

URUGUAY

Support to developing a Master Plan for a TECHNOPARK in Rivera's UTEC Campus

TERMS OF REFERENCE UR-T1141

Background

Despite recent institutional reforms, Uruguay's national innovation system (NIS)¹ still faces serious challenges. Perhaps the most dramatic one is the regional inequality that seriously threatens the development perspectives of the rural population. The regional imbalance between Montevideo and the rest of the region is clear when it comes to the availability of human capital in engineering and technology (STEM), concentration of the R&D capacity and the educational and research institutions, as well as the public investments. For instance, the supply of tertiary education had long been 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.

To tackle these problems, the Government of Uruguay established the Technological University (UTEC) in 2013 - Law Nº 19.043 - 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 university managing a network of Regional Technological Institutes (ITR).

One of these ITRs is currently under development in the city of Rivera near the border with Brazil. Rivera is a region strongly dominated by the forestry value chain, renewable energy generation (solar, wind and biomass), logistics and trade support services. It also has good infrastructure connectivity and an important supply of support services including an industrial free zone and a regional airport. Nevertheless, it is in disadvantage due to its limitations of diversification in economic activities that leads to its underdevelopment. Based on a survey of local demands, UTEC has assigned this ITR to focus on logistics, mechatronics² and IT. This ITR in Rivera shares a 55 hectares' campus with Uruguay's Polytechnic University (UTU) and the regional campus of the University of the Republic (UDELAR)³.

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

¹ A National Innovation System might be defined as "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 the UDELAR campus focuses on providing degrees on health sciences, business administration and agronomy. It is expected that most of the UTU graduates will pursue higher technological education programs at UTEC. The premise is to not duplicate infrastructure with these other institutions by sharing accommodations, common spaces and research labs.

enterprises and promote knowledge transfer to locally established industries (OECD, 2013)^{4, 5}. The challenge for UTEC is how Rivera's ITR can evolve towards a model that meet the needs of technological human capital in the region and 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 ITR's regional campuses.

The objective of this project is to carry-out a feasibility study to deploy a TECHNOPARK in 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 international cases and experiences of S&T park development; (ii) to build capacity of the domestic counterparts to establish and operate a technopark infrastructure in Rivera; and, (iv) to develop a feasibility study with a master plan to guide the implementation.

Objectives

The main purpose of the TC is to conduct a feasibility study and develop the master plan to establish a technopark in UTEC Rivera campus with the goal of fostering regional development and balanced development. The specific objectives of the TC are:

- a. Assess the current conditions of Rivera
- b. Identify the demand for a technopark
- c. Disseminate Korean and International best practices of S&T Park to identify suitable benchmarking models for a technopark of Rivera
- d. Upgrade the capabilities of development, management and operation of a technopark in Uruguay
- e. Develop a master plan and feasibility study for a technopark in Rivera

Activities

The selected team will:

- 1) Assess the background conditions of a technopark in Rivera
- 2) Develop and implement a demand survey for a technopark in Rivera
- 3) Conduct knowledge sharing activities on Korean and International S&T Park Development
- 4) Carry out a capacity building program in Korea with the aim upgrading Uruguayan Capabilities for S&T Park Development

⁴ Key central characteristics of a successful S&T Park are: (a) 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) incubation of 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).

⁵ In the case of Korea, regional development policies have evolved through different phases starting with the establishment of industrial complex in the 1960s and 1970s to locate export-oriented industries, followed by the establishment of Daedeok science town in 1973 to build research capabilities and agglomerate R&D activities. Since 1997, a key initiative was initiated to establish Technoparks in each region to promote regional industries. Technoparks have become a center in the institutionalization of the regional STI policy. They are also key tools to vitalize local economies and regional competitiveness through agglomeration of innovation actors including businesses, university and research institutes. Currently, 18 technoparks are in operation throughout Korea and each one of them supports regional strategic industries selected in cooperation between the regional government and the central government.

- 5) Develop a master plan proposal and feasibility study of the technopark in UTEC Rivera Campus

Activity 1: Assessment of the initial conditions and identification of demand

In October 2017, the consultant team is expected to make a two week visit to Rivera to carry out a diagnosis and analysis of the existing conditions of the region. In particular, the team will evaluate existing structural conditions including but not limited to the environment, economic, technical, legal and regulatory framework to develop a technopark in UTEC Rivera campus will be examined. In addition, analysis of possible joint initiatives between the regional entrepreneurship system between Riviera and Santana do Livramento - a Brazilian city bordering Riviera (Border of Peace) should be made.

Activity 2: Develop and implement a demand survey for a technopark in Rivera

To identify the demand, the expert team will develop a demand survey to identify the potential demand and knowledge needs of the regional industries and businesses. The draft of the demand survey will be developed prior to the mission and will be revised together with the IDB CTI specialist and the UTEC stakeholders during the first mission. The demand survey will be implemented via online with the support of the local consultant. An interim report will be developed including the results of the activity 1 and 2.

Activity 3: Knowledge Sharing on Korean and International S&T Park Development

The consultant team will develop case studies on Korea and international best practices on S&T parks that are suitable benchmarks for UTEC Rivera campus. An interim report will include the preliminary findings from the first mission, analysis of the demand, case studies and implications from the experience. The interim report will be shared at least two weeks prior to the second mission.

A knowledge sharing week will be organized in Rivera to share the findings, Korean and international experiences of S&T park, their implications. The workshop will be participated not only by the UTEC officials but also from the relevant government entities such as the local and regional government, Ministry of Economy and Finance, and the National Agency of Economic Development. The presentation materials will be shared with the stakeholders after the workshop. The team will prepare the workshop materials and the organization of the workshop will be supported by IDB and UTEC.

During the workshop, the expert team will spend an additional one and a half week to carry out additional interviews to deepen the analysis of the existing conditions and to develop a master plan.

Activity 4: Capacity building program in Korea with the aim of upgrading Uruguayan Capabilities for S&T Park Development

The team will develop a capacity building program for the Uruguayan stakeholders to strengthen the capabilities for S&T park development, management and operation of the S&T park in Korea. The program will include lectures, workshops, discussion and site-visits to the relevant S&T parks and institutions. Topics of the lectures will include but not limited to i) overview of S&T development in Korea, ii) Evolution of the Korean regional STI development, iii) S&T park

development, management and operations, iv) fostering U-I-R cooperation for regional development, v) S&T park support tools and programs, vi) technology commercialization and technology-based incubation.

The capacity building program will be at least two weeks in lengths and invite at least 10 officials from UTEC, and relevant institutions.

One full day will be designated for the discussion of the outline, directions, vision of the technopark to develop the master plan. Draft of the outline, directions, visions of the technopark will be shared prior to the capacity building program for the participants to review in advance. Another required reading for the participants will be the interim report, which will be the Output from Activity 1 and 2.

On the last day of the capacity building program, participants will take a survey to evaluate the usefulness of the program and the appropriateness of the lectures.

The minutes of the workshop and discussion will be developed and shared with the participants, IDB CTI, and the UTEC within two weeks after the capacity building program. It should include the results of the satisfaction survey should also be included.

Activity 5: Master Plan Proposal and Feasibility Study of the Technopark in UTEC Rivera

The experts will develop the master plan of the UTEC Rivera campus including the i) institutional model, ii) functions of the park, iii) human resources needed, iv) business model of the Park and sustainable approach in the mid- and long-run, v) management and operation plan, vi) a roadmap by development phases, vii) strategies for demand side stimulation, viii) potential support programs, ix) preliminary conceptual design of the technopark.

The draft of the master plan will be shared with IDB CTI specialist, UTEC, the local consultant, and the relevant stakeholders. Comments on the master plan will be sent in writing, and be discussed via conference call.

Based on the revised master plan, the potential investment costs or resources required for the implementation of the master plan should be calculated. Based on this calculation, project feasibility analysis will take place to conduct an objective evaluation of the viability of the park establishment.

Recommendations for the following steps and strategies for successful establishment of the technopark in Rivera will be included in the final report. The results of the project shall be shared in the final mission which will take place in the last quarter of 2018 to secure buy-ins from the stakeholders and to discuss the following steps for implementation.

DELIVERABLES

- Deliverable 1 “Interim Report”: Interim report will include the assessment of the initial conditions, demand analysis, methodologies of the feasibility study of the technopark in Rivera
- Deliverable 2 “Demand Survey”: The draft of the demand survey will be developed and brought to the first mission to be finalized based on discussion. The survey will be distributed and the results will be collected by the local consultant. The results of the demand survey will be included in the interim report which will be submitted within two months of the first mission.

- Deliverable 3 Case studies of the Korean and International S&T Park Development: Based on the analysis and assessment of the situation from the first mission, the team will select three Korean and international S&T benchmarks for development of case studies. Implications will be drawn based on the review of the case studies.
- Deliverable 4 “Capacity building workshop”: A two-week capacity building program will be developed and implemented including lectures, workshop, discussion, and site-visits. The program will be developed in discussion with IDB and UTEC and should be sent six weeks prior to the capacity building program. Minutes of the discussion on the outline and directions of the master plan, and satisfaction survey results of the participants will be sent within the two weeks of the capacity building program.
- Deliverable 5 “Master Plan”: A master plan will be developed including i) institutional model, ii) functions of the park, iii) human resources, iv) business model and sustainability approach, v) management and operation plan, vi) a roadmap based on development phases, vii) strategies for demand side stimulation, viii) potential support programs, ix) preliminary conceptual design of the technopark
- Deliverable 6 A final report including the feasibility study of i) calculations of the investment costs for the implementation of the master plan and ii) project feasibility and impact analysis along with the results of all other activities

Qualifications

1. Team Composition: The team must include at least one team leader. The team should demonstrate knowledge and experience in regional S&T policy and development, management and operation of S&T parks.
2. Starting date and Duration: September 2017 – November 2018
3. Number of missions to Uruguay: Three
4. Qualifications: The members of the review team must have experience in knowledge in
 - Master plan development of S&T park
 - Development, management and operation of S&T park
 - Concept design including but not limited to the infrastructure, facilities, ICT, equipment and architectural plan
 - Estimation and calculations of the project cost
 - Feasibility and impact analysis
 - Demand Survey and data analysis

Payment Schedule

- 20% upon delivery and approval of Deliverable 1
- 15% upon delivery and approval of Deliverable 3
- 15% upon delivery and approval of Deliverable 4
- 20% upon delivery and approval of Deliverable 5
- 30% upon delivery and approval of Deliverable 6

Characteristics of the Consultancy

- Consultancy category and modality: Products and External Services Contractual, International, Firm, Lump Sum
- Contract duration: TBD
- Place(s) of work: Rivera, Uruguay, Korea
- Team Leader and Coordinator: Gustavo Crespi (Lead Science and Technology Specialist of the CTI/CUR Division gucrespi@iadb.org) in coordination with UTEC
- Supervision and Hiring Entity: UTEC

Uruguay

CTI/CUR

Support to developing a Master Plan for a Technopark in Rivera's UTEC Campus

TERMS OF REFERENCE

Background

The Government of Uruguay established the Technological University (UTEC) in 2013 to generate a more equitable access to technological educational opportunities in the countryside and to support the supply of technological knowledge for local productive needs to promote regional economic development. The UTEC has been designed as a decentralized university managing a network of Regional Technological Institutes (ITR).

One of these ITRs is currently under development in the city of Rivera near the border with Brazil. Rivera is a region strongly dominated by the forestry value chain, renewable energy generation including solar, wind and biomass, logistics and trade support services. It also has good infrastructure connectivity and an important supply of support services including an industrial free zone and a regional airport. Nevertheless, it is in disadvantage due to its limitations of diversification in economic activities that leads to its underdevelopment. Based on a survey of local demands, UTEC has assigned this ITR to focus on logistics, mechatronics⁶ and IT. This ITR in Rivera shares a 55 hectares' campus with Uruguay's Polytechnic University (UTU) and the regional campus of the University of the Republic (UDELAR)⁷.

The objective of the project is to carry-out a feasibility study to deploy a TECHNOPARK in the site of the Regional Technological Institute(ITR) of Uruguay's Technological University (UTEC) in Rivera. Specific Objectives of the project are: (i) to assess the background conditions for the deployment of such infrastructure in Rivera (ii) to learn from the Korean and international cases and experiences of S&T park development; (iii) to build capacity of the domestic counterparts to establish and operate a technopark infrastructure in Rivera; and, (iv) to develop a feasibility study with a master plan to guide the implementation.

⁶ 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.

⁷ UTU offers two years' technical level education, while the UDELAR campus focuses on providing degrees on health sciences, business administration and agronomy. It is expected that most of the UTU graduates will pursue higher technological education programs at UTEC. The premise is to not duplicate infrastructure with these other institutions by sharing accommodations, common spaces and research labs.

Consultancy objective(s)

The objective of the consultancy is to provide technical advice and support to the international consultant for the local context to be well-reflected in the feasibility study and the master plan for the technopark in UTEC Rivera campus. The consultancy will work closely with the international consultant to adapt the international best practice onto the local context by participating fact-finding missions, providing necessary data, and providing a diagnostic report on the region of Rivera.

Main activities

The selected candidate will:

1. Draft an initial report on the region of Rivera including its economy, industrial structure, innovation ecosystem, etc.
2. Prepare the tentative program of institutions and interviewees for the fact-finding missions based on the initial report in consultation with UTEC, IDB, and the international consultant
3. Participate in the fact-finding missions with the international consultant to support the interviews with the stakeholder to enhance the understanding of the local conditions that reflect the realities with the goal of enhancing the implementability of the master plan;
4. Provide requested data to the international consultant, in case where the systematized data is unavailable, the consultant may need to conduct interviews, gather data
5. Implement the survey provided by the international consultant and develop a survey result report
6. Review and provide comments on the feasibility study and master plan to ensure that the local contents are well-reflected
7. Coordinate between the international consultant, local stakeholders, and UTEC

Reports / Deliverables

Deliverable 1: Diagnostic report on the region of Rivera including its economy, industrial structure, innovation ecosystem should be submitted based on interviews and data.

Deliverable 2: Tentative program of the fact-finding mission with identification of appropriate stakeholders and institutions to be interviewed should be developed in consultation with UTEC, IDB and the international consultant. Deliverable 1 & 2 should be submitted at least 1 month prior to the fact-finding mission of the international consultant.

Deliverable 3: The consultant develops a survey result report by implementing the survey created by the international consultant including the description of findings, methodology, and recommendations. The size and the scope of the respondents will be determined based on discussion of the project team. Additionally, requested data by the international consultant should be provided based on interviews with the local stakeholders.

Deliverable 4: Comments on the draft of the feasibility study and master plan should be provided to ensure that the local contents are well-reflected to enhance implementability.

Every report must be submitted to the Bank in an electronic file. The report should include cover, main document, and all annexes. Zip files will not be accepted as final reports, due to Records Management Section regulations.

Payment Schedule

- 30% upon delivery and approval of Deliverable 1 & 2
- 30% upon delivery of Deliverable 3
- 40% upon delivery of Deliverable 4

All deliverables, products and reports will be approved by the Team Leader to process the payment to the consultant.

Qualifications

- Academic Degree / Level & Years of Professional Work Experience: Master's degree or equivalent, in Economics, Engineering, Public administration, Urban Planning, Geography, Social Sciences or related disciplines. Ten years of professional experience in public policy development and implementation related to regional development.
- Languages: Fluency in English and Spanish in both written and spoken
- Areas of Expertise: Urban planning, STI policy, engineering, public policy, regional development.
- Skills: experience working with surveys; data analytical skills; strong communication and writing skills; experience coordinating and working with various stakeholders.

Characteristics of the Consultancy

- Consultancy category and modality: Products and External Services Contractual, Lump Sum
- Contract duration: 6 working months in 2 years
- Place(s) of work: External consultancy
- Division Leader or Coordinator: Gustavo Crespi (Lead Science and Technology Specialist of the CTI/CUR Division gcrespi@iadb.org) in coordination with UTEC
- Supervision and Hiring Entity: UTEC

Payment and Conditions: Compensation will be determined in accordance with Bank's policies and procedures. In addition, candidates must be citizens of an IDB member country.

Consanguinity: Pursuant to applicable Bank policy, candidates with relatives (including the fourth degree of consanguinity and the second degree of affinity, including spouse) working for the Bank as staff members or Complementary Workforce contractuels, will not be eligible to provide services for the Bank.

Diversity: The Bank is committed to diversity and inclusion and to providing equal opportunities to all candidates. We embrace diversity on the basis of gender, age, education, national origin, ethnic origin, race, disability, sexual orientation, religion, and HIV/AIDs status. We encourage women, Afro-descendants and persons of indigenous origins to apply.