

TC Document

I. Basic Information for TC

▪ Country/Region:	REGIONAL
▪ TC Name:	Technology Extension Services (TES) in the Caribbean
▪ TC Number:	RG-T3322
▪ Team Leader/Members:	Dohnert De Lascurnain, Sylvia Eva (IFD/CTI) Team Leader; Bertrand, Annie (IFD/CTI); Deregibus, Bernardo (ORP/REM); Franklyn, Russell Levon (IFD/CTI); Gamarra Echenique, Victor Jesus (IFD/CTI); Gonzalez Alzualde, Yohana Beatriz (IFD/CTI); Grant, Kayla Sharee (IFD/CTI); Isabel Williamson, David Alejandro (ORP/GCM); Kanjee, Viraj (ITE/IPC); Kelly Castillo, Emily Leticia (IFD/CTI); Lindsay, Courtney Oliver (IFD/CTI); Pereira, Stefano (IFD/CTI); Verissimo Da Silva, Carolina (LEG/SGO)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	N/A
▪ Date of TC Abstract authorization:	June 11, 2019
▪ Beneficiary:	Barbados, Belize, Jamaica and other countries to be identified ¹
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	Canada Cooperation Framework(CCF)
▪ IDB Funding Requested:	US\$813,340.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	36 months
▪ Required start date:	August 2019
▪ Types of consultants:	Firms and Individual Consultants
▪ 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):	Yes
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation

II. Objectives and Justification of the TC

- 2.1 In recognition of the important role innovation plays in improving sluggish productivity and economic growth, Caribbean Governments have endorsed a number of interventions aimed at removing the innovation barriers firms face². Yet the acceleration of new technologies has created a highly competitive landscape. Firms

¹ Letters of request from Barbados, Belize, and Jamaica have been received. It is expected that other countries will submit letters of interest. Government non-objection has been received from Jamaica and Belize. The Government non-objection letter from Barbados is in process. Prior to the execution of any activities in any additional beneficiary countries, the non-objection letter from the official liaison entity of the Bank in the respective country will be obtained.

² For instance, see the small sample of Compete Caribbean Partnership Facility (CCPF) funded projects: ATN/CO-16157-RG, "Promoting Technological Extension Services in the Caribbean – Phase I"; ATN/OC-16995-RG, "Improving Productivity, Innovation and Inclusive Growth in the Caribbean"; ATN/CO-17021-JA, "Strengthening the Intellectual Property Ecosystem to Increase Innovation, Competitiveness and Growth in Jamaica"; RG-T3338, "Innovation and tourism expansion and diversification".

that delay or fail to transform their productive processes through the adoption of new technologies are at risk of falling behind, losing competitiveness in the marketplace, and missing growth opportunities. If private sector players in key economic sectors for the Caribbean (such as tourism and agro-processing) lose competitiveness in the global and local markets, it will have devastating effects on the national and regional economies. Technology Extension Services (TES) is a set of services to support firms in the acceleration of technological diffusion, adoption, and upgrading. In the countries where these services have been systematically deployed, they have greatly encouraged innovative activities that have contributed to increased competitiveness, productivity and growth³.

- 2.2 In general, firms face three major market failures with regard to the adoption of technologies and the incorporation of productivity know-how. First, technological absorption capacity (i.e. the level of skills, capabilities and technical resources) limit firms capacity to identify, understand, systematize, adapt and apply a set of available knowledge and know-how. Second, information asymmetries related to technological knowledge inhibits firms from having complete information to make strategic decisions that can support growth acceleration. Finally, firms, especially Micro, Small & Medium Enterprises (MSMEs), typically also face financial constraints to access available technologies. Small and medium enterprises (SMEs) in the Caribbean experience the three types of market failures. Women-owned firms (WOFs) in the Caribbean may face additional barriers to technology adoption. Among the documented main constraints faced by Caribbean WOFs related to technology adoption are gaps in information technology (IT) literacy, financial literacy, management skills, and the lower relative participation in formal education in the science, technology, engineering, and mathematics (STEM) fields. Limited access to credit is also considered one of the most important restrictions for the development of women's businesses in the Caribbean and will also have an impact on technology adoption. The prior constraints affect the possibility of adoption of technology and particularly cutting-edge technology among Caribbean SMEs.
- 2.3 TES is an innovation policy tool that Caribbean Governments can leverage to address these market failures and to positively impact productivity and innovation capabilities amongst SMEs (De Groote, 2017). TES consists of the business support services⁴ provided directly to SMEs to improve their adoption and modernization of technology. The benefit of TES with respect to other innovation policy tools is that it is cost efficient in terms of the size of the investment per firm, it offers quick wins in terms of implementing innovations already proven to be effective in other markets, and it is impactful in terms of improving productive efficiency and competitiveness of SMEs. Successful international programs which have implemented TES and which exhibit strong productivity increases include the Manufacturing Extension Partnership (MEP) in the United States, the Manufacturing Advisory Service in the United Kingdom, Instituto Nacional de Tecnología Industrial (INTI) in Argentina, Centro de Innovación

³ Studies conducted by the McKinsey Global Institute indicate that in the case of the G19 countries, this catching up with best practice can increase the productivity growth of SMEs by 75%. In emerging economies, the impact of catching up may even be higher, up to 82%.

⁴ Examples of technology advisory services from international models include technology advice for lean operations, quality improvement (certification standards such as ISO 9000), product development and marketing, technology supplier and vendor sourcing and matching, information technology (software packages for accounting, etc), or referral to qualified technology centers or consultants.

Productiva y Transferencia Tecnológica (CITE) in Peru, and the Industrial Extension Center (CEI) of Uruguay.

- 2.4 The difficulty of applying TES in the Caribbean is that it requires a certain degree of specialization of technology advisory service suppliers that the small size of Caribbean individual economies may not be able to sustain. However, the regional delivery mechanism for TES that will be tested with this initiative may offer small Caribbean countries an avenue to circumvent the challenge of economies of scale. Indeed, this TC proposes to pilot a TES delivery framework focused on providing highly specialized and customized technical assistance to firms through the network of Caribbean Small Business Development Centers (SBDCs) and regional Technology Service Providers (TSPs).
- 2.5 Many Caribbean countries are aware of the competitive enhancement potential of technology and have expressed interest in supporting the delivery of TES. This demand was evident at the presentation of findings from the research work “Technology Extension Programs in the Caribbean” (financed by ATN/CO-16157-RG) at a Regional Policy Dialogue (RPD) with Caribbean policymakers from 12 countries⁵. This RPD sought to increase the awareness of the importance of TES on improving productivity and innovation at the firm level, as well as to discuss some of the supply, demand, and economies of scale challenges in rolling out these types of services in the Caribbean. The RPD also led to further discussions with the Organization of American States (OAS) and the Caribbean Development Bank (CDB)⁶. Both organizations have programs that provide business development services and technical assistance to SMEs. It was agreed during the RPD that any TES initiative in the Caribbean should minimize diseconomies of scale by embracing network models and by building this service as an additional offering of pre-existing business support organizations. A natural candidate for TES is therefore the network of public Small Business Development Centers (SBDC)⁷ that the OAS has been strengthening in the Caribbean region since 2012, helping to standardize their technical assistance models as well as monitoring and evaluation mechanisms.
- 2.6 SBDCs are public business support organizations that provide business support services (such as assisting with financial, marketing, production, organization, and feasibility studies or with economic development activities such as international trade assistance) tailored to the needs of their individual business clients⁸. The current eight existing Caribbean SBDCs primarily service MSMEs, many of which operate in the services and commerce sectors. These SBDCs do not yet offer services related to the

⁵ Held on August 23rd and 24th, 2017, the Compete Caribbean Partnership Facility, in partnership with the Inter-American Development Bank, held a Regional Policy Dialogue entitled: “Technology Extension Programs in the Caribbean”. Twelve of the Compete Caribbean beneficiary countries were represented at the event, with a total of forty-seven participants.

⁶ The CDB promotes the Caribbean Technological Consultancy Services (CTCS) program.

⁷ The Small Business Development Center (SBDC) began its operations in the United States under a public-private partnership model for the provision of technical assistance to small-scale companies. It is one of the main support programs for micro, small and medium-sized companies in the region. This program started its operations in Latin America a few years ago and had been installed in several countries of Latin America and the Caribbean as part of the set of public programs to support micro and small businesses.

⁸ To get a measure of reach of the SBDCs, the Jamaica SBDC served about 4,600 clients in the 2015-2016 fiscal year, totaling 8,600 interventions, 80% of which corresponded to business advisory services. In 2017, the Belize SBDC delivered business services to 1400 entrepreneurs and small businesses.

use and adoption of technologies and thus this TES initiative would greatly complement their efforts for improving their business development services offering⁹. SBDCs are expected to deliver TES by brokering and monitoring contractual relationships with Technical Services Providers¹⁰ (TSPs) who will also be strengthened by this technical assistance program. In turn, TSPs are technical entities (either public or private in nature) responsible for transferring knowledge to firms. TSPs will be regional in scope and need to demonstrate in their service supply a combination of value-added activities and technological advisory expertise.

- 2.7 The objective of this technical cooperation (TC) is to support public business support organizations that are part of the Caribbean SBDC network to pilot a TES delivery system that will support increased productivity and innovation in the private sector. This TC intends to validate two hypotheses: 1) that TES can have a tangible impact on the growth, productivity and innovation capabilities of Caribbean firms, and 2) that a network delivery model can provide a cost-effective mechanism for delivering TES in the Caribbean. In this regard, the execution of this pilot project will provide a clear understanding of the costs and benefits generated on the treated firms such as revenues, exports, profit, employment and development of new products or services, as well as the Social Return on Investment (SROI) from the perspective of the SBDCs.
- 2.8 The TES delivery pilot deployed by this project will primarily focus on providing highly specialized and customized technological extension services in the agro-processing sector and on increasing adoption of digital technology in the tourism sector. Specifically, the TES delivery mechanism will aim to do the following: (i) encourage the demand for specialized technology assistance services from agro-processing and tourism SMEs; (ii) stimulate the acquisition and use of productive application knowledge and technologies, particularly of digital systems and devices to improve the efficiency of management and the firms' productive processes; (iii) promote the adoption of knowledge and technologies to improve environmental management and energy practices in firms; (iv) support women led firms in pursuing productive business modernization; (v) facilitate access to financing for technology adoption; and (vi) organize specialized technical skills in the region that can provide firms with permanent support on a sustainable basis. Target firms will be those SMEs in sectors with growth capacity but which face difficulties in the adoption and use of available knowledge and productive technologies, or which may not know about the return on investment that TES can provide.
- 2.9 **Complementarities.** The Organization of American States (OAS) has been financing a technical assistance program to strengthen Small Business Development Centers (SBDCs) in Caribbean countries. Since SBDCs are directly in contact with SMEs and with support from the OAS, have developed a network of centers with a unified management information system, they are well positioned to coordinate access to TES. Working through the network of SBDCs to develop a TES delivery system would leverage the regional coverage already established by the SBDCs at the grassroots

⁹ This TC has received letters of request from three SBDCs in Belize (SBDC Belize, executed through BELTRAIDE), Barbados (Barbados Investment and Development Corporation, BIDC), and Jamaica (the Jamaica Business Development Corporation).

¹⁰ Examples of TSPs in the Caribbean region include the Caribbean Industrial Research Institute (CARIRI), Lumin Consulting at UWI, Caribbean Export, and the Caribbean Hotel and Tourism Association.

level while strengthening the overall network and value of the common management information system already used. The SBDCs will create a demand for TES and help with the assessment of eligibility of potential beneficiaries.

- 2.10 **Synergies.** This TC is consistent with the Update to the Institutional Strategy (UIS) 2010-2020 (AB-3008) as it is strategically aligned with (i) the development challenge of productivity and innovation and specifically addresses the special needs of small and vulnerable countries in fostering development through the private sector and (ii) the cross-sectional area of "gender equality and diversity" (Section I and paragraph II.10) as the project requires that at least 25% of the TES pilot beneficiaries be women owned firms. The program is aligned with the priorities defined in the Innovation, Science and Technology Sector Framework Document (GN-2791-8). Specifically, it is aligned with (i) section 5.9's line of action for deepening STI on promoting and accelerating the productive uses of knowledge in firms. This section specifically cites technology extension programs as a key intervention for SMEs; (ii) 2.50 which seeks to "provide technology extension services that can help strengthen capacity in firms". The program is consistent with the following country strategies: (i) the Barbados Country Strategy's strategic area for promoting higher productivity and competitiveness to enhance the country's growth potential; (ii) the Jamaica Country Strategy's strategic area for increasing private sector productivity and growth. In terms of Belize, the TC supports the Country Office's efforts to promote private sector innovation in Belize.

III. Description of activities/components and budget

- 3.1 **Component 1. Institutional Development, Capacity Building, and Monitoring and Evaluation Activities (US\$200,000).** This component will finance a consulting firm to (i) develop a gender sensitized institutional design to support technical institutions/intermediaries (known as Technical Service Providers, TSPs)¹¹ in operationalizing processes to manage and provide client technology advisory services to targeted firms, such as procuring the relevant expertise, planning the missions, processing payments, addressing gender equality in procurement processes, etc. and (ii) to develop and implement highly specialized training activities to build local technical capacities amongst (a) technical advisors within the selected TSP, and (b) SBDC staff. The latter will be assisted in targeting potential beneficiaries (both men led and women led firms), identifying eligible firms, validating diagnostics, formulating projects, and conducting monitoring and evaluation (M&E).¹² TSPs are responsible for conducting the technical audit of the beneficiary firms as well as delivering TES to these firms. The identification of TSPs will occur through a call for expression of interests which will clarify requirements and expectations. Two to three TSPs will be

¹¹ Technical institutions are specialized regional public or private entities or technical experts whose role is to support the firms' process of adoption and use of knowledge and productive technologies. Examples of potential technical institutions in the region include the University of the West Indies, CARIRI, Scientific Research Council, CARDI, CARIRI, University of Technology (LUMIN Consulting), etc.

¹² With regard to M&E, the OAS will train SBDCs in utilizing the OAS funded Neoserra system to collect the data necessary for monitoring and evaluating the pilot TES program. The OAS will carry out this training activity through their already established partnerships with the local SBDCs. As such, the OAS will not directly contribute in-kind or cash resources directly to this TC. All SBDCs are currently utilizing this system for data collection and most SBDCs have already been trained in utilizing the Neoserra system. For more information on the Neoserra customer relationship management software system, see here <https://www.outreachsystems.com/index.php/products-en/neoserra-en>.

selected based on eligibility criteria.¹³ The expected outputs of this component include: (i) gender sensitized institutional design for administrative and operational processes for the selected TSPs; (ii) M&E system designed (iii) Memorandums of Understanding (MOUs) between the TSPs and SBDCs for partnerships to support eligible firms with TES; (iv) training workshops delivered to technical advisors within the selected TSPs, and (v) training workshops delivered to SBDC staff in identifying eligible firms, better understanding and developing strategies for meeting the different needs of women led and men led firms, validating diagnostics, formulating projects, and monitoring and evaluation (vi) evaluation report evaluating the TES mechanism.

- 3.2 **Component 2. Pilot Implementation of TES Delivery (US\$532,000).** At least three SBDCs¹⁴ will be selected through a call for expressions of interest and will be responsible for coordinating the pilot project in their respective countries. Their role includes identification of eligible firms, assessment of business potentials, coordination of program activities, management of TSPs, connecting eligible MSMEs to qualified TSPs, ongoing monitoring to ensure effective delivery of technical assistance provided by TSP, support for proposal development when access to finance is necessary (e.g. in case of capital cost acquisition), as well as general outreach and dissemination to clientele in order to stimulate demand for the services. The following main activities will occur under this component:
- 3.3 **Eligibility Diagnostic.** The SBDC will apply an eligibility diagnostic to conduct an economic assessment of the business and its growth potential (called the Business Potential Assessments, BPA) which will determine the eligibility of the firm to partake in the TES project. The BPA will be undertaken by the SBDCs utilizing Caribbean Export's¹⁵ freely available SME self-diagnostic tool which captures data to determine the firm's potential for growth and export capabilities along with other variables such as gender. This tool will allow an adequate identification and selection of firms that will participate in the program. It is expected that 200 firms will undertake BPAs. This activity will be performed for the firms at no cost to the SBDCs or the Bank. The SBDCs will aim to design and implement targeted communication strategies for eliciting participation from women owned firms.
- 3.4 **Technical Audit.** SBDCs will then match eligible firms with a TSP. The Bank will finance the competitive procurement of consulting firms (i.e. the selected TSPs) to develop technical audits to guide the type of technical intervention required from the technical institutions of the program. One consulting firm will be single sourced to develop technical audits that use proprietary and internationally recognized manufacturing extension services framework assessment tool to develop strategies for five to eight high growth manufacturing firms to improve their competitiveness in the global market through adoption of operational excellence practices and integration of leading technological solutions and processes. Selection criteria of firms that will

¹³ See internal report "Consultancy on Technology Extension Services (TES) - Design of a delivery system in the Caribbean". Confidential. (See [EZSHARE-423488762-8](#))

¹⁴ SBDCs have been interviewed and have indicated their initial interest in the project. Given limited resources, a competitive process will select four SBDCs located in the beneficiary countries of this TC.

¹⁵ Caribbean Export is a regional trade and investment promotion agency benefitting 15 CARIFORUM countries. On February 6, 2018, Caribbean Export launched its SME Diagnostic Assessment Tool provides a standardized, expert-based methodology for accurately assessing SMEs and identifies the areas where development is required across four core areas: (i) Management; (ii) Production; (iii) Access to Finance; and (iv) Marketing.

participate in the program will be designed with consideration towards the specific needs of women owned firms. It is expected that 75 firms (of which a target of 25% will be women-owned firms) will undergo technical audits and receive an audit report (known as the Technical Assistance Plan, TAP). This activity will be fully funded through this TC in order to create a demand for TES.

- 3.5 **Specialized Technical Assistance.** The Bank will finance consulting firms to provide technical interventions as outlined in the TAPs. The cost of the intervention will be financed by this TC. It is expected that 50 firms will benefit from the technical intervention resulting in the development of Technical Assistance Reports (TAR) that provide recommendations for priority actions and corresponding costs.
- 3.6 The total cost of this TC will be USD\$813,340.00. This operation is funded by the unspent resources of the Canadian-financed portion of ATN/CJ-12159-RG "Compete Caribbean: Private Sector Development and Competitiveness", and in particular from the cancellations on the following sub-operations: ATN/CJ-12159-RG-1 (CAD\$1,055,498.00) , RG-W1104 (CAD \$29,149.00) ,GRT/CJ-14672-RG CAD 4,796) , for a total of CAD\$1,089,443.00¹⁶ , which was converted into USD \$813,340.00 and which corresponds to the amount budgeted in the below table. This amount was converted and transferred from the CIF to the CCF account (\$USD).

Indicative Budget (US\$)		
Activity/Component	IDB/Fund Funding	Total Funding
Component 1. Institutional Development, Capacity Building, and Monitoring and Evaluation Activities	200,000.00	200,000.00
Component 2. Pilot Implementation of TES Delivery	532,000.00	532,000.00
Contingencies	81,340.00	81,340.00
Total	813,340.00	813,340.00

- 3.7 These resources will be administered by the Bank as a Project Specific Grant (PSG), according to the "Report on COFABS, Ad-Hocs and CLFGS and a Proposal to Unify Them as Project Specific Grants (PSGs)" (Document SC-114). The commitment by the Government of Canada to use the unspent resources from their contribution to ATN/CJ-12159-RG will be established through a separate Administration Agreement¹⁷.

¹⁶ Resources have been transferred to the "old" CJF account for contributions from the Government of Canada, which is denominated in CAD and is in the process of being closed, to the newer CCF account for contributions from the Government of Canada, which is denominated in USD.

¹⁷ The Bank will not charge the PSG administration fee for this PSG, since this fee was already charged at the time of the contribution by Canada to ATN/CF-12160-RG.

IV. Executing agency and execution structure

- 4.1 The execution of this TC will be carried out by the Bank through the Competitiveness and Innovation Division (IFD/CTI) in coordination with the Compete Caribbean Partnership Facility (CCPF), approved under GN-2851. As per Annex 10 of document GN-2629-1, the Bank is the proposed executing agency given the following: (i) The regional nature of the TC requires a strong executing agency. In this case, the Bank has demonstrated its ability to coordinate and motivate action amongst diverse stakeholders across the region; and (ii) TES is a highly specialized subject matter that requires technical expertise to ensure the selection and hiring of quality consulting services. In this case, the Bank has demonstrated its expertise on the subject matter¹⁸.
- 4.2 The execution and disbursement period will be 36 months and the unit of disbursement responsibility will be Institutions for Development (IFD). The activities to be executed are included in the Procurement Plan (Annex III) and will be contracted in accordance with Bank policies as follows: (a) AM-650 for Individual consultants; (b) GN-2765-1 and Guidelines OP-1155-4 for Consulting Firms for services of an intellectual nature and; (c) GN-2303-20 for logistics and other related services.
- 4.3 It is noted that (i) reporting requirements to the Donor should be consistent with those established in the PSG Administration Agreement, and (ii) if at the end of project execution the project was closed with a positive uncommitted and unspent balance, the project team will be responsible for informing ORP/GCM to transfer the unspent balance as agreed to by the donor and the Bank pursuant to the terms of the Administration Agreement.

V. Major issues

- 5.1 TES are usually executed as a partially public-funded program and thus a key concern for sustainability is public funding towards the provision of TES services after project funding ends. To mitigate against this risk, the TES mechanism will be implemented through already existing and funded SBDC institutions. Furthermore, key SBDC staff will be trained in the analysis and presentation of data in order to support justification of public expenditures towards the program. The SBDC advisors and/or their consultants will remain involved throughout the process to foster knowledge sharing and capacity building. As a result of this TC, the SBDCs will have the internal capacity to continue to provide referral services using a database of service providers¹⁹ and support firms in the formulation of investment proposals that can be presented to financial entities with the possibility of securing adequate financing for implementing productivity enhancing recommendations provided in the TAR.
- 4.4 Another key risk which may impact the monitoring and evaluation of results, is the varying speed at which firms incorporate technologies. As such, results may occur well beyond the timeline of this TC. This risk will be mitigated through complementary efforts of on-going activities geared at supporting the development of an adequate regulatory framework and financial support to aid firms in the technology adoption process.

VI. Exceptions to Bank policy

¹⁸ See RG-T2992, "Promoting Technological Extension Services in the Caribbean – Phase I".

¹⁹ This database had been developed under a separate consultancy funded by RG-T3126.

- 6.1 There are no exceptions to Bank policy.

VII. Environmental and Social Strategy

- 7.1 Given the nature of the project, there are no associated environmental or social risks. Based on the Environment and Safeguards Compliance Policy (OP-703) this operation is classified as “C”, meaning that no environmental assessment studies or consultations are required for this category (see [Safeguard Policy Filter](#) and [Safeguard Screening Form](#)).

Required Annexes:

[Request from the Client_54049.pdf](#)

[Results Matrix_90736.pdf](#)

[Terms of Reference_65382.pdf](#)

[Procurement Plan_71963.pdf](#)