

## TC Document

### I. Basic Information for TC

▪ Country/Region:	REGIONAL
▪ TC Name:	Design and Implementation of a Regional Ag-Tech Pilot Project for the Caribbean
▪ TC Number:	RG-T3677
▪ Team Leader/Members:	Solis Ahumada, Galileo Humberto (IFD/CTI) Team Leader; Centeno Lappas, Monica Clara Angelica (LEG/SGO); Collins, Michael I. (CSD/RND); Franklyn, Russell Levon (IFD/CTI); Kelly Castillo, Emily Leticia (IFD/CTI); Pilgrim, Valarie (IFD/CTI); Swift, Kieron Kern Edward (IFD/CTI)
▪ Taxonomy:	Research and Dissemination
▪ Operation Supported by the TC:	.
▪ Date of TC Abstract authorization:	01 Apr 2020.
▪ Beneficiary:	The Bahamas, Barbados, Belize, Guyana, Jamaica, Suriname, Trinidad and Tobago, Antigua & Barbuda, Dominica, Grenada, St. Lucia, St. Kitts & Nevis and St. Vincent & Grenadines <sup>1</sup>
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	Compete Caribbean Partnership Facility(CCP)
▪ IDB Funding Requested:	US\$500,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	30 months (execution period of 24 months)
▪ Required start date:	September 2020
▪ Types of consultants:	Individuals; Firms
▪ Prepared by Unit:	IFD/CTI-Competitiveness, Technology and Innovation Division
▪ Unit of Disbursement Responsibility:	IFD-Institutions for Development Sector
▪ TC included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation; Economic integration; Gender equality

### II. Objectives and Justification of the TC

- II.1 The objective of this Technical Cooperation (TC) is to improve the capacity of public and private sector actors to collaborate in the design and implementation of commercial Ag-Tech solutions (viable technologies and the associated business models) for contributing to the improvement of agriculture sector productivity in the Caribbean. The adoption of new agriculture technologies is often challenged by poor national broadband networks, cultural barriers and knowledge asymmetries between farmers and technology developers, and a lack of supportive policy to encourage research and investment. Addressing these challenges require close collaboration between the public and private sector.
- II.2 The Caribbean region faces major challenges to improve the competitiveness and sustainability of the agriculture sector. Growth in agricultural productivity has been

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<sup>1</sup> In accordance with GN-2851, paragraph 2.9, OECS territories are eligible beneficiary countries under the Compete Caribbean Partnership Facility (CCPF).

slow (1.3% total factor productivity growth rate across Latin America and the Caribbean between 1991 and 2000, as compared with 2.1% TFP growth in Sub-Saharan Africa, 1.5% TFP growth in Asia and the Pacific, and 1.7% TFP growth in the Middle East and North Africa) and the sector suffers from low access to credit (particularly for smallholder farmers who make up the majority of farmers in the English-speaking Caribbean), high trade costs<sup>2</sup> and a low capacity to comply with modern food safety and quality standards. Therefore, the sector has been unable to adequately respond to rapidly growing demand for high-standard agri-food products from the tourism, processing, and retailing sectors – both within and outside the region. Instead, the growing demand by these sectors in the region is mainly fulfilled by imports. The region's agricultural sector is also constrained by large and increasing pressures on natural resources and a high vulnerability to climate change.

- II.3 Historically, agriculture has played a central role in the Caribbean economies, but that importance has declined over time<sup>3</sup>. Large plantations of especially sugar and bananas produced agricultural commodities for exports which represented an important economic contribution. Today Caribbean agriculture is more diversified. Reforms of the European Union (EU) agricultural policies had a dramatic effect on export demand for sugar and bananas and stimulated a restructuring of farming systems and a shift of exports from raw materials (agricultural products) to processed food products. However, at least in the case of Belize, preferential access to the EU market has expired. Considering the sharp drop in prices of Belizean export commodities over the past few years, not even the increase in production has been able to offset the reduction in revenue inflows received from these crops during this period. Agriculture now makes up a smaller share of the economy in most states.
- II.4 The increased design, development and deployment of technologies in the agricultural sector (otherwise known as Ag-Tech), to support advisory services, improved market linkages, supply chain management, financial access and overall macro-sector intelligence, has the potential to address some of the key competitiveness constraints and promote modernization of the sector. Further, the World Bank estimates that *“providing women equal access to services and assets and enhancing their agency and opportunities in the agricultural sector could increase agricultural production in developing countries by about 2.5-4%”*<sup>4</sup>. In turn, a more productive and competitive agricultural sector would contribute to increased production of fresh and processed products for local consumption, a decreased food import bill for many countries across the region, and increased food security. This objective is increasingly pertinent considering that the COVID-19 global pandemic has revealed the extent to which Caribbean countries rely on imports for food (where no shortages in the supermarkets of these food items, the prices would have increased).
- II.5 Given the small scale of Caribbean countries, economies of scale are harder to reach when it comes to research, extension, training, procurement and distribution of inputs, transportation, marketing, and trade. Product specialization and regional co-operation

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<sup>2</sup> According to FAO's (2019) *Study on the State of Agriculture in the Caribbean*, in the agricultural sector, trade costs in the Caribbean are between two and six times higher than in the United States and Canada, and are also higher than in manufacturing across all Caribbean countries, with some countries facing a 100% premium on trade costs in agriculture as compared to manufacturing.

<sup>3</sup> On average, the contribution of agriculture to the Gross Domestic Product (GDP) of Caribbean countries has declined by 2.8% over the past 20 years

<sup>4</sup> Patricia Van de Velde, gender focal point for the Food and Agriculture Global Practice at the World Bank, <https://news.sap.com/africa/2019/02/gender-equality-ag-techs-potential-to-boost-womens-empowerment/>

offer some scope for alleviating these problems. Foreign trade is also important for the development of agriculture whether within or beyond the regional boundaries.

- II.6 A holistic regional approach to Ag-Tech will help to improve the coordinated planning and funding of agricultural development, avoid duplication and the wastage of resources. Systematic effort in planning and setting up a regional Ag-Tech approach would result in the streamlining of public and private sector efforts, ensuring the judicious use of scarce resources and providing a clear direction to the private sector, development agencies, donors and other stakeholders.
- II.7 To this end, the Compete Caribbean Partnership Facility (CCP) is supporting the implementation of a project entitled ***Design and Implementation of a Regional Ag-Tech Pilot Project for the Caribbean***. This TC is a collaborative effort of the CCPF, the Food and Agriculture Organization of the United Nations (FAO), the International Telecommunication Union (ITU), governments of the region, and the agricultural research and development community. While governments of the region have national-level agricultural research programs, they also influence and are influenced by the ag-tech work programs of the regional (CARDI<sup>5</sup>), hemispheric (IICA<sup>6</sup>) and international (ITU and FAO) agencies.
- II.8 **Strategic Alignment.** This TC is aligned with the IDB Institutional Strategy 2010-2020 (AB-3190), in terms of addressing low Productivity and Innovation, by supporting an improved knowledge and innovation ecosystem in the agriculture sector; and facilitating regional Economic Integration, by building capacity within firms so that they can be inserted into value chains, and by facilitating regional cooperation in the adoption of appropriate digital agriculture solutions. It also addresses the cross-cutting theme of Gender Diversity by conducting gender sensitive research and targeting women-owned firms. The TC is also aligned to the CCP's Pillar I objective of supporting the Caribbean region in increasing productivity, and specifically, increasing the innovation and technology adoption of women-led and men-led firms.

### III. Description of activities/components and budget

- III.1 **Component 1: Regional Ag-Tech Maturity Assessment Study (US\$30,000).** This component will finance the conduct of gender-sensitive research on the state of Ag-Tech in the Caribbean. The expected output is a gender-sensitive ***ag-tech maturity assessment study*** of a selection of Caribbean countries, that will: (i) benchmark them against Ag-Tech use cases across the world, including those drawn from small-scale male and female farmers in rural and other underserved areas; (ii) include a review of the policy, legislative and institutional framework (including structures for Public-Private collaboration) of the countries studied; and (iii) assess potential demand among users all along the agricultural value chains<sup>7</sup> for ag-tech solutions. The findings of this study, along with the learnings from the pilots described below, will be disseminated to stakeholders in the region via publication of knowledge products on the Compete Caribbean website and the hosting of webinars in collaboration with institutional partners.

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<sup>5</sup> Caribbean Agricultural Research and Development Institute (CARDI)

<sup>6</sup> Inter-American Institute for Cooperation on Agriculture (IICA)

<sup>7</sup> Evidence from the FAO suggests that, since 1980, fruits, vegetables, legumes and oil crops have consistently provided the highest average production value per hectare, and have all experienced sizeable increases in the production value per hectare, across all CDB borrowing member countries. This insight gives some initial indication towards the value chains that may be considered for the study.

- III.2 **Component 2: Regional Ag-Tech Challenge (US\$100.000).** This component will finance the design and execution of a Regional Ag-Tech Challenge, including a communication strategy (including educational webinars), call for proposals (which will specifically target women-owned firms and provide additional points to proposals submitted by these firms), application guidelines and selection criteria (including measures to ensure that the selected pilots come from different countries), multiple design thinking workshops, and management of the proposal evaluation process. Through the design thinking workshops consortia of stakeholders in participating countries will be assisted to rapidly design and validate pilot project proposals that address specific gaps in agricultural value chains of interest in a human-centric, participatory, and iterative manner. The workshops will involve relevant stakeholders in each country such as farmers, agro-processors, extension officers, policymakers, technocrats, developers, agriculture development specialist from the various development agencies and private investors, with efforts made to transfer knowledge to regional stakeholders on how to replicate such workshops for Public-Private interaction in the future. The expected outputs would be: (i) **Regional Ag-tech Challenge Design**; (ii) multiple **Design Thinking workshops**; (iii) completed **Regional Ag-tech Challenge**; (iv) multiple **detailed pilot project proposals**<sup>8</sup> each of which would include a description of a problem to be solved and an Ag-Tech solution to be tested, specifications of technologies to be used, business and operating models, Public-Private partnership model (indicating whether the private sector will be represented by a lead anchor firm or a cluster of firms), an implementation roadmap and a monitoring and evaluation plan.
- III.3 **Component 3: Ag-Tech Pilot Project Implementation (US\$370.000).** This component will finance the implementation of three of the pilot projects designed in Component 2, at a maximum budget of US\$120,000 each. The projects will be selected through a competitive process or “challenge”<sup>9</sup>. Each pilot will examine the technical and business model feasibility, environmental sustainability, and the potential scalability of each proposal. Criteria for evaluating the success of the pilots will include: (i) alignment with national and regional priorities, including those related to improving the productivity of producers, such as small-scale male and female agri-entrepreneurs, of a primary commodity or value-added derivative that generates significant exports for the country, or which has the potential to make a significant impact on the balance of trade; and (ii) the accessibility, availability, affordability and adaptability of the related information and communication technology (ICT) and infrastructure. Even the countries that do not receive funding for the pilots will have access to the knowledge generated by their implementation. This information can assist public and private sector stakeholders in de-risking the necessary investments that they would need to make to replicate, scale up and/or extend the pilots after Compete's intervention is completed. The expected outputs include: **three (3) completed pilot projects** that provide preliminary evidence of Ag-Tech solutions that are sustainable and valued by farmers, and other stakeholders in the Caribbean,

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<sup>8</sup> The pilot proposals should detail specific and measurable objectives; identify main stakeholders; propose consortia/institutional arrangements and architecture that support the successful deployment of the solutions during and beyond the pilot; identify roles of each party comprising the consortia/institutional arrangement; and present a detailed implementation plan and budget.

<sup>9</sup> In accordance with the Operating Regulations of the CCPF ‘approved projects with private sector beneficiaries under Pillar 1 must: (i) meet the requirements set out in the Call for Proposals, including counterpart requirements’

including their underlying business and operational models; assessment of the scalability and repeatability of the solutions; an **ag-tech pilot evaluation report** that will document the participant experiences; assessment of results achieved; lessons learnt; project sustainability; value to stakeholders; recommendations for improving and/or scaling the pilots; **webinars** and **knowledge products** to disseminate project results to regional stakeholders, including specific information on the roles of the respective partners and the policy implications for scaling up the piloting and adoption of Ag-Tech solutions. At least one event should focus on the public sector and the policy implications of plans for scaling up and increasing rate of Ag-Tech adoption.

III.4 The development partners, FAO and ITU, are expected to collaborate with CCPF in identifying suitable local counterpart agencies, providing access to data and information to conduct Component 1, disseminating project information (e.g. the Challenge) to suitable participants during Component 2, and providing agricultural development specialists to support the implementation of pilots in Component 3. This project aligns with the joint work of the ITU and FAO on supporting the development of e-agriculture strategies for developing countries.<sup>10</sup>

III.5 **Monitoring and Evaluation.** M&E will occur at two levels – for each pilot and for the overall TC. Each recipient of challenge funds will submit quarterly monitoring reports with updated M&E Plans and a final Evaluation Report. Compete Caribbean will provide a template for quarterly project monitoring reports to each project team that will include pertinent information needed, including progress on components, risk assessment, sustainability and innovation, and stories from the field. Compete Caribbean will establish a monitoring committee comprising representatives from the country in which the pilot is being implemented and agriculture development specialist from the partnering development agencies. The Committee will review and provide feedback on the Quarterly Reports, host monthly monitoring meetings with each and quarterly meetings to allow knowledge sharing across pilots.

III.6 The total amount of IDB funding required is \$500,000. An indicative budget is presented below.

**Indicative Budget (US\$)**

Component	Description	IDB/CCPF Funding	Total Funding
<b>Component 1:</b> Regional Ag-Tech Maturity Assessment Study	To conduct of gender-sensitive research on the state of Ag-Tech in the Caribbean	<b>30,000</b>	<b>30,000</b>
<b>Component 2:</b> Regional Ag-Tech Challenge	To support the design and validation of pilot project proposals that address specific gaps in agricultural value chains of interest and invite regional participants to submit proposals for funding	<b>100,000</b>	<b>100,000</b>
<b>Component 3:</b>	To examine the technical and business model feasibility, environmental	<b>370,000</b>	<b>370,000</b>

<sup>10</sup> See <https://www.itu.int/en/ITU-D/ICT-Applications/Pages/e-agriculture-strategies.aspx>.

Ag-Tech Pilot Project Implementation	sustainability, and the potential scalability of each proposal		
<b>TOTAL</b>		<b>500,000</b>	<b>500,000</b>

#### **IV. Executing agency and execution structure**

- IV.1 The Compete Caribbean Partnership Facility (CCPF), approved under GN-2851, was jointly designed with donors to be a Bank Executed Program, through the CCPF's Facility Coordination Unit (FCU) established in COF Barbados. In accordance with Section 2.d., Annex 10 of GN-2629 it is appropriate for the Bank to execute TCs where a local entity with the legal and institutional capacity to execute cannot be readily identified. Therefore, the execution of this TC will be carried out by the Bank through the Competitiveness and Innovation Division (IFD/CTI) and the CCPF's FCU. Project output indicators will be monitored following the Monitoring and Evaluation (M&E) framework of the CCPF.
- IV.2 The execution period will be 24 months and the disbursement period will be 30 months. Non-objection letters would be required from counterpart agencies prior to execution. The activities to be executed are included in the Procurement Plan and will be contracted in accordance with Bank policies as follows: (a) AM-650 for Individual Consultants; (b) GN-2765-4 and Guidelines OP-1155-4 for Consulting Firms for services of an intellectual nature and; (c) GN-2303-28 for logistics and other related services.

#### **V. Major issues**

- V.1 The major risks to achieving the planned objectives are: (i) lack of buy-in from Caribbean governments and lack of access to secondary data to do the regional ag-tech maturity assessment in Component 1; (ii) technical complexity of creating robust pilot designs by stakeholders, without which they will not be successful in accessing funding in Component 3; and (iii) inability to commercialize the tested technologies after the conclusion of the pilot.
- V.2 The mitigating factors are: (i) engaging expert intermediaries such as Ministries of Agriculture, IICA, FAO and CARDI to provide data and referrals to relevant data sources; (ii) applying a participatory, inclusive approach such as a design thinking workshop through which a range of knowledgeable actors will be invited and enabled to participate actively in sharing tacit and codified information; (iii) involving private sector stakeholders with vested interests in the success of the pilots directly in their implementation so they can develop first-hand experience of the value of Ag-Tech interventions, and so that their experience can positively influence their decision to sustain the investment required to replicate and scale the outcomes of the pilots; and (iv) generating knowledge products and disseminating project results to regional stakeholders, including specific information on the roles of public – private partnerships, and the policy implications for scaling up the piloting and adoption of Ag-Tech solutions across the region.

#### **VI. Environmental and Social Strategy**

- VI.1 Given the nature of the program, there are no associated environmental or social risks. Based on the Environment and Safeguards Compliance Policy (OP-703) this operation is classified as "C". See [Safeguards Policy Filter Report](#) and [Safeguards Screening Form](#).

#### **Required Annexes:**

[Results Matrix - RG-T3677](#)

[Terms of Reference - RG-T3677](#)

[Procurement Plan - RG-T3677](#)