

TC ABSTRACT

I. Basic Project Data

▪ Country/Region:	BELIZE/CID - Isthmus & DR
▪ TC Name:	Sustainability of the Education Quality Improvement Program: Development of a STEAM Laboratory School
▪ TC Number:	BL-T1100
▪ Team Leader/Members:	NASLUND-HADLEY, EMMA INGRID (SCL/EDU) Team Leader; SALAZAR, ASTRID DANIELLE (CID/CBL); WATSON, BRODRICK RAYLANDO (VPC/FMP); SANMARTIN BAEZ, ALVARO LUIS (LEG/SGO); PAYEN, PATRICIA YAMILEE (VPC/FMP); MINOJA, LIVIA (INE/INE); CONTRERAS GOMEZ, RAFAEL EDUARDO (SCL/EDU); SCANNONE CHAVEZ, RODOLFO ANDRES (SCL/EDU); BRYANT, ALEXIS (CID/CBL); KNIGHT, PAUL (INE/TSP); BLASCO, IVANA (SCL/EDU)
▪ Taxonomy:	Client Support
▪ Number and name of operation supported by the TC:	N/A
▪ Date of TC Abstract:	02 May 2018
▪ Beneficiary:	Ministry of Education Youth Sports and Culture (MOEYSC)
▪ Executing Agency:	Ministry of Education, Youth, and Sports
▪ IDB funding requested:	\$ 100,000.00
▪ Local counterpart funding:	\$ 0.00
▪ Disbursement period:	15 months
▪ Types of consultants:	Firms
▪ Prepared by Unit:	Education
▪ Unit of Disbursement Responsibility:	Country Office Belize
▪ 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:	Social inclusion and equality ; Gender equality and diversity

II. Objective and Justification

- 2.1 The overall aim of the proposed technical cooperation (TC) will be to design a Belize STEAM Laboratory School to foster innovation in vocational and technical Science Technology Engineering Art and Mathematics (STEAM), including a heavy focus on innovative IT strategies across subject areas. The specific objective is two-fold. First, the TC will to develop the conceptual design of the STEAM laboratory school. Second, to develop the architectural design of the STEAM laboratory school. The site of the school will be the Belize City campus of the Belize University, which has relocated to Belmopan. An Institute of Technical and Vocational Education and Training (ITVET) is operating on the university campus and will be incorporated into the STEAM Laboratory school.
- 2.2 Since its independence, Belize has invested heavily in education and made access at the primary level almost universal. However, student learning has continued to be limited. In response to this situation, in 2014 the Government of Belize and the IDB designed the Education Quality Improvement Program (EQIP), which set out to change what happens in Belize's primary education science, mathematics and language arts classrooms (BL-L1018). Four years later, 60% of primary school teachers have been trained and 37% of primary students have benefitted from a problem- and inquiry-based learning approach. The classroom practices have

changed, with significant differences compared to non-EQIP schools in the proportion of lesson time with group work, use of manipulative materials, feedback to students, and active learning engagement of students. EQIP students' learning has also improved compared to their peers in non-EQIP schools. By simply changing the pedagogy and without adding instruction time, the learning gain in mathematics is the equivalent of approximately nine additional weeks of instruction in Standard 2 (3rd grade). In Science, the gain is the equivalent of about 16 additional weeks of instruction. These learning gains are relatively high in a comparison of mathematics and science programs in other countries. Although teacher training has focused on teaching methods, as opposed to subject content knowledge, teachers who have benefitted from the EQIP have improved their knowledge of mathematics, science and language. The proportion of EQIP teachers who manage to score an overall grade of B or higher on the Primary School Examination, is 7 percent higher than among teachers who have not been trained.

- 2.3 The government of Belize now wishes to ensure that the focus on hands-on, student-centered mathematics and science learning continue beyond primary school. As a first step, the Government plans to create a Science Technology, Engineering, Arts and Mathematics (STEAM) laboratory school. A laboratory school is a school that is operated in association with a learning institution – such as a university or teacher training institute – with the purpose of training teachers or experimenting in educational practices that promote innovation. The Belize STEAM Laboratory school will be founded to train teachers, model individualized instruction that centers around the student, and foster innovation in STEAM.

III. Description of Activities and Outputs

- 3.1 In line with its objectives, this operation consists of two components: (i) Conceptual design; and (ii) architectural design. the conceptual design of a Belize STEAM laboratory school.
- 3.2 Component I will include the identification and overall design features and requirements of the degree and course offerings of the STEAM Laboratory School, including vocational degrees, certificates and separate learning courses in STEAM subjects. The course offerings will be designed for a mixed-age population (adolescents above the age of 14 years old and adults), including extended-day programs. All programs will be conceptualized to offer a project-based learning approach, based on an enriched and combined version of the national secondary and vocational curricula for STEAM subjects. A key element of the design will be that students work in collaborative learning groups based on their executive function skills rather than traditional age restrictions. The design will include course elements and activities to promote girls' interest in STEAM, e.g. through exposure to role models and messages to girls and their parents that aim to give them the confidence that women and girls belong in STEAM. The conceptual design will also encompass a professional development program for new STEAM Laboratory school teachers, including current teachers at the ITVET and secondary schools. The professional development will consist of two parts. First, the teachers will receive continuous training by an international learning institution, including an initial training as well as training events in relation to the introduction of new teaching strategies or competencies. Second, the international learning institution will train local master teachers at the school who can provide continuous in-class professional development, including modeling of pedagogical practices, observation and feedback. The TC will also finance the development of a process for acceptance to the school. To select among applicants to the school, a battery of evaluation tests will be used, including the measurement of executive function, gross and fine motor skills, creative skills, music skills and general attitudes. To ensure gender parity with approximately 50 percent of students from each sex, the STEAM Laboratory School will use a quota system. The TC will finance

the conceptualization of the management structure of the STEAM Laboratory School. The structure will include training for school administrators and principals in management, administration, and workshops for each subject area to ensure that they can act as school leaders. The management will benefit from guidance from an advisory council, consisting of prominent Belizean science and mathematics advocates from the private and public spheres. To foster parental engagement and ensure that they are committed to pioneering this new model of education, the conceptual design will include a plan for parental outreach about STEAM learning.

- 3.3 Component II will encompass background studies for the architectural design, including the required infrastructure rehabilitation and construction and laboratories. The TC will also finance the specification for laboratory equipment that are required to implement the course offerings designed under Component I.
- 3.4 **Component I: Conceptual Design** . The TC will finance the development of a short vision paper for STEAM education in Belize, from preschool through higher education. Within the overall framework of the vision document, the TC will finance the conceptual design of a Belize STEAM laboratory school.
- 3.5 **Component II: Architectural Design** . The STEAM Laboratory School will be created by reforming an existing ITVET in Belize City. To ensure that the STEAM Laboratory School has the infrastructure needed to implement the new education model, the TC will finance background studies for the architectural design, including the required infrastructure rehabilitation and construction and laboratories.

IV. Budget

Indicative Budget

Activity/Component	IDB/Fund Funding	Counterpart Funding	Total Funding
Conceptual Design	\$ 50,000.00	\$ 0.00	\$ 50,000.00
Architectural Design	\$ 50,000.00	\$ 0.00	\$ 50,000.00

V. Executing Agency and Execution Structure

- 5.1 The project will be executed by the Ministry of Education, Youth, Sports and Culture (MOEYSC), which has successfully executed the EQIP. A letter of non-objection has been attained by the Ministry of Economic Development. Standard Bank procurement procedures will be followed. The Bank will undertake ex-ante revisions.
- 5.2 A competitive process will be undertaken to identify the international learning institution that will support the STEAM Laboratory school. The selection criteria will be two-fold: (i) experience in the training of teachers in STEAM or STEM subjects; and (ii) a track record in education innovation.
- 5.3 The MOEYSC has successfully executed the EQIP project through its Project Execution Unit (PEU). Since the unit is still staffed, it's the most appropriate execution agency for the proposed TC.

VI. Project Risks and Issues

- 6.1 The TC consists of preparatory consultancy studies, which limits the risk of serious implementation challenges. The strong commitment of the Government of Belize with the education sector, makes the project team confident that the proposed TC design is feasible.

VII. Environmental and Social Classification

- 7.1 The ESG classification for this operation is "undefined".