

TC Document

I. Basic Information for TC

▪ Country/Region:	Uruguay (UR)
▪ TC Name:	Support to developing a Master Plan for a TECHNOPARK in Rivera's UTEC Campus
▪ TC Number:	UR-T1141
▪ Team Leader/Members:	Team Leader: Gustavo Crespi (CTI/CUR). Team Members: Veronica Adler (FMM/CUR), Pablo Angelelli (CTI/CCH), Vanderleia Radaelli (CTI/BRA), Carolina D'Angelo (CSC/CUR), Gaston Rodriguez (CSC/CUR), Adriana Oreamuno (IFD/CTI), Juyoon Sun (IFD/CTI), Federica Gomez (INT/CUR), Ana Castillo (MIF), Elias Rubinstein (TSP/CUR), Rodolfo Graham (LEG/SGO)
▪ Taxonomy:	Client Support
▪ If Operational Support TC, give number and name of Operation Supported by the TC:	N/A
▪ Date of TC Abstract authorization:	05/30/2017
▪ Beneficiary (countries or entities which are the recipient of the technical assistance):	Uruguay
▪ Executing Agency and contact name:	Universidad Tecnológica (UTEC) Elianne Elbaum (elianne.elbaum@utec.edu.uy)
▪ Donors providing funding:	Knowledge Partnership Korea Fund for Technology and Innovation (KPKF)
▪ IDB Funding Requested:	US\$ 600,000
▪ Local counterpart funding, if any:	US\$ 60,000
▪ Disbursement period (which includes Execution period):	32 months for disbursement and 24 months for execution
▪ Required start date:	9/01/2017
▪ Types of consultants:	Firms and Individual Consultants
▪ Prepared by Unit:	Competitiveness, Technology and Innovation Division (IFD/CTI)
▪ Unit of Disbursement Responsibility:	CSC/CUR
▪ TC Included in Country Strategy (y/n):	Y
▪ TC included in CPD (y/n):	Y
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Priority Area 1: Equity and Productivity Priority Area 3: Growth and Welfare

II. Objectives and Justification of the TC

- 2.1. Despite recent institutional reforms, Uruguay's national innovation system (NIS)¹ still faces challenges. Perhaps the most dramatic one is the regional inequality that seriously threatens the development perspectives of the countryside population. The regional imbalance between Montevideo and the rest of the country is clear when it comes to the availability of human capital in engineering and technology, the concentration of R&D capacity and the presence of educational and research institutions, as well as the public investments. For instance, the supply of tertiary education is heavily concentrated in the capital with more than 80% of the students. In addition, 80% of the public investment for R&D is allocated in Montevideo.
- 2.2. To tackle these problems, the Government of Uruguay established the Technological University (UTEC) in 2013 - Law Nº 19.043 – an Applied Sciences University, with two main goals: (a) to generate a more equitable access to technological educational opportunities in the countryside; and (b) to support the supply of technological knowledge for local productive needs to promote regional economic development. To these ends, the UTEC has been designed as a decentralized organization managing a network of three Regional Technological Institutes (ITR) located in Fray-Bentos (Southwest Region), Durazno (Central South Region), and Rivera (Northern Region). Six technical degree programs (food analysis, dairy production, mechatronics, dairy processing technology, information technologies and renewable energy technologies) and five engineering degree programs (mechatronics², renewable energy, biomedical engineering, logistics engineering and waste management engineering) are being offered. All courses are delivered in both Spanish and English. As of 2016, there are 200 academic staff with the total student enrolment of 896. About 72% of the students come from the low-middle income family and 70% from families with no record of higher education studies.
- 2.3. One of these ITRs is currently under development in the northern city of Rivera near the border with Brazil. Rivera is a region strongly dominated by the forestry value chain, renewable energy generation, logistics and trade support services. It also has good infrastructure connectivity and some support services available including an industrial free zone and a regional airport. Nevertheless, it is a disadvantaged region due to the lack of diversification of its economy. Based on a survey of local demands, UTEC has considered its Rivera's ITR with strong focus on logistics, mechatronics and information technologies. The Rivera's ITR shares a 55 hectares campus with Uruguay's Vocational School (UTU) and the regional campus of the University of the Republic (UDELAR)³.

¹ A National Innovation System is "the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies" (Freeman, 1995).

² Mechatronics is an emerging discipline integrating mechanical engineering, electronic engineering, industrial engineering and informatics, its objective is to provide for better products, processes and systems by intensive interaction among the different areas of engineering.

³ UTU offers two years' technical level education, while UDELAR focuses on providing degrees on health sciences, business administration and agronomy. It is expected that most of the UTU graduates will pursue higher technological

- 2.4. Korean experience shows that S&T Parks can be a key instrument for regional economic development as they are important centers to retain high skills labor, nurture technology-based enterprises and promote knowledge transfer to locally established industries (OECD, 2013)⁴. The challenge for UTEC is how Rivera's ITR can evolve towards a model that in addition of meeting the needs of technological human capital from the region, it can also become a center of knowledge generation, technology transfer and regional development. Moreover, learning from Korean experience will be critical as the Rivera's ITR will be a pilot case from which lessons and best practices could be later applied to other regional campuses of UTEC ITR and UDELAR.
- 2.5. The *general objective* of this project is to carry-out a feasibility study to deploy a TECHNOPARK infrastructure around the site of the Regional Technological Institute (ITR) of Uruguay's Technological University (UTEC) in Rivera. *Specific Objectives* are: (i) to assess the background conditions for the deployment of such infrastructure in Rivera; (ii) to learn from the Korean and other international cases experiences of S&T park development; (iii) to build capacity of the domestic counterparts to establish and operate a techno park infrastructure in Rivera; and, (iv) to develop a master plan to guide implementation.
- 2.6. This technical cooperation is in alignment with the Update to the Institutional Strategy 2010-2020(AB-3008) as it will strengthen equity and productivity for young graduates. Furthermore, the UTEC and its graduates will contribute to the growth and welfare of the country and the region in general. This project will contribute to the competitiveness and productivity pillar of the Bank's strategy with Uruguay and to the indicator of private investment in research and development (GN-2836). The project is also included in the [Country Program Document 2017 \(UR-P1147\)](#). This project is consistent with the goal of the Knowledge Partnership Korea Fund for Technology and Innovation (KPKF) to strengthen S&T capacity for sustainable development. In addition, this project is related to the new Memorandum of Understanding (MOU) signed between the Bank and Korean Ministry of Science, ICT and Future Planning (MSIP) for collaboration in science and technology.

III. Description of components and budget

- 3.1 **Component I. Assessing Background Conditions of a TECHNOPARK in Rivera.** The objective of this component is to determine the extent to which the initial conditions for a TECHNOPARK in Rivera are given. A local consultant will work together with a

education programs at UTEC. The premise is to not duplicate infrastructure with these other institutions by sharing accommodations, common spaces and research labs.

⁴ Successful S&T Park are characterized by: (a) having linkages to a major research center (to provide knowledge), (b) presence of knowledge-intensive firms to absorb knowledge, (c) a management team that supports technology transfer fostering U-I research collaboration and (d) the deployment of incubation services for new technology based firms as a vehicle for innovation. Previous evidence suggests that these four characteristics must be in place to maximize impacts on local economic development (IDB, 2013). S&T Parks are normally situated near urban centers and about 40% are located inside a university campus (ASP, 2013).

Korean firm to assess the existing conditions. An initial report that details the diagnosis of the local economy, industrial structure and innovation ecosystem of Rivera will be prepared by a local consultant based on interviews and data collection. The report will provide the basic understanding of Rivera for the Korean consultant firm prior to the field mission to Uruguay to assess the existing structural conditions for the development of a TECHNOPARK in Rivera. In addition, the local consultant, knowledgeable of the local stakeholders, will prepare the program of the fact-finding mission and guide the Korean team. Based on the initial report and the fact-finding mission, the Korean consultant firm will develop a report with the analysis of the existing conditions including the environment, economic, technical, legal and regulatory frameworks and fiscal incentives provided by the Uruguay's investment promotion and free trade regimes. The report should include analysis of possible joint initiatives within the regional entrepreneurship system between Rivera and Santana do Livramento - a Brazilian city bordering Rivera (Border of Peace). The assessment of the background conditions analysis for a TECHNOPARK in UTEC's Rivera campus will be implemented based on various methodologies including a demand survey. A related product by the Korean firms will be the preparation of the methodological guidelines for the feasibility study.

- 3.2 Component II. Knowledge Sharing about Korean and International S&T Park development:** The objective of this component is to study the rationale, institutional design, governance, policy framework, funding and implementation lessons regarding Korean S&T Park development. Korea's policies for regional development have evolved through different phases starting with the establishment of industrial complexes for light and export-oriented industries, followed by the development of the science town model in 1973 to concentrate research capabilities. Since 1997, TECHNOPARKS have been established to promote regional strategic industries by integrating research and industry. Over time, regulations were enacted and institutions were established for regional STI policy implementation. Nowadays key roles are played by INNOPOLIS (a MSIP agency that manages special R&D zones) and the Korean Institute for the Advancement of Technology (KIAT – a Ministry of Trade, Industry and Energy (MOTIE) agency that manages TECHNOPARKS). A report including the concept of S&T park, Korean and international best cases of S&T Parks (up to three) that are suitable benchmarks for the Rivera's case, and their implications will be produced⁵. A workshop will be organized in Uruguay to discuss the findings with local counterparts including UTEC's authorities, local authorities, and Brazilian border universities as well as representatives from Ministries of Finance and Industry, the Office of Planning and Budget and the National Economic Development Agency of Uruguay.

- 3.3 Component III. Upgrading Uruguayan Capabilities for S&T Park development:** The objective of this component will be on capacity building of Uruguayan authorities regarding S&T Park development and management. More specifically participants in

⁵ Complementary valid international experiences for UTEC are also the Basque Country Technology Parks, Sophia Antopolis Technology Park in France and the City of Knowledge in Panama. An example of a bi-national Technopark is the Itaipu Technopark between Brazil and Paraguay. At least three of these international cases will be also reviewed.

the capacity building program will be able to acquire know-how in relation to the development, operation and management of the Korean S&T Parks. The capacity building program will include lectures, workshops, discussions, and field-visits. The training curriculum should include, at least: (i) Overview of the S&T Policy, (ii) Evolution of the Korean Regional STI Development, (iii) S&T Park Development, management and operations, (iv) U-I-R Cooperation, (v) S&T Park support tools and programs, (vi) technology commercialization and technology-based incubation, (vii) Field-visit for detailed case study on the benchmarking S&T Parks. The output of component II will be used as a reading list for the participants. The program will be two weeks long with 10 participants from the UTEC and related organizations with decision making capabilities as well as representatives of Brazilian border institutions identified as relevant for the project.

- 3.4 **Component IV. Feasibility study including a master plan.** The objective of this component will be the development of a feasibility study and master plan for a TECHNOPARK in Rivera. Based on Components 1 and 2, a feasibility study including a master plan for a TECHNOPARK in the ITR Rivera's site will be carried out. The master plan will include an institutional model proposal; the functions of the park (research, technology transfer, business incubation, local economic development promotion, scope of strategic industries); the personnel needed for implementation; the business model approach to guarantee the financial sustainability and better use of the available fiscal incentives; management and operation plan; a roadmap based development phases, strategies for demand side stimulation (e.g. demand aggregation of development challenges faced by several local municipalities in the region); potential support programs; preliminary conceptual design of the TECHNOPARK and a preliminary infrastructure plan including the subplans for space, construction and architectural facilities and equipment. The draft of the feasibility study will be reviewed by the local consultant to enhance its adaptation to the local context.
- 3.5 Overall and detailed cost estimation for project implementation will be undertaken including the pre-specification of the infrastructure investments required with a focus on broadband connectivity, logistics and technological services infrastructure, site preparation, operating costs, construction and non-construction costs as well as the annual disbursement plan. Based on the above, a project feasibility analysis will be conducted. This plan would then be assessed and evaluated by the national government and could potentially be implemented through currently active lending programs in Uruguay or by the development of a new lending program always in agreement with the national government. The main output of this component will be a feasibility study including a master plan for Rivera's TECHNOPARK. The immediate outcome of the project will be the feasibility of establishing a TECHNOPARK in UTEC's Rivera Campus. The ultimate outcome of the project will be the enhancement of Uruguay's regional development balance by the strengthening of science, technology and innovation capacities in the countryside.

Indicative Budget

Activity/ Component	Description	IDB/Fund Funding	Counterpart Funding	Total Funding
Component I	Assessing background conditions of a Technopark in Rivera	130,000	20,000	150,000
Component II	Knowledge Sharing on Korean and International S&T Park Development	110,000	0	110,000
Component III	Upgrading Uruguayan capabilities for S&T Park development	90,000	20,000	110,000
Component IV	Master Plan Proposal & Feasibility Study	280,000	20,000	300,000
TOTAL		600,000	60,000	660,000

IV. Executing agency and execution structure

- 4.1 UTEC is directed by a transitional board composed of three high-level researchers appointed by the executive branch of the government of Uruguay to manage the institution. According to UTEC's law (Law N° 19.043), it was decided that a Central Directive provisional board would be established with three members designated by the President of the Republic through the council of ministries and with an agreement of the Senate (the upper house in the National Congress) according to the Article 94 of the constitution of Uruguay. The transitional board will remain in office until March 2020. It is expected that by 2020, UTEC will be directed by a Central Board integrated by a rector (elected by faculty, students and alumni), two representatives of faculty, two representatives of the students, one representative of the workers, one from the industry appointed by trade and business associations, and the directors of the ITRs.
- 4.2 In addition, the transitional Board defined the institutional design and organizational structure. Currently, the institution has a Secretary-General, and, to monitor and develop the activities proposed in the five-year plan 2016-2020, a Management Area was established including three Departments: Corporate Services, Education and Research and University Outreach. The University's International Relations Office together with the Special Programs Department and the Secretary-General will be the direct counterpart for this project.
- 4.3 The development of the institutional model of UTEC is strongly based on the support from the Korean Advanced Institute of Science and Technology (KAIST). This TC will allow UTEC to start new venues of collaboration with Korean organizations such as INNOPOLIS and KIAT, among others, to strengthen its capabilities for promoting international quality STEM education, innovation, and regional socio-economic development.
- 4.4 The UTEC has developed capabilities to manage external funds and donations. In February 2015, UPM, a leading Finnish pulp and paper multinational corporation, and UTEC signed an agreement in which UPM funded the university with US\$ 4 million to build the ITR in Fray-Bentos. The agreement was based on a university-industry cooperation model that maximizes mutual benefit from each other's capabilities and enabling students to participate in internships and hands-on training in the industrial sector.

- 4.5 The IDB, through the CTI division, will contribute to the discussion of the terms of reference of the consultants, assists the consultants during their visits to the country side and participate in the monitoring of the products and deliverables of each consultancy⁶.

V. Major issues

- 5.1 A challenge with the execution of this operation will be the coordination of UTEC with other educational institutions also established in the same site, especially with the Uruguay's Polytechnic (UTU) and the public University of the Republic (UDELAR). The coordination between UTU and UTEC already exists; while UTU offers tertiary non-university training, UTEC offers a university alternative for those graduates of UTU to pursue a professional engineering degree. Regarding the UDELAR, the UTEC will be a complementary alternative. In fact, while the UDELAR provides graduates with a generic profile, the formation of UTEC is aimed at graduates with technical and applied skills usable in each location of intervention. Moreover, there will be an important cooperation area with the UDELAR regarding sharing infrastructure and exchange of researchers. UTEC's team is already making progress to improve collaboration with the UDELAR. This will be considered while designing the project execution.

VI. Exceptions to Bank policy

- 6.1 No exceptions to Bank policy are envisioned.

VII. Environmental and Social Strategy

- 7.1 This TC does not have environmental issues. Regarding Social strategy, this project will be designed addressing gender and minorities' social inclusion concerns. The TC has been qualified by ESG as category "C" which confirms an environmental, social, and / or cultural minimum or no impact (see [Safeguard Policy Filter and Safeguard Screening Form](#)).

Required Annexes:

- [Results Matrix](#)
- [Terms of Reference for activities/components to be procured](#)
- [Procurement Plan](#)

⁶ The bank supported UTEC through UR-T1115 which provided the managers of the new institution with key knowledge regarding similar technological universities around the world. The TC also supported a series of consultancies leading to the design of the university, its institutional model, careers development and academic contents.

SUPPORT TO DEVELOPING A MASTER PLAN FOR A TECHNOPARK IN RIVERA'S UTEC CAMPUS

UR-T1141

CERTIFICATION

I hereby certify that this operation was approved for financing under the **Knowledge Partnership Korea Fund for Technology and Innovation (KPK)** through a communication dated May 30, 2017 and signed by Byoung Kim (ORP/GCM). Also, I certify that resources from said fund are available for up to **US\$600,000** in order to finance the activities described and budgeted in this document. This certification reserves resource for the referenced project for a period of four (4) calendar months counted from the date of eligibility from the funding source. If the project is not approved by the IDB within that period, the reserve of resources will be cancelled, except in the case a new certification is granted. The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, represent a risk that will not be absorbed by the Fund.

CERTIFIED BY:

Original Signed

09/11/2017

Sonia M. Rivera

Date

Division Chief

Grants and Co-Financing Management Unit

ORP/GCM

APPROVED BY:

Original Signed

09/11/2017

Claudia Stevenson

Date

Jefe Interina de División

División de Competitividad e Innovación

IFD/CTI