

TERMS OF REFERENCE

Master plan and Feasibility Study of the BT center for Agri-food Industry in Uruguay

**Uruguay
UR-T1182**

Promoting Productive Transformation and Competitiveness of Uruguay's Agri-food Industry based on Science Technology and Innovation

1. Background and Justification

- 1.1 Agri-food industry is a significant contributor to Uruguay's Economy. Nevertheless, the industry has been losing its competitiveness in agri-food, mostly due to dramatic changes in the international context, with a sharp decline in the global demand of raw materials together, in some cases, with problems of global oversupply¹ and volatility in the weather conditions due to climate change². In summary, the sustainability of the current Uruguay's growth model is seriously challenged if it remains based only on the competitiveness of raw materials and commodities. In contrast to the situation of commodity markets, trends in high value-added food products have been more dynamic and stable. Population growth in developing countries, aging population, together with an increase in per-capita income create significant global growth opportunities for the agri-food industry of Uruguay. It is also important to note the global changes in consumption habits and preferences towards healthier, more nutritious, sustainable, functional and nutraceutical food. These transformations occurring in the international context place Uruguay in a privileged position to become a supplier of high-quality food products. Nevertheless, high valued added food products are also knowledge intensive goods that require a relatively strong science base to develop competitive advantages³. Such changes in market conditions and consumer demand require Uruguay to move away from its business as usual approach towards innovation and knowledge to take advantage of global market opportunities.
- 1.2 Despite its strong R&D capacities and science and technology indicators in agriculture, the current state of the agri-food innovation system in Uruguay has not been enough as to increase the economic complexity of the agri-food value chain by developing more sophisticated and knowledge intensive food products. Two serious shortcomings of the current agri-food innovation system are the fragmentation and low coordination among innovation actors including universities, technological institutes, firms and government, spreading scarce resources among too many different research lines, and a bias of the research system towards curiosity-driven basic science far from the demand by industry sectors (SNU, 2018)⁴. The experience of most developed countries

¹ This is particularly severe in commodities such as wool and dairy products.

² After a peak yield in the 2012/2013 harvest, the oilseed yields declined by 20% due to unfavorable climatic conditions which affected crops at the level of production, logistics, harvest conditions and quality impacting exporting chains.

³ Several opportunity niches are already available for Uruguay, from exporting new varieties of oilseeds for counter-season production in the north, to development new packaging materials to protect functionality of products, including the development of microbial applications, new antioxidant compounds, probiotics, ready to eat foods and aging friendly foods, among others.

⁴ Other important shortcomings are the lack of modern research equipment in most laboratories and a small critical mass of researchers mostly active on crop and livestock research with few researchers focusing on food science. So, most of research is

suggests that technology centers, if driven by the right set of incentives, can play a critical role in the innovation system connecting knowledge demand with supply, building capacity through human capital formation and providing sophisticated knowledge services to firms through the operation of advanced equipment⁵.

- 1.3 The Government of Uruguay envisions to diversify the country's production structure by using raw materials as platforms to develop the export basket towards more sophisticated goods and services by incorporating knowledge and technology. Hence, the Government of Uruguay recently approved the First Strategic Plan for Productive Transformation and Competitiveness where the deployment of technology centers in the different agri-food value chains is considered among the key strategic projects. Aligned with this, the government has set the target of increasing agri-food exports to feed 50 million people by 2050 worldwide, which implies doubling the export figures of the sector.

2. Objectives

- 2.1. The general objective of the technical cooperation is to contribute to productive transformation and increase competitiveness of agri-food industry in Uruguay. Specific objectives are: (i) to assess the background conditions of the agri-food innovation system in Uruguay (ii) to establish a world class biotechnological center aimed at improving the coordination of the agri-food innovation system and at providing stronger university-industry linkages.

3. Scope of Services

- 3.1. The scope of the services will be to assess the background conditions for establishing a world class BT center in agri-food industry. Based on the assessment, a master plan will be developed. A feasibility study will be conducted, which will result in an investment plan to establish a BT center that can foster the agri-food industry of Uruguay through research, development and innovation. The consultant shall coordinate with the local architecture firm by providing input for the design of the BT center to ensure that the BT center address the functionality, performance and requirements according to the intended purpose.

4. Key Activities

The selected firm will carry out the following activities:

- i) Assess the current background conditions of agri-food industry through a complete SWOT analysis of the different segments of the Uruguay's agri-food value chains and the national and sector policies, plans, statistical data, economic and thematic sector work to identify key sector development issues and constraints.
- ii) Analyze the existing sectoral capacity by interviewing key government agencies, universities,

concentrated on the productivity of livestock and crop while research on value-added food products is paid little attention (based on an assessment of the Seoul National University evaluation team).

⁵ OECD Reviews of Innovation Policy. Industry and Technology Policies in Korea (2014).

- research institutes, companies, start-ups and other relevant stakeholders to gain an in-depth existing R&D and innovation capacity as well as gaps and needs. Assess the existing infrastructure and the requirements for the new BT center. Based on the analysis, propose strategies to enhance R&D capacity in the area of BT in terms of human resources and R&D activities.
- iii) Propose a sectoral roadmap including solutions to address the sectoral problems that currently obstruct upgrading the agri-food industry including strategic market-oriented R&D programs including target technologies, activities and projects in focused areas of crops, livestock, and food sciences to be able to achieve its goal of doubling high-quality food export by 2050.
 - iv) Organize and deliver a one-week capacity building program of ten sectoral experts and public officials from the relevant ministries and agencies to capture best practices of BT center deployment as well as strengthening university-industry collaboration.
 - v) Develop a master plan to establish a world class BT center for the agri-food industry in Uruguay including the vision, operational strategies, institutional model, organization, functions, human resources, infrastructure and equipment, support programs and business model for financial sustainability, R&D program and projects. Potential project sites should be reviewed. The firm will review the rationale, institutional design, governance, policy framework, funding and lessons from implementation of existing world-class BT centers. By applying the best practices and lessons onto the Uruguayan context, the consulting firm will propose the concept, mandate, functions, governance, activities and appropriate operational scheme and management model of a BT center in Uruguay. Recommendations on necessary policy matrix for the BT center and roles of the stakeholders involved to develop into a world-class one will be suggested.
 - vi) Carry out a feasibility study on the establishment of the BT center by assessing the financial viability through cost-benefit analysis and AHP. Prepare a financial projection for operations for 10 years after project completion for sustainability of the BT center and propose cost-recovery mechanisms.
 - vii) Develop an investment plan by calculating the investment costs of establishing a BT center.
 - viii) Provide information and feedback for engineering designs of the critical infrastructure of the BT center to the local architectural firm
 - ix) Work in coordination with the consulting firm for developing the methodology for the national R&D agenda in the area of the agri-food industry

5. Expected Outcome and Deliverables

The selected firm will be responsible for the following deliverables:

- 5.1. Deliverable 1: Inception report.** The Inception report will include the detailed work plan including the milestones, tasks and responsibilities of the consultant based on activities.

- 5.2. Deliverable 2: Diagnosis report and recommendations for strengthening the agri-food industry.** Initial conditions of the agri-food industry will be assessed based on a SWOT analysis of the different segments of the Uruguay's agri-food value chain. It will review the national and sector policies, plans, statistical data, economic and thematic sector work to identify key sector development issues and constraints. The diagnostic report will include the sector problem tree of the agri-food industry and proposed solutions to address the problems that currently obstructs upgrading of the agri-food sector.
- 5.3. Deliverable 3: Strategy for enhancing R&D capacity for agri-food industry.** Existing R&D capacity and potential demands for research activities for agri-food industry will be assessed. Based on the assessment, strategies to enhancing BT capabilities in terms of human resources, and R&D activities will be proposed.
- 5.4. Deliverable 4: Sectoral roadmap for agri-food industry.** A sectoral roadmap for agri-food industry will be developed including the strategic market-oriented R&D program including target technologies, activities and projects in focused areas of crops, livestock, and food sciences to be able to achieve its goal of doubling high-quality food export by 2050.
- 5.5. Deliverable 5: Capacity building program.** A one-week capacity building program of ten sectoral experts and public officials from the relevant ministries and agencies to capture best practices of BT center deployment as well as strengthening university-industry collaboration in Korea. Participants in the capacity building program will be able to acquire know-how in relation to the development, operation and management of a world-class biotechnology center. In addition, strategies and instruments to promote university-industry collaboration based on strategic partnership will be shared to provide concrete lessons and recommendations. The capacity building program will include lectures, workshops, discussions, and field visits.
- 5.6. Deliverable 6: Master Plan Draft.** The draft of the master plan will include the review of the best practices in terms of the rationale, institutional design, governance, policy framework, funding and lessons from implementation of existing world-class BT centers. A master plan for a BT center will include the following but not limited to the vision, strategic objectives, operational strategies, institutional model, organization, functions, human resources, infrastructure and equipment, support programs and business model for financial sustainability, R&D program and projects, management model and operational schemes. It should include detailed guidelines that respond to socioeconomic and environmental issues and challenges identified by the stakeholders. Recommendations on necessary policy matrix for the BT center and roles of the stakeholders involved to develop into a world-class one will be suggested.
- 5.7. Deliverable 7: Final Master Plan.** The final master plan will reflect the comments provided by the Uruguayan stakeholders.
- 5.8. Deliverable 8: Feasibility study.** A consolidated feasibility study will be elaborated taking the previous deliverables of the sectoral SWOT analysis with strategies along with cost-benefit analysis, review of the policy matrix, the AHP. It will assess the infrastructure and equipment already available in addition to the requirements for the new infrastructure and equipment for the development of the BT center.

5.9. Deliverable 9: Investment plan. The investment required to establish a BT center will be analyzed considering the financial viability and sustainability considering the local cost factors by specifying the phases. Financing scenarios will be proposed in close communication with Transforma Uruguay.

6. Reporting Requirements

6.1. All contract communication, technical documentation and reporting on the project should be in English. The master plan and feasibility study should be translated into Spanish. All translation should be responsibility of the Consulting Firm at its own expense.

6.2. Number of missions to Uruguay: 3

6.3. Duration: 15 months

7. Acceptance Criteria

7.1. All submissions will be reviewed by the Team Leader for approval and the Transforma Uruguay. The Consulting Firm should address comments provided by the Team Leader and Transforma Uruguay for correction and revision for the deliverable to be accepted.

8. Supervision and Reporting

8.1. The consulting firm will be reporting to the Team Leader, Gustavo Crespi, Principal Specialist of the Competitiveness, Technology and Innovation division (IFD/CTI) for supervision of the consultancy, submission of the deliverables and the approval in coordination with the Transforma Uruguay.

8.2. The Consulting Firm and the Team Leader will mutually agree upon the timeline and the deliverable due dates with the Bank and the Transforma Uruguay. It shall be the Consulting Firm’s responsibility for ensuring that such meetings are conducted, and such reports are submitted to the Bank.

9. Schedule of Payments

9.1. Payment terms will be based on project milestones or deliverables. The Bank does not expect to make advance payments under consulting contracts unless a significant amount of travel is required.

Payment Schedule	
<i>Deliverable</i>	%
1. <i>Upon reception and approval of Deliverable 1</i>	10%
2. <i>Upon reception and approval of Deliverable 2& 3</i>	15%
3. <i>Upon reception and approval of Deliverable 4 & 5</i>	25%

4. <i>Upon reception and approval of Deliverable 6&7</i>	25%
5. <i>Upon reception and approval of Deliverable 8&9</i>	25%
TOTAL	100%

TERMS OF REFERENCE

Preparing an Architectural Design for the BT center in Uruguay

**Uruguay
UR-T1182**

Promoting Productive Transformation and Competitiveness of Uruguay's Agri-food Industry based on Science Technology and Innovation

1. Background and Justification

- 1.1** Agri-food industry is a significant contributor to Uruguay's Economy. Nevertheless, the industry has been losing its competitiveness in agri-food, mostly due to dramatic changes in the international context, with a sharp decline in the global demand of raw materials together, in some cases, with problems of global oversupply⁶ and volatility in the weather conditions due to climate change⁷. In summary, the sustainability of the current Uruguay's growth model is seriously challenged if it remains based only on the competitiveness of raw materials and commodities. In contrast to the situation of commodity markets, trends in high value-added food products have been more dynamic and stable. Population growth in developing countries, aging population, together with an increase in per-capita income create significant global growth opportunities for the agri-food industry of Uruguay. It is also important to note the global changes in consumption habits and preferences towards healthier, more nutritious, sustainable, functional and nutraceutical food. These transformations occurring in the international context place Uruguay in a privileged position to become a supplier of high-quality food products. Nevertheless, high valued added food products are also knowledge intensive goods that require a relatively strong science base to develop competitive advantages⁸. Such changes in market conditions and consumer demand require Uruguay to move away from its business as usual approach towards innovation and knowledge to take advantage of global market opportunities.
- 1.2** Despite its strong R&D capacities and science and technology indicators in agriculture, the current state of the agri-food innovation system in Uruguay has not been enough as to increase the economic complexity of the agri-food value chain by developing more sophisticated and knowledge intensive food products. Two serious shortcomings of the current agri-food innovation system are the fragmentation and low coordination among innovation actors including universities, technological institutes, firms and government, spreading scarce resources among too many different research lines, and a bias of the research system towards curiosity-driven basic science far from the demand by industry sectors (SNU, 2018)⁹. The

⁶ This is particularly severe in commodities such as wool and dairy products.

⁷ After a peak yield in the 2012/2013 harvest, the oilseed yields declined by 20% due to unfavorable climatic conditions which affected crops at the level of production, logistics, harvest conditions and quality impacting exporting chains.

⁸ Several opportunity niches are already available for Uruguay, from exporting new varieties of oilseeds for counter-season production in the north, to development new packaging materials to protect functionality of products, including the development of microbial applications, new antioxidant compounds, probiotics, ready to eat foods and aging friendly foods, among others.

⁹ Other important shortcomings are the lack of modern research equipment in most laboratories and a small critical mass of researchers mostly active on crop and livestock research with few researchers focusing on food science. So, most of research is concentrated on the productivity of livestock and crop while research on value-added food products is paid little attention (based on an assessment of the Seoul National University evaluation team).

experience of most developed countries suggests that technology centers, if driven by the right set of incentives, can play a critical role in the innovation system connecting knowledge demand with supply, building capacity through human capital formation and providing sophisticated knowledge services to firms through the operation of advanced equipment¹⁰.

- 1.3** The Government of Uruguay envisions to diversify the country's production structure by using raw materials as platforms to develop the export basket towards more sophisticated goods and services by incorporating knowledge and technology. Hence, the Government of Uruguay recently approved the First Strategic Plan for Productive Transformation and Competitiveness where the deployment of technology centers in the different agri-food value chains is considered among the key strategic projects. Aligned with this, the government has set the target of increasing agri-food exports to feed 50 million people by 2050 worldwide, which implies doubling the export figures of the sector.

2. Objectives

- 2.1.** The general objective of the technical cooperation is to contribute to productive transformation and increase competitiveness of agri-food industry in Uruguay. Specific objectives of this consultancy is to prepare an architectural design of the BT center considering the background conditions, needs and demands of the stakeholder in terms of the functionality, performance and intended use.

3. Scope of Services

- 3.1.** The scope of the services is to propose a design of the BT center that is in tune with the natural landscape, existing facilities, maximize the utility and functionality of the BT center.

4. Key Activities

The selected firm will carry out the following activities:

- i) Visit the site in order to familiarize with the natural landscape and existing facilities
- ii) Interview the key stakeholders and the consulting firm in charge of developing a master plan to collect the needs and demands
- iii) Prepare preliminary concept designs with sufficient details and character in harmony with the natural landscape, functionality, performance, and its intended use.
- iv) Prepare the schematic design upon the approval of the conceptual design.
- v) Prepare major component cost estimate for the consulting firm conducting the feasibility study to develop the investment plan.
- vi) Conduct regular design progress meetings.

¹⁰ OECD Reviews of Innovation Policy. Industry and Technology Policies in Korea (2014).

5. Expected Outcome and Deliverables

The selected firm will be responsible for the following deliverables:

- 5.1. **Deliverable 1: Inception report.** The Inception report will include the detailed work plan including the milestones and project schedule.
- 5.2. **Deliverable 2: Site Analysis report.** Conduct a site analysis the characteristics and constraints of the site.
- 5.3. **Deliverable 3. Workshops.** Conduct workshops with the stakeholders to identify the existing conditions, convey their needs and requirements for the space. Reflect the vision in the design. Identify the project intent, goals, scope and site data. Based on the site analysis and workshop, project concept will be developed.
- 5.4. **Deliverable 4: Design presentation of the design options.** A conceptual design of the site analysis, project requirements, building structure will be presented along with preliminary cost estimates for each option. Descriptive narrative of the design will be provided. A presentation of the design options for review for the stakeholders to select one conceptual design by consensus.
- 5.5. **Deliverable 5: Schematic design report.** Prepare a schematic design final report including the project objectives, existing conditions, site design, and drawings. The approved conceptual design will be modified incorporating the comments of the beneficiary for approval. Preferred schematic design scheme shall comply with the regulatory requirements.
- 5.6. **Deliverable 6: Detailed design development & Cost estimation.** Create detailed architectural, landscaping, graphic designs after the approval and acceptance of the schematic design. Detailed drawings shall be submitted as per request of the beneficiary. Provide a cost estimate of the project by reflecting an appropriate level of detail for each component.

6. Reporting Requirements

- 6.1. All contract communication, technical documentation and reporting on the project should be in English.
- 6.2. Duration: 6 months

7. Acceptance Criteria

- 7.1. All submissions will be reviewed by the Team Leader for approval and the Transforma Uruguay. The Consulting Firm should address comments provided by the Team Leader and Transforma Uruguay for correction and revision for the deliverable to be accepted.

8. Supervision and Reporting

- 8.1. The consulting firm will be reporting to the Team Leader, Gustavo Crespi, Principal Specialist of the Competitiveness, Technology and Innovation division (IFD/CTI) for supervision of the consultancy, submission of the deliverables and the approval in coordination with the Transforma Uruguay.
- 8.2. The Consulting Firm and the Team Leader will mutually agree upon the timeline and the deliverable due dates with the Bank and the Transforma Uruguay. It shall be the Consulting Firm’s responsibility for ensuring that such meetings are conducted, and such reports are submitted to the Bank.

9. Schedule of Payments

- 9.1. Payment terms will be based on project milestones or deliverables. The Bank does not expect to make advance payments under consulting contracts unless a significant amount of travel is required.

Payment Schedule	
<i>Deliverable</i>	%
1. <i>Upon reception and approval of Deliverable 1</i>	10%
2. <i>Upon reception and approval of Deliverable 2</i>	15%
3. <i>Upon reception and approval of Deliverable 4</i>	15%
4. <i>Upon reception and approval of Deliverable 5</i>	25%
5. <i>Upon reception and approval of Deliverable 6</i>	35%
TOTAL	100%

TERMS OF REFERENCE

Assessing the Institutional Capacity of the National Agri-food Innovation System in Uruguay

**Uruguay
UR-T1182**

Promoting Productive Transformation and Competitiveness of Uruguay's Agri-food Industry based on Science Technology and Innovation

Background:

Agri-food industry is a significant contributor to Uruguay's Economy. Nevertheless, the industry has been losing its competitiveness in agri-food, mostly due to dramatic changes in the international context, with a sharp decline in the global demand of raw materials together, in some cases, with problems of global oversupply¹¹ and volatility in the weather conditions due to climate change¹². In summary, the sustainability of the current Uruguay's growth model is seriously challenged if it remains based only on the competitiveness of raw materials and commodities. In contrast to the situation of commodity markets, trends in high value-added food products have been more dynamic and stable. Population growth in developing countries, aging population, together with an increase in per-capita income create significant global growth opportunities for the agri-food industry of Uruguay. It is also important to note the global changes in consumption habits and preferences towards healthier, more nutritious, sustainable, functional and nutraceutical food. These transformations occurring in the international context place Uruguay in a privileged position to become a supplier of high-quality food products. Nevertheless, high valued added food products are also knowledge intensive goods that require a relatively strong science base to develop competitive advantages¹³. Such changes in market conditions and consumer demand require Uruguay to move away from its business as usual approach towards innovation and knowledge to take advantage of global market opportunities.

Despite its strong R&D capacities and science and technology indicators in agriculture, the current state of the agri-food innovation system in Uruguay has not been enough as to increase the economic complexity of the agri-food value chain by developing more sophisticated and knowledge intensive food products. Two serious shortcomings of the current agri-food innovation system are the fragmentation and low coordination among innovation actors including universities, technological institutes, firms and government, spreading scarce resources among too many different research lines, and a bias of the research system towards curiosity-driven basic science far from the demand by industry sectors (SNU, 2018)¹⁴. The experience of most developed countries suggests that technology centers, if driven by the right set of incentives, can play a critical role in the innovation system connecting knowledge demand with supply, building capacity through human capital formation and providing sophisticated knowledge services to firms through the operation of advanced equipment¹⁵.

The Government of Uruguay envisions to diversify the country's production structure by using raw materials

¹¹ This is particularly severe in commodities such as wool and dairy products.

¹² After a peak yield in the 2012/2013 harvest, the oilseed yields declined by 20% due to unfavorable climatic conditions which affected crops at the level of production, logistics, harvest conditions and quality impacting exporting chains.

¹³ Several opportunity niches are already available for Uruguay, from exporting new varieties of oilseeds for counter-season production in the north, to development new packaging materials to protect functionality of products, including the development of microbial applications, new antioxidant compounds, probiotics, ready to eat foods and aging friendly foods, among others.

¹⁴ Other important shortcomings are the lack of modern research equipment in most laboratories and a small critical mass of researchers mostly active on crop and livestock research with few researchers focusing on food science. So, most of research is concentrated on the productivity of livestock and crop while research on value-added food products is paid little attention (based on an assessment of the Seoul National University evaluation team).

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as platforms to develop the export basket towards more sophisticated goods and services by incorporating knowledge and technology. Hence, the Government of Uruguay recently approved the First Strategic Plan for Productive Transformation and Competitiveness where the deployment of technology centers in the different agri-food value chains is considered among the key strategic projects. Aligned with this, the government has set the target of increasing agri-food exports to feed 50 million people by 2050 worldwide, which implies doubling the export figures of the sector.

What you will do: The principal objective of this consultancy is to assess the institutional capacity of the national agri-food innovation system in Uruguay. It will identify the needs for institutional and policy adjustments and provide recommendations for strengthening the institutional capacity.

- Conduct a diagnosis of the existing governance model, institutions, policy and instruments of the national agri-food innovation system. Identify the strengths and challenges.
- Identify the R&D and innovation activities conducted by the innovation actors. Assess the linkages among the innovation actors within the national agri-food innovation system. Identify their strengths and challenges in promoting productive transformation of the agri-food industry.
- Provide recommendations for policy and institutional adjustments and directions to stimulate the national agri-food innovation system and to improve coordination among the actors. Identify instruments, mechanisms, and policy mix that can further drive innovation activities, increment the R&D investment of the agri-food innovation system. Suggest ways of addressing the existing and potential challenges identified.

Deliverables:

- **Deliverable 1: Workplan.** The work plan should include milestones, project schedule, and methodologies to be used based on activities
- **Deliverable 2: Diagnosis report.** The diagnosis report shall include an evaluation of the existing governance model, institutions, policy and instruments of the national agri-food innovation system along with the innovation actors and their activities. The diagnosis report should include the strengths and challenges.
- **Deliverable 3: Draft of the final report.** Based on the diagnosis, recommendations for policy and institutional adjustments and directions to stimulate the national agri-food innovation system and to improve coordination among the actors will be suggested.
- **Deliverable 4: Presentation.** The consultant will deliver a presentation to the key actors in the national agri-food innovation system regarding the diagnosis and the recommendations to collect comments and to build consensus.
- **Deliverable 5: Final report with reconciliation.** Final report shall reflect the comments and recommendations of the stakeholders.

Payment timeline:

Payment Schedule	
<i>Deliverable</i>	%
1. <i>Upon reception and approval of Deliverable 1</i>	15%
2. <i>Upon reception and approval of Deliverable 2</i>	20%
3. <i>Upon reception and approval of Deliverable 3</i>	25%
4. <i>Upon reception and approval of Deliverable 4&5</i>	40%
TOTAL	100%

Skills you'll need

- **Education:** University Degree in economics, public policy, STI policy, food sciences, agricultural science, agricultural engineering, industrial engineering, or related discipline; Advanced degree preferred.
- **Experience:** Minimum 10 years of working experience in managing STI in public institutions or academia including experience to design, implement and evaluate the programs and policy to promote STI.
- **Languages:** Fluent in both English and Spanish
- **Areas of Expertise:** S&T policy, innovation, agri-food industry, biotechnology
- **Skills:** Excellent analytical and problem-solving skills. Strong interpersonal and teamwork skills.

Opportunity Summary:

- Type of contract and modality: Lump Sum, PEC
- Length of contract: 6 months
- Starting date: January 2019
- Location: Montevideo, Uruguay
- Responsible person: Gustavo Crespi (IFD/CTI), Principal Specialist, gcrespi@iadb.org

Our culture: Working with us you will be surrounded by a diverse group of people who have years of experience in all types of development fields, including transportation, health, gender and diversity, communications and much more.

About us: At the Inter-American Development Bank, we're devoted to improving lives. Since 1959, we've been a leading source of long-term financing for economic, social, and institutional development in Latin America and the Caribbean. We do more than lending though. We partner with our 48 member countries to provide Latin America and the Caribbean with cutting-edge research about relevant development issues, policy advice to inform their decisions, and technical assistance to improve on the planning and execution of projects. For this, we need people who not only have the right skills, but also are passionate about improving lives.

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 IDB, IDB Invest, or MIF as staff members or Complementary Workforce contractuals, 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, and religion. We encourage women, Afro-descendants and persons of indigenous origins to apply.

TERMS OF REFERENCE

Methodologies and Institutional Framework for Monitoring and Forecasting Key Trade Trends, Risks and Opportunities for Key Uruguayan Export Products and Strategic Sectors

**Uruguay
UR-T1182**

Promoting Productive Transformation and Competitiveness of Uruguay's Agri-food Industry based on Science Technology and Innovation

1. Background and Justification

1.1 Agri-food industry is a significant contributor to Uruguay's Economy. Nevertheless, the industry has been losing its competitiveness in agri-food, mostly due to dramatic changes in the international context, with a sharp decline in the global demand of raw materials together, in some cases, with problems of global oversupply¹⁶ and volatility in the weather conditions due to climate change¹⁷. In summary, the sustainability of the current Uruguay's growth model is seriously challenged if it remains based only on the competitiveness of raw materials and commodities. In contrast to the situation of commodity markets, trends in high value-added food products have been more dynamic and stable. Population growth in developing countries, aging population, together with an increase in per-capita income create significant global growth opportunities for the agri-food industry of Uruguay. It is also important to note the global changes in consumption habits and preferences towards healthier, more nutritious, sustainable, functional and nutraceutical food. These transformations occurring in the international context place Uruguay in a privileged position to become a supplier of high-quality food products. Nevertheless, high valued added food products are also knowledge intensive goods that require a relatively strong science base to develop competitive advantages¹⁸. Such changes in market conditions and consumer demand require Uruguay to move away from its business as usual approach towards innovation and knowledge to take advantage of global market opportunities.

1.2 Despite its strong R&D capacities and science and technology indicators in agriculture, the current state of the agri-food innovation system in Uruguay has not been enough as to increase the economic complexity of the agri-food value chain by developing more sophisticated and knowledge intensive food products. Two serious shortcomings of the current agri-food innovation system are the fragmentation and low coordination among innovation actors including universities, technological institutes, firms and government, spreading scarce resources among too many different research lines, and a bias of the research system towards curiosity-driven basic science far from the demand by industry sectors (SNU, 2018)¹⁹. The

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¹⁹ Other important shortcomings are the lack of modern research equipment in most laboratories and a small critical mass of researchers mostly active on crop and livestock research with few researchers focusing on food science. So, most of research is

experience of most developed countries suggests that technology centers, if driven by the right set of incentives, can play a critical role in the innovation system connecting knowledge demand with supply, building capacity through human capital formation and providing sophisticated knowledge services to firms through the operation of advanced equipment²⁰.

- 1.3 The Government of Uruguay envisions to diversify the country's production structure by using raw materials as platforms to develop the export basket towards more sophisticated goods and services by incorporating knowledge and technology. Hence, the Government of Uruguay recently approved the First Strategic Plan for Productive Transformation and Competitiveness where the deployment of technology centers in the different agri-food value chains is considered among the key strategic projects. Aligned with this, the government has set the target of increasing agri-food exports to feed 50 million people by 2050 worldwide, which implies doubling the export figures of the sector.

2. Objectives

- 2.1. The general objective of the consultancy is to develop methodologies and an institutional framework to monitor and forecast key trade trends, risks and opportunities for key Uruguayan export products and strategic sectors. Forecasting will also include identification of tariff and non-tariff barriers in client markets that could challenge Uruguayan exports in the short-run.

3. Key Activities

The selected firm will carry out the following activities:

- i) Undertake desk research and analyze existing methodologies and mechanisms for monitoring and analysis of trade statistics including the export, import and domestic production data on a comparable basis
- ii) Review methodologies of monitoring tariff and non-tariff measures in the export country of destination that will affect the strategic product or sector
- iii) Develop a methodology for monitoring and analyzing trade statistics in the export, import and domestic production data on a comparable basis
- iv) Propose an institutional framework for market intelligence services for strategic sectors including identification of the product trends and opportunities, new market and to provide economic and consumer trends forecasts.
- v) Conduct workshop on the trade monitoring exercise on trade and trade-related measures and surveillance of trade measures. Develop a training module for trade monitoring and surveillance exercise.

4. Expected Outcome and Deliverables

concentrated on the productivity of livestock and crop while research on value-added food products is paid little attention (based on an assessment of the Seoul National University evaluation team).

²⁰ OECD Reviews of Innovation Policy. Industry and Technology Policies in Korea (2014).

The selected firm will be responsible for the following deliverables:

- 4.1. Deliverable 1: Work Plan.** The Inception report will include the detailed work plan including the milestones, project schedule, and methodology for the consultancy.
- 4.2. Deliverable 2: Preliminary report.** The preliminary report will include the review of the methodologies and mechanisms for monitoring and analysis of trade statistics including the export, import and domestic production data on a comparable basis. In addition, the report shall include the review of methodologies of monitoring tariff and non-tariff measures in the export country of destination that will affect the strategic product or sector.
- 4.3. Deliverable 3: Interim report.** The interim report will include the proposed methodology for monitoring and analyzing trade statistics on a comparable basis in Uruguay. It will also include a suggestion for institutional framework for developing and providing market intelligence services for strategic sectors including identification of the product trends and opportunities, new market, and to provide economic and consumer trends forecasts.
- 4.4. Deliverable 4: Capacity building workshop.** The consultant firm will conduct a capacity building workshop to share the best practices for trade monitoring and surveillance, suggestions for methodology and institutional framework for trade monitoring and surveillance in Uruguay for strategic product or sectors. The target participants of the capacity building workshop will include public officials of Transforma Uruguay, Uruguay 21, and OPP. The consultant will provide a training report including training materials.
- 4.5. Deliverable 5: Final report.** The consultant will update the interim report in lights of changes made or comments provided by the stakeholders.

5. Reporting Requirements

- 5.1.** All contract communication, technical documentation and reporting on the project should be in English.
- 5.2.** Duration: 6 months

6. Acceptance Criteria

- 6.1.** All submissions will be reviewed by the Team Leader for approval and the Transforma Uruguay. The Consulting Firm should address comments provided by the Team Leader and Transforma Uruguay for correction and revision for the deliverable to be accepted.

7. Supervision and Reporting

- 7.1.** The consulting firm will be reporting to the Team Leader, Gustavo Crespi, Principal Specialist of the Competitiveness, Technology and Innovation division (IFD/CTI) for supervision of the

consultancy, submission of the deliverables and the approval in coordination with the Transforma Uruguay.

- 7.2. The Consulting Firm and the Team Leader will mutually agree upon the timeline and the deliverable due dates with the Bank and the Transforma Uruguay. It shall be the Consulting Firm’s responsibility for ensuring that such meetings are conducted, and such reports are submitted to the Bank.

8. Schedule of Payments

- 8.1. Payment terms will be based on project milestones or deliverables. The Bank does not expect to make advance payments under consulting contracts unless a significant amount of travel is required.

Payment Schedule	
<i>Deliverable</i>	%
1. <i>Upon reception and approval of Deliverable 1 &2</i>	20%
2. <i>Upon reception and approval of Deliverable 3</i>	25%
3. <i>Upon reception and approval of Deliverable 4</i>	25%
4. <i>Upon reception and approval of Deliverable 5</i>	30%
TOTAL	100%

TERMS OF REFERENCE

Methodologies for developing R&D agenda based on technology surveillance and forecasting for the agri-food industry and capacity building workshop

**Uruguay
UR-T1182**

Promoting Productive Transformation and Competitiveness of Uruguay's Agri-food Industry based on Science Technology and Innovation

1. Background and Justification

1.1 Agri-food industry is a significant contributor to Uruguay's Economy. Nevertheless, the industry has been losing its competitiveness in agri-food, mostly due to dramatic changes in the international context, with a sharp decline in the global demand of raw materials together, in some cases, with problems of global oversupply²¹ and volatility in the weather conditions due to climate change²². In summary, the sustainability of the current Uruguay's growth model is seriously challenged if it remains based only on the competitiveness of raw materials and commodities. In contrast to the situation of commodity markets, trends in high value-added food products have been more dynamic and stable. Population growth in developing countries, aging population, together with an increase in per-capita income create significant global growth opportunities for the agri-food industry of Uruguay. It is also important to note the global changes in consumption habits and preferences towards healthier, more nutritious, sustainable, functional and nutraceutical food. These transformations occurring in the international context place Uruguay in a privileged position to become a supplier of high-quality food products. Nevertheless, high valued added food products are also knowledge intensive goods that require a relatively strong science base to develop competitive advantages²³. Such changes in market conditions and consumer demand require Uruguay to move away from its business as usual approach towards innovation and knowledge to take advantage of global market opportunities.

1.2 Despite its strong R&D capacities and science and technology indicators in agriculture, the current state of the agri-food innovation system in Uruguay has not been enough as to increase the economic complexity of the agri-food value chain by developing more sophisticated and knowledge intensive food products. Two serious shortcomings of the current agri-food innovation system are the fragmentation and low coordination among innovation actors including universities, technological institutes, firms and government, spreading scarce resources among too many different research lines, and a bias of the research system towards curiosity-driven basic science far from the demand by industry sectors (SNU, 2018)²⁴. The

²¹ This is particularly severe in commodities such as wool and dairy products.

²² After a peak yield in the 2012/2013 harvest, the oilseed yields declined by 20% due to unfavorable climatic conditions which affected crops at the level of production, logistics, harvest conditions and quality impacting exporting chains.

²³ Several opportunity niches are already available for Uruguay, from exporting new varieties of oilseeds for counter-season production in the north, to development new packaging materials to protect functionality of products, including the development of microbial applications, new antioxidant compounds, probiotics, ready to eat foods and aging friendly foods, among others.

²⁴ Other important shortcomings are the lack of modern research equipment in most laboratories and a small critical mass of researchers mostly active on crop and livestock research with few researchers focusing on food science. So, most of research is

experience of most developed countries suggests that technology centers, if driven by the right set of incentives, can play a critical role in the innovation system connecting knowledge demand with supply, building capacity through human capital formation and providing sophisticated knowledge services to firms through the operation of advanced equipment²⁵.

- 1.3** The Government of Uruguay envisions to diversify the country's production structure by using raw materials as platforms to develop the export basket towards more sophisticated goods and services by incorporating knowledge and technology. Hence, the Government of Uruguay recently approved the First Strategic Plan for Productive Transformation and Competitiveness where the deployment of technology centers in the different agri-food value chains is considered among the key strategic projects. Aligned with this, the government has set the target of increasing agri-food exports to feed 50 million people by 2050 worldwide, which implies doubling the export figures of the sector.

2. Objectives

- 2.1.** The general objective of the consultancy is to strengthen the R&D planning function based on technology trend analysis for strategic sectors related to the agri-food value chains in Uruguay. This consultancy also aims to build capacity for analyzing the information on future and emerging technologies in the key strategic sectors of agri-food industry.

3. Scope of Services

- 3.1.** The scope of the services is to propose a methodology and support the Government of Uruguay in the development of the R&D agenda for agri-food industry in alignment with the First Strategic Plan for Productive Transformation and Competitiveness. The consulting firm shall work in coordination with the firm conducting the diagnosis of the agri-food industry in Uruguay.

4. Key Activities

The selected firm will carry out the following activities:

- 4.1.** Review the methodology and provide guidelines for devising a national R&D agenda for sectoral development. Provide details on the governance of the steering committee in developing the national R&D agenda.
- 4.2.** Conduct a training workshop on the methodology of developing a national R&D agenda including the strategies and programs that specify roles of the participating institutions and agencies for coordinated efforts.
- 4.3.** Support the development of R&D agenda for agri-food industry in Uruguay to define goals,

concentrated on the productivity of livestock and crop while research on value-added food products is paid little attention (based on an assessment of the Seoul National University evaluation team).

²⁵ OECD Reviews of Innovation Policy. Industry and Technology Policies in Korea (2014).

visions, strategies and programs. The R&D agenda will provide focus and direction for research and development efforts. The R&D agenda will serve as a guide for public R&D investment and policymakers.

5. Expected Outcome and Deliverables

The selected firm will be responsible for the following deliverables:

- 5.1. **Deliverable 1: Inception report.** The Inception report will include the detailed work plan including the milestones and project schedule.
- 5.2. **Deliverable 2: Review of best practices.** The consultant will provide a preliminary report that reviews the methodology and provides guidelines for devising a national R&D agenda for sectoral development.
- 5.3. **Deliverable 3. Training Workshop.** The consultant will conduct a training workshop on R&D planning methodology which will include components of both quantitative and qualitative analysis in nature of technology and market trends. The consultant shall develop training workshop program, materials and report.
- 5.4. **Deliverable 4: Consultation workshop.** The consultant will provide guidelines for organizing a consultation workshop for priority setting and later participate in the priority setting workshop of key stakeholders and accompany some of the consultations with experts and stakeholders across public and private sectors. The consultant will accompany the Government of Uruguay in developing the pro-active agri-food related national R&D program.

6. Reporting Requirements

- 6.1. All contract communication, technical documentation and reporting on the project should be in English.
- 6.2. Duration: 6 months
- 6.3. Missions to Uruguay: 2

7. Acceptance Criteria

- 7.1. All submissions will be reviewed by the Team Leader for approval and the Transforma Uruguay. The Consulting Firm should address comments provided by the Team Leader and Transforma Uruguay for correction and revision for the deliverable to be accepted.

8. Supervision and Reporting

- 8.1. The consulting firm will be reporting to the Team Leader, Gustavo Crespi, Principal Specialist of the Competitiveness, Technology and Innovation division (IFD/CTI) for supervision of the consultancy, submission of the deliverables and the approval in coordination with the Transforma Uruguay.
- 8.2. The Consulting Firm and the Team Leader will mutually agree upon the timeline and the deliverable due dates with the Bank and the Transforma Uruguay. It shall be the Consulting Firm’s responsibility for ensuring that such meetings are conducted, and such reports are submitted to the Bank.

9. Schedule of Payments

- 9.1. Payment terms will be based on project milestones or deliverables. The Bank does not expect to make advance payments under consulting contracts unless a significant amount of travel is required.

Payment Schedule	
<i>Deliverable</i>	%
5. <i>Upon reception and approval of Deliverable 1</i>	20%
6. <i>Upon reception and approval of Deliverable 2</i>	25%
7. <i>Upon reception and approval of Deliverable 3</i>	25%
8. <i>Upon reception and approval of Deliverable 4</i>	30%
TOTAL	100%