ICTs) for the provision of public services is incipient in most of Uruguay's DGs, and there is a big opportunity for Smart Cities development. As part of loan UR-L1164 preparation, a survey was conducted to diagnose the scenario for the digital transformation of the 18 DGs in the MSC regarding the provision of public services. The research identifies opportunities for improvement in some services, with their corresponding fiscal impact and the level of potential theoretical public resource savings driven by the incorporation of technologies. Four (4) DGs present some digitalization progress incorporated into their management. They have developed strategic planning for the application of ICTs and plan to reach a higher level than the current one in the future. Another seven (7) DGs have dabbled in using ICTs in some services. Although they have not yet implemented it, they plan to develop strategic planning for applying ICTs or have tactically planned their use. Finally, five (5) DGs present challenges for using ICTs without planning.
- 2.5 This analysis shows the urgent need to generate capacities at the sub-national level, especially for implementing ICTs that also suppose fiscal savings in providing services. For example, the same research shows that ICT-oriented public lighting management could save between 5.71% to 43.47% depending on the DGs and the technology used. Also, in the case of waste management, ICTs present opportunities such as intelligent sensors (i.e., configuration, monitoring, and control), data analysis to understand the dynamic of waste, road planning, and Public-Private Partnerships. In this case, the estimated potential saving presents a range that goes from 1% up to 30%. These examples show that promoting smart cities represent an opportunity to accelerate progress toward clean, low-carbon, and resilient cities³.
- 2.6 In addition, the lack of gender/sex disaggregation in data collection and analysis risks leads to gender-blind/neutral smart city policies⁴. Also, low representation of women

³ [Empowering Cities toward Net Zero Emissions, International Energy Agency \(2021\)](#).

⁴ Sangiuliano, M. Smart Cities and Gender: main arguments and dimensions for a promising research and policy development area.

in ICTs and gender digital divides (along with class, race, ethnicity, age, and disability) negatively affect women's empowerment as smart citizens⁵. Only in Montevideo's Sustainable and Smart Unit, one of his objectives is to foster an efficient government that includes collaborative planning processes and areas that promote citizen participation, social inclusion, and control over management^{6,7}, but there is not advance in the other DG.

- 2.7 **Justification.** Since 1985, the Bank has built up a vast experience in supporting subnational governments in Uruguay through the Subnational Development and Management Program (PDGS). The third operation under the CCLIP (UR-L1164) of US\$90 million is currently being designed. This third program will finance actions to (i) improve and strengthen urban service management through implementing technologies; and (ii) finance investment projects for neighborhood consolidation, connectivity/mobility, and works to improve the response to climate change. The outputs of this technical cooperation (TC) will contribute to the design of the investments that the PDGS will finance in the items listed above.
- 2.8 Korea has been known for its strong knowledge and experience in designing and implementing Smart City policies since early 2000 with its brand called "U-City"⁸. This has later evolved into a national master plan by article 4 of the "Law for the Creation of Smart Cities and Promotion of Industries." The national master plan has been established and executed every five years since 2009. As of 2018, the Korean government has selected Smart City policies as one of its priorities and has been applying digital technologies to solve urban problems, build foundations for comprehensive Smart City platforms, disseminate solutions for Smart Cities, and support the establishment of the National Smart Cities Pilots. Korea's experience in the design and implementation of national plans circumvented some limitations that are now observed in the context of Uruguay (such as insufficient citizen knowledge in the use of technology, the promotion of sustainable projects, the focus on citizens, the dynamic policies for solving problems in real-time, among others), would provide meaningful guidance to design Smart City pilot projects in Uruguayan departmental cities. One exciting example is Seoul's vision: "A Smart Safe City for All." The city has identified three goals to address its climate resilience challenges⁹. Moreover, another interesting example from Korea is District 2-2 (or Saerom-dong), located in Sejong smart city, designated as a 'Specially Designed Zone for Women', and is perceived to be safe for both men and women due to the implementation of active safety systems. Therefore, a gender perspective is needed for the more inclusive planning of smart cities¹⁰.
- 2.9 TC Specific Objectives: (i) identify opportunities to improve subnational management through the incorporation of ICTs; (ii) incorporate the Korean experience in the design and implementation of smart solutions in the provision of urban services; (iii) strengthen MSC capacities and build strategies in their path to be smart cities; and

⁵ Idem.

⁶ [Desarrollo Sostenible e Inteligente, Intendencia de Montevideo.](#)

⁷ [LA Network. 2017. Mujeres de Montevideo hablaron sobre género, ciudades inteligentes y espacios públicos. Smart City Korea](#)

⁹ [2050 Carbon Neutral Strategy of the Republic of Korea: Towards a Sustainable and Green Society](#)

¹⁰ Chang, Ji-in, et al. 2022. Gendering the smart city: A case study of Sejong City, Korea. Published: <https://www.sciencedirect.com/science/article/abs/pii/S0264275121003218>

(iv) design a least three (3) pilot projects for MSC, incorporating ICTs for specific urban services. The implementation of the pilot projects will be financed with UR-L1164.

- 2.10 **IIDB Strategic Alignment.** This TC is consistent with the Second Update to the Institutional Strategy -UIS- 2020-2023 (AB-3190-2), and it is aligned with the development challenges of (i) Productivity and Innovation by providing meaningful recommendations to implement smart city strategies and replicable action plans; (ii) Institutional Capacity and the Rule of Law, by contributing to the strengthening of the Departmental Government's capacities through knowledge exchange of design and execution of works; (iii) Climate Change and Environmental Sustainability, by consolidating acquired knowledge to implement road maps that promote the waste collection, traffic control, and climate change since new technologies, connectivity and digital solutions allow to manage urban services efficiently, accelerate clean energy transitions, and better assess climate towards more climate-resilient and low carbon cities; and (iv) Gender and Diversity, by including strategies and action plans for smart cities with a gender perspective, and disaggregating data and recommendations on how climate change, disaster prevention, mobility, safety in public spaces disproportionately affect women and diverse groups.
- 2.11 This TC is also aligned with IDB Group Country Strategy with Uruguay (2021- 2025) (GN-3056) with the objectives such as: (i) generating efficiencies and sustainability in public policies; and (ii) facilitating urban services and housing. Additionally, is in-line with the country's policy to adopt smart technologies to cope with urban challenges and the National Adaptation Plan of Cities and Infrastructure 2021 (NAP-Cities)¹¹, which establishes a national strategy for cities and smart territories based on the view of the National Committee for smart cities (CNCI). The CNCI created in 2019 represents all DGs (including Montevideo). It aims to develop joint action plans between Departmental Governments and promote good practices to build Smart Cities.
- 2.12 Additionally, the TC is aligned with the agreement between the Republic of Korea and the Bank establishing the Korea Poverty Reduction Fund (KPR) dated July 27, 2005, and amended on June 1, 2006, and April 14, 2017 (KPR Agreement), as well as the KPR Operational Guidelines (GN-2373-4). The TC is consistent with the 2025 vision, specifically with the digital economy and the prioritization of climate change actions.

III. Description of activities/components and budget

- 3.1 **Component 1. Uruguay and Korean Comparative Experience.** This component will finance (i) a review of state-of-the-art and opportunities for improving other services not included in the already analyzed universe, such as disaster prevention; response to emergencies, and climate change that will include: (a) the intersection between gender and climate disasters; (b) tax revenue management; and (c) relationship with citizens; (ii) learn about the Korean experience in the provision of urban services in

¹¹ The United Nations Framework Convention on Climate Change (1994), the Kyoto Protocol (2005), and the Paris Agreement (2016), constitute documents that Uruguay has ratified and that have correlated at the national level in specific policies, programs, and plans: National Plan for Response to Climate Change (2010), National Policy on Climate Change (2017), Nationally Determined Contributions (2017) and national adaptation plans carried out or in the process (NAP Agronomy, NAP Coasts, NAP Cities), as well as others in implementation (plans adaptation of the health and energy sector).

cities on the scale of Uruguay; and (iii) the organization of at least one seminar to share the best practices that the Korean case can bring to MSC of Uruguay.

- 3.2 Component 2. Smart Cities Roadmap and Action Plan for MSC in Uruguay.** The component will finance (i) analysis and recommendations to strengthen the capacities of the DGs for the implementation of strategies and action plans for smart cities with a gender perspective, considering the Korean experience; and (ii) an additional four (4) intermediate cities will be selected¹² to develop or improve strategic services. The activities include the preparation of roadmaps and architecture for smart solutions in the provision of urban services with a focus on safer and sustainable mobility and transportation, waste management, and circular economy, security and women's safety in public spaces, citizen participation, disaster prevention, emergency response, and climate change with a gender perspective, by including disaggregated data and recommendations on how those aspects may disproportionately affect women and tax revenue management; legal and institutional frameworks; analysis of possible economies of scale between the different solutions (from services or cities); and a roadmap for the development and implementation of a smart city system. The cities' selection criteria will be based on demography, regional balance, degree of ICTs development, and city dimensions.
- 3.3 Component 3. Pilot Projects, Capacity Building, and Dissemination.** To consolidate the knowledge acquired in the previous components, the component will finance the incorporation of technological solutions in the investment projects under loan UR-L1164, including a gender perspective, and support the formulation of three (3) pilot projects that promote the implementation of ICTs in areas such as public lighting, waste management, traffic control and mobility in urban environments, heavy traffic control in rural areas, citizen participation, smart public buildings, disaster prevention, and climate change, and tax revenue management. These pilot projects will include a gender perspective by incorporating women's participation in the design and implementation. This component consists of: (i) the selection and prioritization criteria for three (3) pilot projects; (ii) an investment project design, including smart solutions and the development of the evaluation and monitoring system for its implementation with UR-L1164; (iii) the socioeconomic evaluation of two (2) investment projects (with and without ICTs) to show the economic advantage using TICs; (iv) formulation of guidelines for the incorporation of technology in PDGS investment projects; and (v) carrying out dissemination activities, publications, and workshops.¹³
- 3.4** The indicative budget to finance the above components amounts to US\$400,000 in cash to be funded through resources from the Korean Poverty Reduction Fund (KPR). There is no local cash or in-kind contribution counterpart funding.

Indicative Budget

Activity / Component	IDB/ Fund Funding	In-Kind Counterpart Funding	Total Funding
Component 1. Uruguay and Korean comparative experience			

¹² Selection will be made based on different criteria such as regional balance, degree of development relative to ICTs, and dimensions of the city.

¹³ The intellectual property over products financed with these resources belongs to the IADB.

Activity / Component	IDB/ Fund Funding	In-Kind Counterpart Funding	Total Funding
Review of at least three strategic services provided by the GD	US\$15.000	n/a	US\$15.000
Comparative review and exchange of experiences with the Korean case of Smart Cities	US\$35.000	n/a	US\$35.000
Component 2. Smart cities roadmap and action plan for middle-size cities in Uruguay			
Design of roadmap and architecture for smart cities; legal and institutional frameworks; scaling opportunities. Action plans for a smart city system that includes the provision of smart services	US\$120.000	n/a	US\$120.000
Scaling of technological prototypes	US\$30.000	n/a	US\$30.000
Component 3. Pilot projects, capacity building, and dissemination			
Design of projects, development of monitoring & evaluation system	US\$125.000	n/a	US\$125.000
Identification of opportunities to incorporate technological solutions in the investment projects of PDGS (from Component 2)	US\$50.000	n/a	US\$50.000
Knowledge dissemination activities, publications, translations, events organization	US\$25.000	n/a	US\$25.000

IV. Executing agency and execution structure

- 4.1 At the request of the beneficiary, the execution of the TC will be the responsibility of the Bank, under the technical responsibility and supervision of the Urban Development and Housing Division (HUD/CUR) and Fiscal and Municipality Government Division (FMM/CUR), in coordination with the Bank's Country Office in Uruguay (CSC/CUR). The Office of Planning and Budget (OPP) of Uruguay will support the definition of the terms of reference and scope of the services, studies, consultancies, knowledge production, and review of reports.
- 4.2 The Bank will be responsible for the technical supervision, contracting, and administration of this TC, given its: (i) institutional capacity to provide and manage services efficiently; and (ii) impartiality to ensure the independence of the studies financed. Additionally, the Bank will coordinate the activities of this TC with the Korean Fund, an area where the Bank has the expertise, and the proposed activities are consistent with the Bank's country strategy and program.
- 4.3 This scheme has been successful in other countries' operations since the Bank is Uruguay's leading multilateral partner in structuring and financing Technical Cooperations. The activities of this operation will be included in a Procurement Plan and executed in accordance with the procurement rules and policies established by the Bank, namely: (i) hiring individual consultants, as established in the Complementary Workforce AM-650; (ii) hiring consulting firms for bank-executed operational work and services of an intellectual nature in accordance with policy GN-2765-4 and its respective operational guidelines (OP-1155-4); and (iii) contracting of logistics services and other services other than consulting, by IDB corporate procurement policy (GN-2303-28).

- 4.4 The execution period will be 24 months and the period of disbursement will be 24 months.

V. Major issues

- 5.1 Two risks were evaluated and identified with low severity. There are related to: (i) weaknesses in the management capacities of the Departmental Governments in the design and execution of works and (ii) sustainability of the investments that are going to be financed by Component 3.
- 5.2 The following mitigation measures were identified: (i) generation of a project development team in the executing agency to fill in the management weaknesses of Departmental Governments that so require; (ii) include strengthening and training activities for technical teams within the framework of consultancies; (iii) ensure facilitators in the mediation processes with the actors and apply participator; (iv) the complementarity of this project with the PDGS would ensure the sustainability of the actions; and (v) activities and actions to share results of pilot project with all Departmental Governments.

VI. Exceptions to Bank policy

- 6.1 The project does not require exceptions to Bank policy.

VII. Environmental and Social Strategy

- 7.1 This TC will not finance feasibility or pre-feasibility studies of investment projects with associated environmental and social studies; therefore, it falls outside the scope of the Bank's "Environmental and Social Policy Framework (ESPF).

Required Annexes:

[Request from the Client - UR-T1281](#)

[Results Matrix - UR-T1281](#)

[Terms of Reference - UR-T1281](#)

[Procurement Plan - UR-T1281](#)