TC Document

I. Basic Information for TC

▪ Country/Region:	BELICE
▪ TC Name:	Support for the Implementation of Education Quality Improvement Program II (EQIP II)
▪ TC Number:	BL-T1116
▪ Team Leader/Members:	Naslund-Hadley, Emma Ingrid (SCL/EDU) Team Leader; Prada Patino, Maria Fernanda (SCL/EDU) Alternate Team Leader; Blasco, Ivana (SCL/EDU); Minoja, Livia (INE/INE); Payen, Patricia Yamilee (VPC/FMP); Salazar, Astrid Danielle (CID/CBL); Sanmartin Baez, Alvaro Luis (LEG/SGO); Scannone Chavez, Rodolfo Andres (SCL/EDU); Watson, Brodrick Raylando (VPC/FMP)
▪ Taxonomy:	Operational Support
▪ Operation Supported by the TC:	BL-L1030.
▪ Date of TC Abstract authorization:	05 Mar 2019.
▪ Beneficiary:	Belize
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	OC Strategic Development Program for Social Development(SOC)
▪ IDB Funding Requested:	US$150,000.00
▪ Local counterpart funding, if any:	US$0
▪ Disbursement and execution period:	30 months
▪ Required start date:	31 August 2019
▪ Types of consultants:	Firms and individual consultants
▪ Prepared by Unit:	SCL/EDU-Education
▪ Unit of Disbursement Responsibility:	SCL-Social Sector
▪ TC included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	Yes
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Social inclusion and equality; Gender equality

II. Description of the Associated Loan/Guarantee.

2.1 Between 2014 and 2018, the Ministry of Education Youth Sports and Culture (MoEYSC) and the Inter-American Development Bank (IDB) tested an Inquiry- and Problem-based Pedagogical (IPP) approach focusing on in-service training and technical assistance to 50 percent of Belize's primary school teachers. The IPP approach was implemented within the framework of the Education Quality Improvement Program (EQIP, BL-L1018). An experimental evaluation of EQIP found that IPP improved students test scores by 0.18 and 0.25 standard deviations in mathematics and science respectively compared with the control group that did not benefit from teachers trained in IPP (Bando, Naslund-Hadley & Gertler, 2018).

2.2 Based on the positive results of EQIP, the Government of Belize (GoB) and the IDB developed an investment operation, the "Education Quality Improvement Program (EQIP) II" (EQIP II, BL-L1030) that seeks to improve the quality of education at the

primary and secondary levels, with a special focus on innovation in Science Technology Engineering Arts and Mathematics (STEAM) education. EQIP II was approved by the IDB Board of Directors in June 2019 and is awaiting signature. The general objective of EQIP II will be pursued by training primary and secondary school teachers in IPP and gender-sensitive STEAM teaching. At the secondary level, the operation will finance the creation of a Belize STEAM Laboratory School as a training ground for teachers. A laboratory school is an elementary or secondary school operated in association with a university or educational institution, which is established with the goal to study pedagogical practices to inform teacher training to improve student learning. In Belize, there is currently no infrastructure to host pedagogical innovations. Teachers make independent adjustments to their practices, but not in a system wide structured or systematic manner. EQIP II will target the 50% of primary teachers that did not benefit from EQIP I; and 50% of the country's secondary level STEAM teachers.

2.3 Belizean girls lag boys in Mathematics and Science learning.[1] Learning gaps between males and females appear to develop over time, as the differences on the PSE are small and significant only in some academic years. By the time students reach the secondary level of education, the gap is pronounced with boys outscoring girls on the CSEC by 14.2 and 12.5 percent in mathematics and science, respectively.[2]

2.4 The proposed TC will support the evaluation of the effectiveness of the master teacher team at the STEAM Laboratory School. In terms of anticipated effects, the main evaluation assumption associated with the STEAM laboratory is that teacher training will lead to improvements in teaching practices. A second assumption is that improving teaching practices will lead to gains in student learning.

III. Objectives and Justification of the TC

3.1 The general objective of the proposed TC is to provide technical assistance to the MoEYSC in the evaluation of the Education Quality Improvement Program (EQIP II, BL-L1030), including technical support in the design of sampling, evaluation instruments, baseline data collection, and data cleaning and analysis. The resources from the TC will not finance the entire EQIP II evaluation, but complement resources from the lending operation (see BL-L1030 Monitoring and Evaluation Plan).

3.2 **Specific objectives**. The specific objectives are two-fold. First, the TC sets out to help answer the main evaluation questions of EQIP II at the level of outcomes, including: (i) Will the creation of a Belize STEAM laboratory school, and teacher training at the secondary level, lead to better pedagogical practices by teachers?; and (ii) Will the

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1 This finding is in line with many other countries in Latin American and Caribbean (LAC). Learning gaps between males and females in mathematics and science are more pronounced in LAC than in other regions of the world (Bos, Elías, Vegas & Zoido, 2016).

2 The learning gap between males and females is even more striking considering that dropout rates are 10 percentage point higher for boys, which means that low achieving males abandon school at higher av rate than females. In English language the difference between males and females is not significant.

creation of a STEAM laboratory school and teacher training at the secondary level lead to more gender sensitive pedagogical practices by teachers? Second, at the impact level, the TC sets out to help answer the following questions: (i) Will improved pedagogical practices at the secondary level lead to student learning in STEAM?; and (ii) Will improved pedagogical practices to promote gender inclusion lead to changes in students' attitudes on STEAM subjects? To answer these questions, TC funds will be complemented with funds from EQIP II.

3.3 **Strategic Alignment**. The TC is consistent with the Update to the Institutional Strategy (UIS) 2010-2020 (AB-3008) and is strategically aligned with the development challenge of social inclusion and equality by studying STEAM learning of students from low-income families and students with special education needs. The TC is also aligned with the cross-cutting theme of gender equality and diversity and the Bank's Gender and Diversity Sector Framework Document (GN-2800-8) by financing the evaluation of girls' STEAM education, and the training of teachers in gender sensitive pedagogical practices. In addition, the operation is aligned with the Bank's Sector Framework Document for Education and Early Childhood Development (GN-2708-5) by evaluating the quality of mathematics, science and technical education to help ensure that all students develop the necessary skills to continue their lifelong learning process. The TC is also aligned with the Strategy on Social Policy for Equity and Productivity (GN2588-4) by investing in the evaluation of human capital development as a key factor for economic growth and development. The proposed TC is aligned the Country Strategy with Belize 2013-2017 (GN- 2746) in its priority sector of Education, with the strategic objective of improved governance and quality of education relative to investment in the sector, and with the expected results of improved monitoring of education quality and improved teaching quality.[3] At the national level, investment in technical education and STEAM are prioritized by the GOB as laid out in the National Development Framework for Belize: Horizon 2030, and the Growth and Sustainable Development Strategy: 2016-2019 (GSDS). STEAM education will also be a cornerstone of the new National Education Strategy for 2019-2025, which the MoEYSC in preparing with IDB support. The operation is aligned and consistent with the objectives set in the Ordinary Capital Strategic Development Program for Social Development (GN-2819-1) particularly the priority area number 3 to expand capacities within borrowing member countries to facilitate successful project implementation and effective undertaking of reforms aimed at enhancing the quality and quantity of social services.

IV. Description of activities/components and budget

4.1 To achieve its objectives, the TC is structured around three components: (i) Quantitative Evaluation of STEAM Laboratory School; (ii) Qualitative Evaluation of the STAM Laboratory School; and (iii) Dissemination of EQIP II.

[3] The Country Strategy is in its first extension year after the transition period and this TC will be aligned to the education priority area established in the country Strategy.

4.2 **Component I – Quantitative Evaluation of STEAM Teachers (US$70,000)**. Funds from the TC will help finance the baseline for a Randomized Control Trial (RCT) of student benefitting from teachers trained by the Belize STEAM Laboratory School master instructors to assess its effect on STEAM learning, including: (i) baseline data collection; and (ii) baseline data cleaning and analysis. The treatment and control groups will be created by random allocation of STEAM teachers from Belize's high schools to be taught by master instructors (tentatively some 290 teachers). The analysis will be carried out at the teacher level. In the treatment group, funds from EQIP II will be used to provide instruction based on the IPP learning approach for STEAM subjects, including individualized instruction to ensure that all students, independent of their initial skill level, will develop the skills necessary to be employable in digital transformation and innovation. The control group will receive the status-quo access to STEAM education. The aspects that will be assessed include students' sense of belonging in STEAM, expectations, problem-solving and critical thinking skills.

4.3 **Component II – Qualitative Evaluation of STEAM Teachers (US$70,000)**. The aim of the qualitative evaluation is to help interpret the quantitative data. Funds from the TC will help finance a video study of classroom practices to measure four dimensions –emotional support, classroom organization, instructional support and student engagement – including indicators from the Classroom Assessment Scoring System (CLASS) and the Trends in International Mathematics and Science (TIMSS) Video Study Instrument. As a comparison group, the video study will also include control group classrooms. Funds from the TC will finance one round of qualitative data collection.

4.4 **Component III – Dissemination of EQIP II (US$10,000).** Resources from the operation will be used to finance the dissemination of EQIP II, including a national workshop and a video. As a dissemination strategy, two briefs will be produced: (i) a small publication on women in STEAM which aims to highlight EQIP activities that promote gender and STEAM, as well as contributions of notable women in the Caribbean to the fields of STEAM; and (ii) a toolkit to present the STEAM Laboratory School to other school systems.

4.5 The amount of funding needed to achieve the expected outputs is US$150,000, which will be financed through Strategic Development Program for Social Development (SOC).

Indicative Budget (US$)

Activity/Component	Description	IDB/Fund Funding	Total Funding
Component 1. Quantitative Evaluation of STEAM Teachers		***70,000***	***70,000***
Baseline data collection (enumerators, data cleaning)	Firm	60,000	60,000
Data Analysis	Consultant	10,000	10,000
Component 2. Qualitative Evaluation of STEAM Teachers		***70,000***	***70,000***

One round of video recording and coding	Firm	60,000	60,000
Data Analysis	Firm	10,000	10,000
Component 3. Dissemination of EQIP II		**10,000**	**10,000**
Editing	Consultant	2,000	2,000
Workshop logistics	Firm	1,000	1,000
Graphic design + video	Firm	7,000	7,000
Total		**150,000**	**150,000**

4.6 The TC will be supervised by the Team Leader, Emma Näslund-Hadley, Education Lead Specialist (SCL/EDU) as well as team members, Rosangela Bando, Lead Economist (SPD/SPD), and María Fernanda Prada, Senior Education Associate (SCL/EDU).

V. Executing agency and execution structure

5.1 The IDB led the evaluation of the impact evaluation of EQIP I (Bando, Näslund-Hadley & Gertler, 2018). To ensure linkages with the EQIP I impact evaluation, and in accordance with a request from the Ministry of Finance, the TC will be executed by the IDB. In line with Appendix 10 of the Operational Guidelines for Technical Cooperation Products (GN-2629-1), Bank execution of the TC is justified as contracting by the IDB enhances the independence of an experimental evaluation. All disbursements will be executed through the Bank's systems and will require approval from SCL/EDU.

5.2 The activities to be executed are included in the Procurement Plan (Annex) and the Bank will contract individual consultants, consulting firms and other services in accordance with current Bank procurement policies and procedures. The Bank will contract the services of individual consultants and consulting firms in accordance with the Policy for the Selection and Contracting of Consulting Firms for Bank-Executed Operational Work (GN-2765-1) and the Operational Guidelines (OP-1155-4). The TC will be executed over a period of 30 months and disbursed over a period of 30 months as of the date of approval.

VI. Major issues

6.1 Both teachers, students and school administrators may be apprehensive about surveys, learning tests and video recordings. Teachers and school administrators may feel that they are being scrutinized and therefore be uncomfortable with enumerators in the school and in the classroom. However, experiences from similar evaluation designs across Latin America and the Caribbean (LAC), including the EQIP I evaluation at the elementary education level in Belize, show that this apprehension can be overcome through clear communication. Moreover, the execution of a pilot based on an experimental design in developing countries presents logistical challenges, particularly in rural. However, the SCL/EDU has many years of experience from successfully overcoming logistical challenges in the execution of evaluation designs in schools throughout LAC, including remote areas of Belize.

6.2 **Sustainability**. If the IPP learning approach is found to be effective in increasing student learning, MoEYSC will scale it to remaining secondary school classrooms.

VII. Exceptions to Bank policy

7.1 There are no exceptions to any Bank policy.

VIII. Environmental and Social Strategy

8.1 The TC is not anticipated to have direct environmental or social impacts and has been classified as “C” according to the Safeguard Classification tool (see Safeguard Policy Filter Report and Safeguard Screening Form).

Required Annexes:

Request from the Client - BL-T1116
Results Matrix - BL-T1116
Terms of Reference - BL-T1116
Procurement Plan - BL-T1116