# Board of Executive Directors
## No-Objection Procedure
Expires on 7 June 2019

PR-4688
24 May 2019
Original: English
**Public**
**Simultaneous Disclosure**

**To:** The Executive Directors

**From:** The Secretary

**Subject:** Belize. Loan proposal for the "Education Quality Improvement Program (EQIP) II"

**Basic Information:**

Loan type ..... Specific Investment Loan (ESP)

Borrower ..... Belize

Amount ..... up to US$10,000,000

Source .....Ordinary Capital

**Inquiries to:** Emma Näslund-Hadley (extension 1071) or María Fernanda Prada (extension 4976)

**Remarks:** Management has determined that this loan proposal meets the requirements for presentation by No-Objection Procedure, in accordance with Part III, Section 2 (paragraph 3.29 (b)) of the Regulations of the Board of Executive Directors and Part III, paragraph 3.5 of document GN-1838-3.

The Executive Directors are requested to inform the Secretary, in writing, no later than **7 June 2019**, if they wish to interrupt this procedure. If no such communication is received by that date, the attached resolution will be considered adopted by the Board of Executive Directors, and a record to that effect will be made in the minutes of a forthcoming meeting.

**Reference:** GN-1838-3(6/18), DR-398-18(8/18), GN-2948(2/19)

PUBLIC
SIMULTANEOUS DISCLOSURE

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

# BELIZE

# EDUCATION QUALITY IMPROVEMENT PROGRAM (EQIP) II

**(BL-L1030)**

**LOAN PROPOSAL**

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| ABBREVIATIONS | |
|---|---|
| IDB | Inter-American Development Bank |
| AOP | Annual Operational Plan |
| CC | Climate Change |
| CEO | MoEYSC Chief Executive Officer |
| CLASS | Classroom Assessment Scoring System |
| CSEC | Caribbean Secondary Education Certificate |
| CXC | Caribbean Examination Council |
| EA | Executing Agency |
| EMIS | Education Management Information System |
| EQIP | Education Quality Improvement Program |
| GOB | Government of Belize |
| ICT | Information & Communication Technology |
| ILO | International Labor Organization |
| IPP | Inquiry- and Problem-based Pedagogy |
| MoEYSC | Ministry of Education Youth Science and Culture |
| MoF | Ministry of Finance |
| NPV | Net Present Value |
| OC | Ordinary Capital |
| PACI | Platform for Analysis of Institutional Capacity Project |
| PEU | Execution Unit |
| POD | Proposal for Operation Development |
| POM | Program Operation Manual |
| PSE | Primary School Examination |
| PTA | Parent Teacher Associations |
| RCT | Randomized Control Trial |
| SLR | Sea Level Rises |
| SPF | Safeguard Policy Filter |
| SSF | Safeguard Screening Form |
| STEAM | Science Technology Engineering Arts & Mathematics |
| STEM | Science Technology Engineering & Mathematics |
| TEI | Teacher Education Institutes |
| TIMSS | Trends in International Mathematics and Science |
| TVET | Technical and Vocational Education and Training |
| UWI | University of West Indies |
| WDI | World Development Indicators |

# PROJECT SUMMARY
# BELIZE
# EDUCATION QUALITY IMPROVEMENT PROGRAM (EQIP) II
# BL-L1030

| Financial Terms and Conditions | | | | |
|---|---|---|---|---|
| **Borrower:** Belize | | | **Flexible Financing Facility**[a] | |
| | | | **Amortization Period:** | 25 Years |
| **Executing Agency:** Ministry of Education Youth Sports and Culture (MoEYSC) | | | **Disbursement Period:** | 60 months |
| | | | **Grace Period:** | 5.5 Years [b] |
| **Source** | **Amount (in US$ million)** | **%** | **Interest rate:** | LIBOR Based |
| | | | **Credit Fee:** | [c] |
| **IDB Ordinary Capital (OC)** [f] | 10.0 | 99 | **Inspection and supervision fee:** | [c] |
| **Local:** | 0.1 | 1 | **Weighted Average Life (WAL):** | 15.25 years |
| **Total:** | 10.1 | 100 | **Currency of Approval:** | Dollars of the United States of America, chargeable to the Ordinary Capital (OC). |

**Project at a Glance**

**Project Objective:** The main objective of EQIP II is to improve the quality and gender equity of education at the primary and secondary levels, with a special focus on innovation in Science Technology Engineering Arts and Mathematics (STEAM) education. This general objective will be pursued by achieving the following specific objectives: (i) Improve the quality of primary school teachers by expanding the inquiry- and problem-based learning approach; (ii) Improve the quality of secondary education teachers by improving teaching practices with a focus on student-centered science and mathematics learning; and (iii) promote gender-sensitive STEAM teaching.

**Special Contractual Clauses prior to the first disbursement:** (i) the approval by the Bank of the Program's Operations Manual (POM) (¶3.4); and (ii) the hiring of a Project Coordinator, Project Officer, Procurement and Financial specialists within the Project Execution Unit (PEU) (¶3.1).

**Special Contractual Clauses of execution:** Prior to the call for bids for the civil works, MoEYSC shall: (i) submit final designs satisfactory to the Bank; (ii) provide evidence that it has begun the call for bids for the specialized supervision firm prior to the initiation of civil works; and (iii) have obtained all authorizations, licenses or permits which are necessary for the execution of the civil works (¶3.5).

**Special disbursement**: Notwithstanding the special contractual clauses, once the Loan Contact has entered into effect and the Borrower has fulfilled the conditions prior to first disbursement set forth in the General Conditions of the Loan Contract, the Bank may disburse to the Borrower up to the amount of US$50,000 from the resources of the loan to hire the Project Coordinator, and the Program, Procurement and Financial officers within the PEU (¶2.7)

**Exceptions to Bank Policies:** None.

| Strategic Alignment | | | | | | |
|---|---|---|---|---|---|---|
| **Challenges**[d]: | SI | ☑ | PI | ☐ | EI | ☐ |
| **Cross-Cutting Themes**[e]: | GD | ☑ | CC | ☑ | IC | ☐ |

[a] Under the Flexible Financing Facility (FN-655-1), the borrower has the option to request modifications to the amortization schedule, as well as currency, interest rate and commodity conversions. In considering such requests, the Bank will take into account operational and risk management considerations.

[b] Under the flexible repayment options of the Flexible Financing Facility (FFF), changes in the grace period are possible as long the Original Weighted Average Life (WAL) and the last payment date, as documented in the loan agreement, are not exceeded.

[c] The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors during its review of the Bank's lending charges, in accordance with the relevant policies.

[d] SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).

[e] GD (Gender Equality and Diversity); CC (Climate Change and Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

[f] Pursuant to Document AB-2990, the disbursement of Loan resources will be subject to the following maximum limits: (i) up to 15% during the first 12 months; (ii) up to 30% during the first 24 months; and (iii) up to 50% during the first 36 months. All these periods will be counted from the time the Loan operation is approved by the Board of Executive Directors (¶2.2).

# I. DESCRIPTION AND RESULTS MONITORING

## A. Background, Problem Addressed, Justification

1.1 In Latin America and the Caribbean, a key determinant for the low growth rates are the low levels of cognitive abilities (Hanushek and Woessmann, 2009). Aware of the value of education, Belize has invested heavily in education and made access at the primary level almost universal.[1] However, student learning has continued to be limited. Only 36 percent of primary school graduating students (standard 6[2] students) perform at a satisfactory level in the Primary School Examination (PSE) (MoEYSC 2018), although problem solving skills have improved (paragraph 1.9). At the secondary level, 50 percent of secondary school-aged children attend school (MoEYSC 2018), substantially below the regional average of 72.6 percent (CIMA, 2018). The performance of secondary-school students is low in mathematics and science. On the Caribbean Secondary Education Certificate (CSEC) only 51.9 percent of the students who took the exam score at least a satisfactory grade in mathematics (CSEC, 2017) compared to an average score of 57 percent in the Caribbean (CSEC, 2017). In science, 44.3 percent of students who take the exam attain a passing grade (CSEC, 2018). Strikingly, these are the scores largely of students with aspirations to attend tertiary education, as the exam is not universal. In English language, Belize students score higher (70.9 percent) or in line with the regional average (CSEC, 2017).

1.2 Belizean girls lag boys in Mathematics and Science learning.[3] 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.[4] Consistent with international trends, Belizean girls also experience higher rates of anxiety around mathematics than their male peers and have lower self-efficacy[5] in mathematics[6] (Näslund-Hadley & Alonzo, 2019). Likely, these sex-based gaps have implications for Belize's Science Technology, Engineering and Mathematics (STEM)[7] pipeline as mathematics anxiety and self-efficacy, are strong influencers on learning outcomes as well as enrollment and persistence in STEM-related fields and long-term career trajectories (Richland

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1 Investment in education represent about 27% of the total recurrent expenditures of the government. This level has been relatively stable and is above the Latin American average of 21.2%.

2 Standard 6 is equivalent to Grade 8 in the United States.

3 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).

4 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. The GOB has a separate program, which aims to increase access to secondary education.

5 Self-efficacy is an individual's belief that his or her actions can lead to desired outcomes and that he or she can succeed in a domain (Dweck, 2008; Bandura, 1986; White, 1959).

6 E.g. in Standard 6, 29% of females have low self-efficacy in mathematics compared with 21% of males.

7 In this document we use the term STEM and STEAM, the latter includes the area of Art in addition to Science, Technology, Engineering and Mathematics.

et al 2019). While no data is available on the proportion of female employees in STEM fields, women represent only 34 percent of students in STEM-related fields, while they represent almost 60 percent of students in other fields (complete analysis, see OEL#4).

1.3 The discouraging education results translate into the labor market. Belize's major industries state that the education system does not adequately prepare secondary and vocational students in key areas that could be drivers for productivity improvements, including STEM, digital transformation, coding and socio emotional learning (Villarzu et al 2018). A recent IDB-financed employability gap analysis in Belize concludes that Belize's ability to innovate is predicated on the readiness of a large pool of talented individuals with expertise in STEM subjects, including computational thinking and coding. The study calls for training not only in STEM, but in Science, Technology, Engineering, Arts and Mathematics (STEAM). The Art component would be integrated where it naturally fits into the curriculum.[8] The STEAM training should not be limited to white-collar jobs, but also include technicians with associate degrees or certificates, which will be needed to expand the sectors of the Belize economy and promote economic growth (Villarzu et al 2018). Currently, the country does not have the capacity to respond to the increasing demand for skilled workers in STEAM related industries, neither in terms of quantity, nor in terms of quality. In the Information & Communication Technology (ICT) industry, one of the industries with the highest expected growth,[9] a recent study from the International Labor Organization (ILO) and the Belize Chamber of Commerce and Industry[10] demonstrates that even at the tertiary level, the few institutions offering ICT related programs[11] are not adequate to prepare students to meet the skills demands of the sector for middle skilled jobs, especially in software, web development and database networking. The study highlights the need to invest in ICT skills development as early as elementary school, rather than concentrating on fundamental skills. But, the need for a strong skill development in STEAM and digital areas at the secondary level goes beyond that, especially because less than 21 percent of the labor force in the country has completed tertiary education. These skills have been identified as "door openers" to the middle-skills market world-wide and can definitively fulfill the requirements of local employers, offering viable career and job opportunities to high school graduates[12].

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8 The "A" was added internationally as part of the 21st century skills movement to make STEM fields more competitive.

9 According to the World Development Indicators (WDI) data, ICT services account for 14% of the country's services exports and its participation in 2016 and 2017 has more than double the average of the previous three years (WDI, 2017).

10 The study performed a qualitative content analysis of the ICT curricula contrasting it with work requirements and competences needed in the occupations following Mahmood (2003) and Pasipamire (2014). Belize Chamber of Commerce and Industry (2018) "Skills Mismatch in the Agriculture and ICT Labor Markets".

11 Only the University of Belize (UB), the University of West Indies (UWI) and Galen University offer a bachelor's degree level program. Furthermore, the UWI does not offer ICT programs locally and Wesley JR College offers come programs in Web development and multimedia.

12 According to Bradley et al (2017), digital skills serve three key functions for middle-skill job seekers: (i) serving as a door opener to the middle-skill market that accounts for more than four million annual job postings in the US; (ii) providing career advancement in lieu of advanced education and; (iii) defining a set of domain-specific competencies for specialized roles. Another relevant example is the case of web developers whose career perspectives are ample even after a short high-quality training. In fact, according to Stack Overflow's 2016 survey, 56% of developers do not have a college degree in computer science or related fields and almost 1/3 of them have less than a Bachelor's Degree.

The Belize employability study identifies that the need for digital skills is widespread across industries, including those that employ the largest number of people with secondary education or higher.

1.4 Research indicates that teacher quality is the main determinant for student learning and skill development (see Kane et al. 2013; Hanushek 2011; Rivkin et al. 2005; Rockoff 2004). Evidence from Belize indicates that teachers lack the necessary content knowledge to be effective in the classroom. In 2012, throughout all subject areas (mathematics, English and science), 31 percent of primary school teachers obtained a grade of C or lower in the primary school examination. Teachers had the worst performance on mathematics, followed by science. When controlling for other factors, teachers' mathematical content knowledge is correlated with students' mathematics scores, replicating international findings that teachers' mathematics knowledge is crucial to the teaching of even elementary level Mathematics (Näslund-Hadley & Alonzo, 2019). In addition to limitations in content knowledge, Belizean teachers are also weak in pedagogical knowledge. Teaching methods have not been assessed at the secondary level, but at the primary level the pedagogical approach has been found to be predominantly teacher-centered and does not actively engage students in activities that may help them develop analytical and critical-thinking skills (Hull et al, 2018). Among the causes for the low quality of teachers, three stand out.

1.5 First, a high proportion of teachers lack training. In response to increases in the primary school-aged population (from 47,000 in 2003 to 75,500 in 2017), the Belizean school system hired large numbers of teachers, many of them without the necessary qualifications to teach. Thanks to this effort, the student/teacher ratio in primary (21:1) and secondary (16:1) schools is lower than the average in the LAC region (MoEYSC, 2018). The problem with rapid expansion is that it is often done at the cost of quality (Elacqua, Hincapié, Vegas and Alfonso, 2018). Only 73 percent of Belize's primary education teachers[13] is trained (WDI, 2018), a rate of trained teachers below that of neighboring countries.[14] At the secondary level, the proportion of trained teachers is even lower - 58 percent (MoEYSC, 2018), likely due to lateral entry from other professions. The low proportion of trained teachers is a concern as there is a strong positive correlation (0.74) between the proportion of trained teachers and student learning in Belize (Näslund-Hadley, Alonzo & Martin, 2013).

1.6 Second, close to 40 percent of Belizean primary school teachers have medium or high levels of mathematics anxiety (Näslund-Hadley & Alonzo 2019), which has been found to negatively affect achievement and attitudes towards mathematics of female students (Erturan & Jansen, 2015). A main determinant for teachers' mathematics anxiety is lack of content knowledge (Richland et al 2019). Although, no data is available on gender biases of Belize's teachers, the observed learning gaps may also be partially caused by implicit or explicit gender biases of the teachers, especially when teacher actions reinforce gender stereotypes that boys

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13 Trained teachers at the primary level are defined as those who have completed the Level 2 program or the 2+1 program or higher offered at the UWI Campus in Belize. Of teachers who are not trained, less than 10% have a bachelor's degree; and 51% have high school degree or similar.

14 The proportion of trained teachers in LAC countries: Colombia 98% (2014); Costa Rica 94% (2016); El Salvador 93% (2009); Nicaragua 73% (2010); Panama 94% (2015); and in Trinidad and Tobago 81% (2004).

are more suitable for mathematics and science activities than girls (Beilock and Maloney, 2015; Gunderson, Ramirez, Levine, et al., 2012; Hembree, 1999). Such biases about girls not belonging in science and mathematics fields could be a contributing factor to the low levels of self-efficacy in mathematics among Belizean girls (¶ 1.2).[15]

1.7 Third, principals and school managers have limited training and experience in educational leadership (Arcia, 2012), and an estimated 50 percent of them have no training in pedagogical and administrative leadership (Näslund & Alonzo 2019). As a result, principals provide teachers with limited pedagogical support and do not ensure parental involvement in education. At the primary level, schools are expected to implement a national curriculum, but the implementation is uneven. At the secondary level, the schools' managing authorities define their own curriculum, resulting in variations in quality (Arcia 2012). The weak school leadership is troublesome considering burgeoning research that indicates a link between student outcomes and instructional and administrative leadership of principals (Grissom et al. 2015 and Grissom and Loeb 2011). Parental involvement in school management is generally minimal, weakening provider accountability. The role of parents, through Parent Teacher Associations (PTAs), has been relegated to a supporting role, helping schools raise funds, with in-kind support for social and school functions rather than actual involvement in their children's education (Arcia 2012). The limited role of parents is troublesome considering literature that highlights the importance of parental participation in school management to ensure education quality (Vegas and Umansky 2005).

1.8 **EQIP I.** To address the causes of the low quality of instruction at the primary level of education, in 2014 the Government of Belize (GOB) and the IDB designed the Education Quality Improvement Program (EQIP), which set out to change what happens in Belize's primary education in science, mathematics and language arts classrooms (BL-L1018; 3186/OC-BL). Four years later in the final year of the program,[16] 50 percent of Belize's primary schools have benefitted from the program,[17] 48 percent of primary school principals have been trained as pedagogical leaders, 60 percent of primary school teachers have been trained and 37 percent of primary students (from Infant through Standard 6) have benefitted from an Inquiry and Problem-based Pedagogy (IPP) learning approach.[18]

1.9 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 (Loera & Mejía, 2018). Student learning in EQIP schools has also improved compared to peers in non-EQIP schools. By simply changing the pedagogy and without adding instructional time, a randomized control trial evaluation found that the learning gains in mathematics are the equivalent of approximately nine additional weeks of instruction, or 22 percent of the academic

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15 External verbal encouragement from teachers, peers and other community members is a source of self-efficacy (Bandura, 1997).

16 Of the BL-L1018 funds, 99% is committed or disbursed.

17 There are approximately 300 schools nationwide, and the other 50 percent of schools (150 institutions) constitute the control group of the experimental evaluation.

18 IPP creates active problem-solving opportunities for students who learn by collaboratively solving real life authentic problems, developing explanations, and communicating ideas.

year, in Standard 2 (3rd grade). In science and language arts, the gains are the equivalent of about 16 and 14 additional weeks of instruction, respectively (which represents 35 and 40 percent of the academic year, respectively). These learning gains are relatively high in a comparison with mathematics and science programs in other countries (Bando, Naslund-Hadley & Gertler 2018). Although EQIP teacher training has been focused on teaching methods as opposed to subject content knowledge, teachers who have benefitted from EQIP have improved their own 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. Another effect is that the proportion of teacher with medium or high mathematics anxiety is lower among EQIP teachers compared with control teachers (Naslund-Hadley & Alonzo, 2019). Another important impact of the Program was that the statistically significant gender differences in student achievement in favor of boys in mathematics disappeared in the follow-up measures.

1.10 **EQIP II Strategy**. The positive results of the evaluation show that EQIP teachers are in the process of abandoning drill, practice and memorization in favor of a more hands-on student-centered learning. The GOB now wishes to expand the IPP learning approach nationwide to the 50 percent of schools that has not yet benefitted from IPP and school management training. Many challenges remain[19] as the process of bringing Belize's primary schools to a desired quality level is a long process that cannot be solved in merely a few years. The gradual shift in classroom practices will need to be consolidated and appropriated by teachers before making further investments in pedagogical practice at this level of education.

1.11 **Training of Teachers**. EQIP includes heavy investment in the training of national instructors in teaching methods at the Teacher Training Institutes (TEI). This approach allowed the country to gradually phase out the use of international teacher instructors during EQIP. Drawing on the technical capacity developed in the TEIs through EQIP, the GOB wishes for the rollout of the in-service professional development to be more locally driven than in the first IDB program. This more locally driven professional development approach will rely less on international teacher trainers, therefore making the approach more cost-effective. The same international teacher training college that accompanied the teacher training during EQIP would be contracted to support the roll-out nationwide. Since the proposed use of national coaches is already ongoing in EQIP, the risk of using this model is low.

1.12 To ensure that the focus on hands-on, student-centered mathematics and science learning continue beyond primary school, the GOB wishes to bring the IPP approach to the secondary level of education. Since secondary education and Technical and Vocational Education and Training (TVET) are heterogeneous, the IPP approach should be adjusted to reflect structural differences with primary education and primary-aged children. In this context, the country requires a site for

[19] For example, although the direct feedback of teachers, as well as students' practical work increased significantly compared with the control group, there is still room for improvement as not all teachers use these practices.

teacher training and for testing classroom practices that are contextualized to Belize in each subject area. To this end, a STEAM Laboratory School will be created to improve teaching practices at this level of education. 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. Laboratory schools provide high-quality education for students, while at the same time allow testing innovative pedagogical approaches and modeling teaching practices for teachers in training, as well as in-service teachers from other schools. Laboratory schools have a long history and have played a major role in modeling of pedagogical approaches and educational research (McBride 2012; Mayhew & Edwards 2007).[20] While there are many specialized science, technology, engineering and mathematics high schools throughout the world, few operate as laboratory schools with the support of a learning institution with the explicit purpose of promoting pedagogical innovation and train teachers. Comparative and descriptive research based on data from the United States National Educational Longitudinal Study, administrative and survey data from specialized science, technology, engineering and mathematics schools, indicate that students in these schools are more likely to pursue a science, technology, engineering and mathematics major in tertiary education compared with their peers in traditional secondary schools (Subotnik, Tai, Almarode & Crowe 2013). This line of descriptive research also finds that students in specialized science, technology, engineering and mathematics schools have higher mathematics and science achievement; as well as more favorable attendance rates than their peers in comparison schools (Young, House, Wang, Singleton & Klopfenstein 2011).

1.13 One aspect that has been found increasingly important to improve quality and relevance of education beyond the primary level is close connections between schools and the private sector. This is particularly important for TVET (Amaral, Fieldsend, Prada and Rucci, 2016; Amaral, de Diego, Pages and Prada, 2018), where opportunities to learn in the workplace have been found to ease transition from school to work, improve the probability of continuing beyond primary education, and increase graduation rates among students with low performance and high risk of dropping out (e.g., Kemple and Snipes, 2000; Cellini and Riegg, 2006; Cullen, et.al, 2013; Stange and Kreisman, 2014; Dougherty, 2015). One type of workplace learning that can be easily accommodated at the secondary level is structured internship programs linked to the curriculum that provide students an opportunity to apply skills and gain work experience while offering companies a low-risk opportunity to try out potential future employees.[21] Currently, some Belizean schools offer internship opportunities to some students with varied levels of quality and no systematic monitoring.

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20 The first laboratory schools were created in the United States in the 19th century, and they now operate in many high performing education systems, and increasingly in developing education systems (e.g. in Vietnam, China and Puerto Rico).

21 Workplace learning includes a wide variety of activities beyond structured internship programs including: short term placement of students with employers with the primarily objective of observe and learn while undertake activities that do not require extensive training or expertise and well-structured pre-apprenticeships or apprenticeships programs combining part-time employment, school and training.

1.14 To address the stark gender gaps in mathematics and science learning, the teacher training will encompass training in how to build girls' confidence and sense of belonging in STEAM, including supportive learning environments, role models and mentoring. Improved confidence or sense of belonging in STEAM has been shown to relate to girls' self-efficacy and achievement in mathematics (Brian et al 2018; Good et al 2012). In the past, the IDB has successfully used the proposed Gender and STEAM training to close learning gaps between male and female students (IPA, 2015).

1.15 **Lessons Learned.** The EQIP I final evaluation contains lessons that informed the design of EQIP II interventions. The most important pertain to the following: (i) the training of local teacher trainers and gradual phase out of international teacher instructors worked well, and the country is ready to implement IPP in primary schools through this more locally driven approach. Therefore, the IPP approach will be scaled to the remaining 50 percent of primary schools through Component 1 of EQIP II; (ii) in EQIP I, the school management and parental training initiated at the end of the program after the professional development, resulting in lack of support from principals. However, to ensure support from the school community for the IPP approach, in EQIP II teacher professional development (subcomponent 1.1) and school management training activities (subcomponent 1.2) will be implemented concurrently; (iii) the interest of parents was particularly strong for the curriculum-based workshops on how to help their children learn. In response to this interest, three additional, 3-hour curriculum workshops will be added to the parental program in subcomponent 1.2; (iv) the participation of the principal in the teacher training improves the implementation of the IPP learning model. Therefore, principal training has been included in sub-component 1.2; and (v) although EQIP I executed in a timely and effective manner, the Project Execution Unit (PEU) required a high degree of technical and fiduciary IDB support. To lower the level of support provided, in Component 4 the PEU is strengthened with additional human resources, including a monitoring and evaluation specialist, and a project officer. The project design was also informed by lessons from other Bank projects: (i) RCTs of 10 IDB financed programs reveal that IPP improves student learning across cultures, languages and education systems (Bando, Naslund-Hadley & Gertler 2018); (ii) Evidence from international experiences and Bank operations highlight the importance of workplace learning to develop employability skills, explore possible career options, understand employer expectations and increase their self-understanding, maturity, independence and self-confidence (Fazio, Fernández & Ripani, 2016; Amaral, Fieldsend, Prada & Rucci, 2017; Berniell & De La Mata, 2017; Berniell et al, 2016; RG-M1210; and (iii) other Bank projects highlight the importance of engaging employers in project design, including the identification of internship opportunities for students (2546/OC-DR, 4692/OC-DR; RG-M1210). All the lessons were considered and are reflected in the design of the various components and execution structure (see sections I.B and III.A below).

1.16 **IDB Support to the Education Sector**. Over the past several years, the IDB has provided important value added to the Belize education sector. In addition to technical and financial support for the EQIP (BL-L1018; 3186/OC-BL), the IDB supported a reform of the financing of secondary education (BL-L1004; 2198/OC-BL), which lead to more equitable use of public resources and improved scores on the CSEC exam in mathematics (Näslund-Hadley;

Elacqua, Arcia and Santos, 2019). In addition, the IDB supported positive youth development through a range of interventions, including the creation of a youth center (BL-L1014; 2475/OC-BL), which successfully integrated unattached youth back into the education system or the labor market (IDB 2017).

1.17 **Strategic Alignment.** The program 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 investing in improved STEAM learning of students from low-income families and students with special education needs (outcome indicators #1 and 2 of the results matrix). The program is also aligned with the cross-cutting theme of climate change and environmental sustainability by financing climate change mitigation and adaptation activities, including principles of sustainability and green design in the construction of the STEAM Laboratory School; and the training of teachers in climate change education[22] (Output indicator #2 of the results matrix). According to the joint MDB approach on climate finance tracking, 23.28% of total IDB funding for this operation result in climate change mitigation and adaptation activities. This contributes to the IDBG's climate finance goal of 30% of combined IDB and IIC operational approvals by year's end 2020. The program is also aligned with the cross- cutting theme of gender equality and diversity and the Bank's Sector Framework Document for Gender and Diversity (GN-2800-8), by financing girls' STEAM education (outcome indicators #2, 5 and 7) and the training of teachers in gender sensitive pedagogical practices (outcome indicator #9). Additionally, the program is aligned with the Corporate Results Framework (CRF) 2016-2019 (GN-2727-6) by being aligned with Country Development Results (CDR) indicator #8 "Students Benefitted by Education Projects" (outcome indicators #2-3 and 5-8 in the results matrix).

1.18 In addition, the operation is aligned with the Bank's Sector Framework Document for Education and Early Childhood Development (GN-2708-5) by investing in high quality mathematics, science and technical education to help ensure that all students develop the necessary skills to continue their lifelong learning process. The operation is also aligned with the Strategy on Social Policy for Equity and Productivity (GN-2588-4) by investing in human capital development as a key factor for economic growth and development. The Country Strategy with Belize 2013-2017 (GN-2746-2) prioritizes the quality and relevance of education at all levels of the education system by improving the qualifications of in-service and future teachers. The proposed operation provides a two-fold response to these goals. First, the roll-out of IPP to all primary schools has been demonstrated to raise the quality of in-service teachers. Second, the creation of a laboratory school as a training site aims to increase the quality of both pre-service and in-service teachers at the secondary level of education.

1.19 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

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22 This will be done using the Rise Up Against Climate Change education materials, available at www.iadb.org/riseup. Belize is highly vulnerable to the effects of CC, including increasing sea surface temperatures, Sea Level Rise (SLR) and extreme events (IPCC, 2014). Belize's Nationally Determined Contribution (NDC, 2015) is commitment to low carbon development and resilience to the effects of CC (NDC, 2015).

National Education Strategy for 2019-2025, which the MoEYSC in preparing with IDB support.

## B. Objective, Components and Cost

1.20 The main objective of EQIP II is to improve the quality and gender equity of education at the primary and secondary levels, with a special focus on innovation in Science Technology Engineering Arts and Mathematics (STEAM) education. This general objective will be pursued by achieving the following specific objectives: (i) Improve the quality of primary school teachers by expanding the IPP learning approach; (ii) Improve the quality of secondary education teachers by improving teaching practices with a focus on student-centered science and mathematics learning; and (iii) promote gender-sensitive STEAM teaching.

1.21 **Component 1. Inquiry- and Problem-based Learning in the Primary School Classroom (US$4.0 million).** The aim of this component is to roll out the EQIP to the 50 percent of primary schools that have not yet benefitted, bringing the coverage to 100 percent of primary schools nationwide, as well as refresher support for EQIP I schools. To change what happens in Belize's primary school classroom, EQIP II combines teacher professional development with changes in the pedagogical leadership of school communities.

1.22 **Sub-component 1.1 – Primary School Teacher Professional Development (US$3.0 million).** The loan will finance: (i) an international certificate program with 60 hours of on-site and distance practical professional development for primary teachers, including gender sensitive teaching practices; (ii) 20 hours of in-class coaching per teacher to provide guidance and modeling in the implementation of lesson plans and use of formative assessments to provide students with individualized instruction; (iii) refresher courses for EQIP I beneficiary schools; and (iv) teacher and student learning materials, including science kits and mathematics manipulatives (e.g. counters, geoboards and Cuisenaire rods) and use of Rise Up Against Climate Change materials.

1.23 **Sub-component 1.2 – School Management (US$1.0 million).** To ensure that EQIP teachers have the support they need from their school communities to shift their instructional practice to an IPP approach, the operation will finance: (i) training of school administrators and management authorities to build school supervision and pedagogical leadership skills; (ii) parental training workshops on how to support their children's learning, including curriculum-based workshops as well as in the use of the Rise Up Green School Toolkit; and (iii) refresher courses for EQIP I beneficiary schools.

1.24 **Component 2. STEAM Learning Secondary School (US$4.8 million).** The component aims to create a Belize STEAM Laboratory School to train teachers, model individualized instruction that centers around the student, and foster innovation and digital transformation in STEAM subjects. The component is structured around four sub-components.

1.25 **Subcomponent 2.1 – Design and Construction of STEAM Laboratory School (US$2.5 million).** The operation will finance: (i) the architectural design of the STEAM Laboratory School, with capacity for a student population of 300, and the

landscape design of the external areas[23]; (ii) all the construction works needed for the retrofitting and expansion of existing MoEYSC buildings and landscaping; (iii) construction supervision; (iv) furnishing and equipment of the laboratory school, including STEAM and computer laboratories; and (iv) maintenance and security of the building for the duration of the execution period of the operation. The overall design will be guided by sustainability, green principles and innovation. For site and construction details see OEL#3.

1.26 **Subcomponent 2.2 – Establishment of STEAM Laboratory School (US$1.8 million).** The operation will finance technical assistance in the establishment of a Laboratory School management team, including: (i) training of local master STEAM teachers to educate students enrolled in the STEAM Laboratory School and provide continuous in-class professional development with modeling of IPP practices for secondary education STEAM teachers; (ii) detailed design and implementation of programs to offer an IPP learning approach for STEAM subjects in the STEAM Laboratory school; and (iii) development and implementation of a model for providing 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; and attain the STEAM Laboratory School Diploma; and (iv) a promotion campaign to attract students to the STEAM laboratory school.[24]

1.27 **Subcomponent 2.3 – Professional Development of STEAM Teachers (US$0.4 million).** The operation will finance training of teachers from 50 percent of Belize's STEAM-subject secondary schools and ITVET. The training will be provided by the cadre of local master teachers from the STEAM Laboratory School. The training will include in-class tutoring to support teachers in the shift to the IPP approach, which includes gender sensitive pedagogical practices. The classrooms of the STEAM teachers in secondary schools will be equipped with STEAM kits.

1.28 **Sub-component 2.4 – Structured STEAM Internships (US$0.1 million).** The operation will finance the design and implementation of a structured internship program for students at the final year of secondary education, starting with 3 models of internship opportunities in different industries (tentatively models will be developed for internships to apply and develop skills in programming, science and engineering at the workplace). The internship program will incorporate quality assurance procedures and the needed personnel in the STEAM lab school to support and guide students; as well as requirements for systematic supervision, evaluation and certification criteria.

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23 The STEAM Laboratory school will be accommodated within the current University of Belize, Faculty of Engineering and ITVET Campus, located in Belize City. Two buildings will be retrofitted, and an expansion will be added. The design will be guided by sustainability, green principles and innovation (BL-T1100), including : climate resilience and green building architecture (incorporation of adaptation, mitigation measures and green building features, that would guarantee the EDGE certification), safety (hurricane resistance minimum level 3), low maintenance requirement, universal accessibility, design innovation, among others. The landscaping will include sport fields and study areas.

24 The IDB is financing the detailed conceptual design of the STEAM Laboratory school, including specific course offerings and learning objectives; management structure; and architectural design (BL-T1100). It is expected that the conceptual design will be completed by the end of the second quarter of 2019.

1.29 **Component 3. Evaluation (US$0.3 million).** The aim of the component is to critically examine the program by collecting and analyzing information about activities, characteristics and outcomes. The component is structured around two subcomponents.

1.30 **Sub-component 3.1 – Assessment of Classroom Practices (US$0.1 million).** Loan resources will finance a qualitative video study of classroom practices at the primary and secondary levels. The study will 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. At the primary level, the evaluation will contrast classroom practices in a random subsample of EQIP II schools (previously collected in 2017 under EQIP I) with classroom practices at the end of the program. At the secondary level, the evaluation will contrast classroom practices of STEAM teachers in 50 percent of the country's schools with practices in the other half of the schools. Teachers will be assigned to the two groups at random.

1.31 **Sub-component 3.2 – Assessment of Student Learning and Economic Returns (US$0.2 million).** Loan resources will finance the randomization of acceptance of student applicants to the school to assess its effect on STEAM learning, including sense of belonging in STEAM; expectations; problem-solving and critical thinking skills. The operation will finance an ex-post economic analysis of the operation, including cost-benefit and cost-effectiveness analyses, contrasting treatment and control students.

1.32 **Component 4. Project Management (US$0.6 million).** The objective of this component is to facilitate the execution of the program by supporting project management. This component covers expenses related to the PEU, financial audits, and monitoring and evaluation. It will also finance some office equipment and software to facilitate project execution and monitoring.

1.33 **Beneficiaries.** The professional development for primary school teachers and the pedagogical leadership and management training (sub-components 1.a and 1.b) will target publicly funded schools.[25] The beneficiaries are laid out in Table I-1 below, including 129 of the country's primary schools, close to half of the country's students, and some 1,500 of primary education teachers.

[25] The Belizean education system is characterized by strong participation of private education providers. Most pre-primary, primary and secondary schools (80%) are privately operated with limited government oversight, including both publicly subsidized schools and those that are not subsidized. In practice, most private schools are publicly funded (84 and 78 percent at the primary and secondary levels respectively) (MoEYSC 2018). All publicly financed schools, including privately operated schools, are free of charge and considered as providers of public education.

**Table I-1. Approximate Numbers of Schools, Teachers and Beneficiaries at Primary Schools (% of Total)**

| School Type | Schools | Teachers | Students |
|---|---|---|---|
| Government | 27 (50%) | 320 (50%) | 4,800 (50%) |
| Government financed privately operated | 102 (50%) | 1,180 (50%) | 22,800 (50%) |
| Private | n/a | n/a | n/a |
| **Total** | **129 (44%)** | **1,500 (46%)** | **27,600 (47%)** |

1.34 The numbers of beneficiaries of the STEAM Learning in Secondary School activities (Component 2) are laid out in Table I-2, including an approximate 50 percent of secondary and technical schools and teachers at this level of education. To promote social integration, the beneficiary students of the STEAM Laboratory school will include low-income students (at least 75%), gifted students, and students with special education needs. In line with the Belize Education and Training Act 2010 (XIV.70.2), the school will not charge tuition fees.

**Table I-2. Approximate Numbers of Schools, Teachers and Beneficiaries at the Secondary and Technical Level (% of Total)**

| School Type | | Schools | STEAM Teachers | Students |
|---|---|---|---|---|
| ITVET | Government | 3 (50%) | 12 (50%) | 180 (25%) |
| Secondary | Government STEAM Laboratory School | 1 (100%) | 40 (100%) | 80 (100%) |
| | Government | 8 (50%) | 18 (50%) | 4,200 (50%) |
| | Government financed privately operated | 14 (50%) | 30 (50%) | 7,580 (50%) |
| **Total** | | **26** | **100** | **12,040** |

## C. Key Results Indicators

1.35 The expected outcome of the project is improved quality of primary and secondary education. The impact indicators of the program include increases in: (i) student STEAM learning at the secondary level; (ii) student sense of belonging in STEAM at the secondary level; and (iii) spillover effects on curriculum content knowledge at the primary level. The outcome indicators of the program include increases in: (i) pedagogical practice index at the primary level; (ii) pedagogical practice index at the secondary level; (iii) gender sensitive pedagogical practice index at the secondary level relative to that without the program; and (iv) classroom environment index at the primary and secondary levels. All indicators are described in the M & E Plan.

1.36 Key outputs of the Component 1 will include: (i) 320 Primary school Principals, General and Local Managers, and Education Officers trained in pedagogical leadership and educational management; (ii) 1,500 parents trained to increase their participation in their children's education and school management; and (iii) some 1,500 in-service primary school teachers trained in IPP. Key outputs of Component 2 will include: (i) a STEAM Laboratory School constructed and furnished; and (ii) 100 secondary school teachers in STEAM subjects trained through the Laboratory School (Annex II).

1.37 The program is expected to increase the cost-effectiveness of primary education by increasing student learning. The ex-ante economic analysis of the benefits of the program indicates that, under a discount rate of 12 percent, the Net Present Value (NPV) for components 1 and 2 are positive. The NPV reaches 77 percent of the total benefits of the program in a conservative scenario for Component 1 and 21 percent for Component 2. The most important impact arises from an increase in academic performance, leading to increased retention and expected lifetime earnings of students. In terms of the gender pay gap in STEAM professions, the economic analysis projects that if the gender learning gap in mathematics and science – 12 and 14 points respectively on the CSEC – are eliminated among graduates of the STEAM Laboratory School, this would increase their future lifetime earnings by US$1.2 million. The assumption that the gender learning gap be eliminated is based on the EQIP I experience where the mathematics learning gap disappeared in IPP classrooms.

## II. FINANCING STRUCTURE AND MAIN RISKS

### A. Financing Instruments

2.1 This is a specific investment loan in the amount of US$10 million financed by the Inter-American Development Bank (IDB) from OC resources (Table II-1). The local counterpart contribution of US$0.1 million. The disbursement period is 60 months. The Table II-2 shows the tentative disbursement schedule for the operation.

**Table II-1. Summary of Costs (in 1,000 of US$)**

| Component/Subcomponent | IDB | Local | Total | % |
|---|---|---|---|---|
| **Component 1: IPP In Primary School Classrooms** | **4,000** | - | **4,000** | **40%** |
| 1.1 Teacher Professional Development | 3,000 | | 3,000 | 30% |
| 1.2 Pedagogical Leadership and Education Management | 1,000 | | 1,000 | 10% |
| **Component 2: STEAM Learning in Secondary School** | **4,772** | - | **4,772** | **47%** |
| 2.1 STEAM Laboratory School Infrastructure | 2,500 | | 2,500 | 25% |
| 2.2 STEAM Laboratory School Management & Training Force | 1,780 | | 1,780 | 18% |
| 2.3 Professional Development of STEAM Teachers | 400 | | 400 | 4% |
| 2.4 Structured STEAM Internships | 92 | | 92 | 1% |
| **Component 3: Evaluation** | **335** | **-** | **335** | **3%** |
| 3.1 Assessment of Classroom Practices | 110 | | 110 | 1% |
| 3.2 Assessment of Student Learning & Economic Returns | 225 | | 225 | 2% |
| **Component 4: Project Management** | **568** | **100** | **668** | **7%** |
| 4.1 Executing Unit/Project Execution Support | 493 | 100 | 593 | 6% |
| 4.2 Audit | 75 | | 75 | 1% |
| **Contingency** | **325** | - | **325** | **3%** |
| **Total** | **10,000** | **100** | **10,100** | **100%** |

**Table II-2. Disbursement Schedule (US$ million)**

| Financing | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Total |
|---|---|---|---|---|---|---|
| **IDB** | 1.01 | 1.63 | 2.23 | 4.03 | 1.10 | 10.00 |
| **Local** | 0.02 | 0.02 | 0.03 | 0.02 | 0.01 | 0.10 |
| **Total** | 1.03 | 1.65 | 2.26 | 4.05 | 1.11 | 10.10 |
| **Percent** | 10% | 16% | 23% | 40% | 11% | 100% |

2.2 In accordance with the document AB-2990, the disbursement by the Bank of the OC resources will be subject to the maximum limits: (i) in the first 12 months, a maximum of 15% of the total amount of Bank financing approved may be disbursed; (ii) in the first 24 months, a maximum of 30% of the total amount of Bank financing approved may be disbursed; and (iii) in the first 36 months, a maximum of 50% of the total amount of Bank financing approved may be disbursed. These limitations may be inapplicable to the extent that the requirements established by the Bank's policy regarding such limitations have been met, provided that the borrower has been notified in writing. All these periods will be counted from the time the Loan operation is approved by the Board of Executive Directors.

## B. Environmental and Social Safeguard Risks

2.3 Based on the guidelines of the Environment and Safeguards Compliance Policy (GN-2208), the operation is classified as category "C" as it is expected to have minimal negative environmental and/social impacts (see Annex IV). The loan will finance the construction works needed for retrofitting and expanding existing MoEYSC buildings, located within the University of Belize – ITVET Campus, an already urbanized land. During the rehabilitation and construction stage, it is expected that the environmental impacts will be of low magnitude, short duration, local influence and easy to handle through the application of prevention and control measures in compliance with national standards. These impacts include: (i) air quality and noise; (ii) superficial pollution of water bodies; and (iii) generation of waste.

## C. Fiduciary Risks

2.4 During program preparation, the Bank’s project team conducted an institutional and risk analysis using the Platform for Analysis of Institutional Capacity (PACI). Based on the PACI results and the state of Public Financial Management (PFM) in Belize, the overall fiduciary risk associated with program execution is medium (See Annex III – Fiduciary Arrangements). The MoEYSC and EQIP use the national integrated financial management system, Smart Stream, to facilitate the budgeting, cash management and accounting and reporting functions and the Bank considers it adequate for use in the execution of EQIP II. However, there are opportunities for improvement of internal and external control systems as well as the procurement system. As a result, the following are recommended to support these functions: (i) an adequate internal control system is outlined in the Program Operations Manual; (ii) an eligible private audit firm will be contracted as auditors of EQIP II; (iii) the IDB procurement policies will be used in the procurement of goods, works, consulting and non-consulting services for the project; and (iv) training of the PEU staff in IDB procurement and financial management policies

and practices. The main fiduciary risk identified from the PACI is described in Table II-3.

**Table II-3 Fiduciary Risk**

| Risks | Risk Response |
|---|---|
| **If an experienced procurement specialist cannot be identified and the new procurement specialist requires a lengthy transition period, it may cause delays in procurement of works and a possible extension of the project. Medium: 6** | **Mitigation measures**: (i) Ensure the PEU is fully staffed at the time of first disbursement with a procurement specialist that has previous experience from IDB operations; (ii) review procurement methods to improve efficiency and reduce time; (iii) begin the procurement process for works with technical cooperation; (iv) ensure project activities, including procurement, are closely monitored using the appropriate project management tools; and (v) provide training to the new procurement specialist on IDB Procurement policies. |

## D. Other Key Issues and Risks

2.5 In terms of execution mechanism, EQIP I executed in a timely and effective manner, achieving 100 percent of outputs, outcomes and impacts in the preestablished timeframe. Moreover, the administrative cost was low (3.8%). Nevertheless, the PACI highlighted the need to reinforce the PEU with a Project Officer and a Procurement Specialist to monitor consultancies.

2.6 Beyond the PEU, PACI highlighted three institiutional risks in the MoEYSC. First, delays in technical reviews and approvals of procurement packages and products. If reviews take over 20 days, the critical path outputs from Component 2 could be delayed, causing a delay in the end of project date by 4 months (medium-low risk). To mitigate this risk, a STEAM Laboratory School Task Force will be established as part of the MoEYSC Management Team to ensure efficient review and approval processes of consultancy products. Second, there is a risk that the MoEYSC does not assign an effective principal and school leadership team to the STEAM Laboratory School. If this happens, the maintenance of the infrastructure would be insufficient, the program might not achieve the ex-post objective (not part of Result Framework) of functioning infrastructure and equipment for 10 years after the completion of the school. A weak leadership team may also reduce the quality of instruction (as measured by the pedological practice index), reducing the impact on pedagogical practices (high risk). To mitigate this risk, the MoEYSC will use a strong recruitment strategy, including regional advertisements and an attractive compensation package. Third, if the next general election results in a change in the political leadership, key staff in the PEU and MoEYSC may change, which may temporarily slow down execution during the transition (medium-low). To mitigate this situation, the IDB would provide training and technical assistance to ease the transition.

2.7 **Special disbursement.** Notwithstanding the special contractual clauses, once the Loan Contact has entered into effect and the Borrower has fulfilled the conditions prior to first disbursement set forth in the General Conditions of the Loan Contract, the Bank may disburse to the Borrower up to the amount of US$50,000 from the resources of the loan to hire the Project Coordinator, and the Program, Procurement and Financial officers within the PEU.

2.8 **Fiscal Sustainability**. The impact of the STEAM Lab School on the MoEYSC budget is expected to be very modest (below 0.2 percent) for several reasons: (i) the STEAM Lab School will operate on the facilities of an existing Technical and Vocational Education and Training school; (ii) while some students currently not in the education system may enroll in the school, most students are expected to be selected from the existing TVET, other TVETS, and general secondary institutions (laboratory schools are used to train teachers, model instruction and test pedagogical approaches, rather than expand access). Thus, the STEAM Lab School would not imply an expansion of student enrolment; (iii) the additional costs would be associated with laboratory and computer equipment, which do not imply a large outlay of recurrent funds, as they are semi-durable goods with a shelf life of a few years; (iv) there are significant cost-sharing features with the existing TVET in terms of the administrative infrastructure, communications, EMIS, and other operating costs; and (v) the number of STEAM teachers and staff should be small. Their additional cost would be small, as they are already civil servants (OEL#1).

## III. Implementation And Management Plan

### A. Summary of Implementation Arrangements

3.1 Project Execution. The MoEYSC through the same Project Execution Unit (PEU) that has executed EQIP I (BL-L1018; 3186/OC-BL) will be responsible for the execution of the loan. This arrangement will allow the MoEYSC to capitalize on the administrative and technical capacities developed during the execution of EQIP I. The MoEYSC through the PEU will be responsible for the execution of the loan, including: (i) the monitoring of progress and results; (ii) the procurement of goods and services; (iii) the processing of eligible payments; (iv) the financial management; (v) the execution of IDB supervision-related activities; and (vi) the reporting to IDB and other Government entities. The PEU will comprise a Project Coordinator, a Project Officer, an engineer, a Financial Specialist, a Procurement Specialist, a monitoring and evaluation specialist, and an Administrative Assistant. **As a condition prior to first disbursement the MoEYSC shall hire a Project Coordinator, Project Officer, Procurement and Financial Specialists.** This condition is justified to assure that an adequate team will be in place to initiate and conduct program execution.

3.2 **Reports.** The PEU is responsible of preparing semi-annual and annual reports for the MOEYSC and IDB detailing: (i) the progress regarding the activities and outputs in the Annual Operating Plans (AOP) and the intermediate outcomes, according to program indicators; (ii) the financial progress in terms of commitments, payments and disbursements under the loan and an updated financial plan; (iii) annual financial statements audited by a firm of independent auditors acceptable to the Bank; (iv) the updated AOP and related budgets for the next 12 months; (v) the updated procurement plan; and (vi) present annual maintenance report up to the 5th year after the expiration of the last disbursement date.

3.3 **Implementation supervision system.** The same Program Steering Committee (PSC) that has supported EQIP I (BL-L1018; 3186/OC-BL) will provide policy

direction and support to the EQIP II. The PSC comprises representatives from 12 organizations, is already established and meets regularly. The prime responsibilities of PSC are to: (i) ensure an integrated, effective and efficient execution through timely guidance and strategic policy level decision making; (ii) oversight consistency with MoEYSC policies and programs; and (iii) promote strong communication and dissemination to the key stakeholders and general public. The MoEYSC is responsible for reviewing procurement processes and products; and the Ministry of Finance (MoF) approves contracts and disbursements.

3.4 **Operation Manual.** The Program Operation Manual (POM) sets out the terms and conditions, and details the procedures and coordination mechanisms for the operational, administrative and financial management of the program. **As a condition prior to the first disbursement, the POM should have been approved by the Bank.** This condition is justified to assure that the rules of operation are in place to initiate and conduct program execution.

3.5 **Procurement.** Procurement of goods, works and consulting services to be financed with resources of the program will be carried out in accordance with the Policies for the Procurement of Works and Goods Financed by the Inter-American Development Bank (GN-2349-9); and the Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank (GN-2350-9) both of March 2011. Annex III includes details on Program procurement. When submitting its semi-annual reports, the executing agency will also submit updated versions of the procurement plan and the AOP. The Advance of Funds methodology will be mainly used for the project. The Advance of Funds when used, will be based on the true liquidity needs of the project for a period not exceeding six months. Subsequent advances may be disbursed once 80% of the total accumulated balance pending justification has been submitted and accepted by the Bank. Six months after eligibility of the operation, the Bank will assess the capacity of the PEU to change from ex-ante to ex-post review of aquisicion processes**. Prior to the call for bids for the civil works, MoEYSC shall: (i) submit final designs satisfactory to the Bank; (ii) provide evidence that it has begun the call for bids for the specialized supervision firm prior to the initiation of civil works; and (iii) have obtained all authorizations, licenses or permits which are necessary for the execution of the civil works.**

3.6 **The direct contracting of Heuristica Educativa is foreseen for the video study of classroom practices.** Heuristica Educativa is qualified and considered an agency with exceptional worth for the assignment in accordance with 3.10(d) of the Bank's policies for selection and contracting of consultants (GN-2350-9). The single source selection is also in line with 3.10(a) of the same policy, which allows for the continuation of previous work carried out by the firm. Following a competitive bidding process (BL-L1018; 3186/OC-BL), Heuristica Educativa successfully conducted the video study of classroom practices in EQIP I classrooms. The baseline collected in EQIP I control classrooms will constitute the baseline for the assessment of classroom practices in EQIP II. To ensure consistency in coding and measurement, the MoEYSC has requested that Heuristica Educativa be contracted to undertake the video study.

3.7 **The direct contracting of Mount Saint Vincent University (MSVU) is foreseen for the implementation of the activities of Component 1**. The MSVU is qualified and considered an agency with exceptional worth for the assignment in accordance with 3.10(d) of the Bank's policies for selection and contracting of consultants (GN-2350-9). The single source selection is also in line with 3.10(a) of the same policy, which allows for the continuation of previous work carried out by the firm. Following a competitive bidding process (BL-T1049), the MSVU successfully developed and implemented the EQIP pedagogical approach in the Belize district (Hull, Ferguson, Näslund-Hadley, Lynn, & Chen 2018). As a result of positive effects identified through a rigorous external evaluation, MSVU was directly contracted under EQIP I (BL-L1018; 3186/OC-BL) to bring the IPP model to scale. As part of EQIP I, MSVU successfully developed and implemented corresponding IPP models for Science and English, which were piloted and found effective through a nationwide RCT (Bando, Näslund-Hadley & Gertler 2018). Based on the effectiveness of the IPP model, the MoEYSC has requested that resources from EQIP II be used to roll out IPP to the 50% of primary schools that have not yet benefitted from the model.

3.8 **Audits.** An external audit of the program will be performed by a firm of independent auditors acceptable to the Bank. The cost of the audits will be financed with program resources. Standard financial reporting requirements of the Bank will apply, including: (i) the annual financial audit report of the program to be submitted within 120 days following the end of each program fiscal year; and (ii) a final financial audit report of the program to be submitted within 120 days after the date of the last disbursement.

## B. Summary of Arrangements for Monitoring Results

3.9 **Monitoring**. Besides the AOP and the Annual Procurement Plans, the PEU will submit semi-annual progress reports throughout the life of the project execution, within 60 days following the end of each semester. The Bank's project team will conduct a midterm review of the Program in order to assess the progress of the execution of the Program once disbursements reach 50%. In addition, the PEU will keep all relevant administrative information available to facilitate this review.

3.10 **Evaluation**. The impact evaluation will be financed with program resources (Component 3) as well with technical cooperation resources. As laid out in paragraphs 1.29-1.31, the impact evaluation will entail two RCTs to assess the effect on student learning in the STEAM Laboratory School; and the effect on teaching practices in Belize's secodnary schools. The rationale for the RCTs is that prior to training all pre-service and in-service secondary education STEAM teachers at the Laboratory School, it its necessary to make sure that any learning improvements can be attributed to the training. See REL#2 for more details.

| Development Effectiveness Matrix | | |
|---|---|---|
| Summary | | |
| *I. Corporate and Country Priorities* | | |
| 1. IDB Development Objectives | Yes | |
| Development Challenges & Cross-cutting Themes | -Social Inclusion and Equality<br>-Gender Equality and Diversity<br>-Climate Change and Environmental Sustainability | |
| Country Development Results Indicators | -Students benefited by education projects (#)*<br>-Teachers trained (#)* | |
| 2. Country Development Objectives | Yes | |
| Country Strategy Results Matrix | GN-2746 | Improve governance and quality of education relative to investment in the sector |
| Country Program Results Matrix | GN-2948 | The intervention is included in the 2019 Operational Program. |
| Relevance of this project to country development challenges (If not aligned to country strategy or country program) | | The Bank's country strategy with Belize prioritizes the quality and relevance of education at all levels of the education system by improving the qualifications of teachers (paragraph 1.16). |
| *II. Development Outcomes - Evaluability* | | Evaluable |
| 3. Evidence-based Assessment & Solution | 9.2 | |
| 3.1 Program Diagnosis | 3.0 | |
| 3.2 Proposed Interventions or Solutions | 4.0 | |
| 3.3 Results Matrix Quality | 2.2 | |
| 4. Ex ante Economic Analysis | 10.0 | |
| 4.1 Program has an ERR/NPV, or key outcomes identified for CEA | 3.0 | |
| 4.2 Identified and Quantified Benefits and Costs | 3.0 | |
| 4.3 Reasonable Assumptions | 1.0 | |
| 4.4 Sensitivity Analysis | 2.0 | |
| 4.5 Consistency with results matrix | 1.0 | |
| 5. Monitoring and Evaluation | 9.3 | |
| 5.1 Monitoring Mechanisms | 2.5 | |
| 5.2 Evaluation Plan | 6.8 | |
| *III. Risks & Mitigation Monitoring Matrix* | | |
| Overall risks rate = magnitude of risks*likelihood | Medium | |
| Identified risks have been rated for magnitude and likelihood | Yes | |
| Mitigation measures have been identified for major risks | Yes | |
| Mitigation measures have indicators for tracking their implementation | Yes | |
| Environmental & social risk classification | C | |
| *IV. IDB´s Role - Additionality* | | |
| The project relies on the use of country systems | | |
| Fiduciary (VPC/FMP Criteria) | Yes | Financial Management: Accounting and Reporting. |
| Non-Fiduciary | Yes | Strategic Planning National System, Monitoring and Evaluation National System. |
| The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions: | | |
| Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project | Yes | Prior to the approval of the project financial and procurement training is being provided to the Project Executing Unit. Through EQIP I (BL-L1018) IDB support was provided in the creation of a national education management information system (EMIS) for education planning and monitoring. |

Note: (*) Indicates contribution to the corresponding CRF's Country Development Results Indicator.

***Evaluability Assessment Note:*** *The main goal of the operation is to improve the quality and gender equity of education at the primary and secondary levels, with a special focus on innovation in Science Technology Engineering Arts and Mathematics (STEAM) education. This general objective is expected to be pursued by achieving the following specific objectives: (i) Improve the quality of primary school teachers by expanding the inquiry- and problem-based learning approach; (ii) Improve the quality of secondary education teachers by improving teaching practices with a focus on student-centered science and mathematics learning; and (iii) promote gender-sensitive STEAM teaching.*

*The proposal identifies that Belize's primary education results are discouraging, there are gender gaps that poor girls in disadvantage, and that graduating high school students are poorly prepared for the labor market. Those outcomes of Belize students are linked to the need to improve teacher quality, as teachers have limited training in educational leadership, lack content knowledge (math and science) and are weak in promoting critical knowledge and creative thinking. The current operation builds upon the Education Quality Improvement Program (EQIP; BL-L1018; 3186/OC-BL) and proposes to improve teacher quality by expanding the EQUIP learning approach to the 50 percent of elementary schools that did not participate in the first phase, and financing primary school teacher's professional development. The program also proposes to build a STEAM Laboratory School where pedagogical practices and teacher training strategies will be validated towards extending the EQUIP approach to secondary schools in Belize. The Laboratory School will develop a teaching model for students to acquire skills necessary to be employable in digital transformation and innovation, and will design and implement an internship program for secondary students. The teacher training components in both primary education and in the Lab School will include gender sensitive pedagogical practices in STEAM.*

*The vertical logic of the program is clear, but could be enhanced by unifying and better clarifying the description of the outcome indicators between the POD and the PME, so that all those indicators are unequivocally SMART. The economic analysis quantifies benefits from improved academic achievement among students in targeted primary schools, and from improved academic achievement among STEAM Lab School students. A cost-benefit analysis concludes that the project could generate a positive internal rate of return between 13 and 26. Monitoring of the indicators in the results matrix, and progress in activities will be conducted by the Ministry of Education Youth Sports and Culture (MoEYSC) through the Project Execution Unit (PEU). The Education Division (SCL / EDU) will periodically conduct field visits and other follow-up tasks. The ex-post evaluation plan includes several before and after comparisons of result indicators and a cohort-based randomized control trial evaluation to identify the effects on student learning from their enrollment in the Lab school.*

**RESULTS MATRIX**

| | |
|---|---|
| **Project Objective:** | The main objective of EQIP II is to improve the quality and gender equity of education at the primary and secondary levels, with a special focus on innovation in Science Technology Engineering Arts and Mathematics (STEAM) education. This general objective will be pursued by achieving the following specific objectives (i) Improve the quality of primary school teachers by expanding the inquiry- and problem-based learning approach; (ii) Improve the quality of secondary education teachers by improving teaching practices with a focus on student-centered science and mathematics learning; and (iii) promote gender-sensitive STEAM teaching. |

**EXPECTED IMPACT**

| Indicators | Unit of measure | Baseline | Baseline Year | Year 1 | Year 2 | Year 3 | Year 4 | End of Project | Means of verification | Observations |
|---|---|---|---|---|---|---|---|---|---|---|
| **IMPACT:** Improve the quality and equity of education at the primary and secondary levels | | | | | | | | | | |
| Indicator #1. Test of female STEAM skills relative to that without the program (counterfactual) – 2nd form | Standard deviation | 0 | 2024 | 0 | 0 | 0 | 0.24 | 0.24 | RCT Evaluation. The PEU is responsible for contracting. | Applicants to the STEAM Laboratory School will be randomized. |
| Indicator #2. Test of male STEAM skills relative to that without the program (counterfactual) – 2nd form | Standard deviation | 0 | 2024 | 0 | 0 | 0 | 0.24 | 0.24 | RCT Evaluation. The PEU is responsible for contracting. | Applicants to the STEAM Laboratory School will be randomized. |
| Indicator #3. Sense of belonging measure relative to that without the program (counterfactual) – 2nd form | Standard deviation | 0 | 2024 | 0 | 0 | 0 | 0.24 | 0.24 | RCT Evaluation. The PEU is responsible for contracting. | Applicants to the STEAM Laboratory School will be randomized. A modified version of the Psychological Sense of School |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Membership (PSSM) will be used. [1] |
| Indicator #4 Spillover effect measure on science content knowledge – Standard 6 | % | 61.5 | 2017 | 61.5 | 61.5 | 61.5 | 64.0 | 64.0 | PSE Science Mean Score on national exam administered by the MoEYSC | Although the specific objective of the program is not to improve content knowledge, IPP may produce spillover effects on Science content knowledge |

**EXPECTED OUTCOMES**

| Indicators | Unit of measure | Baseline Value | Baseline Year | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | End of Project | Means of verification | Observations[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **OUTCOME # 1:** Improve the quality of primary school teachers by expanding the inquiry- and problem-based learning approach | | | | | | | | | | | |
| Indicator #1. Pedagogical practice index at the primary level – Standard 5. | % | 30 | 2017 | 30 | 30 | 30 | 30 | 35 | 35 | CLASS and TSVI contracted by the PEU. | The index is composed of descriptive variables on teaching practices covering the following 4 categories: organization of the group of students, teachers' |

[1] The original PSSM scale (Goodenow, 1993) has been validated in several studies and has been found to have good psychometric properties.

| Indicators | Unit of measure | Baseline Value | Baseline Year | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | End of Project | Means of verification | Observations[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | activities, students' activities and use of instructional material and equipment from the TVSI (See PME). |
| Indicator #2. Quality of lessons index at the primary level – Standard 5. | % | 39 | 2017 | 39 | 39 | 39 | 39 | 47 | 47 | CLASS contracted by the PEU. | The index is a weighted average of the four domains from the CLASS framework that are more closely related to inquiry- and problem-based learning approach (See PME). |
| Indicator #3. Girls benefiting from trained teachers at the primary level. | # Female students | 0 | 2019 | 0 | 1,000 | 2,000 | 5,000 | 5,800 | 13,800 | Project Progress Report, prepared by the PEU. | CRF Indicator. Benefits are associated with changes in teachers' pedagogical practices. |
| Indicator #4. Boys benefitting from trained teachers at the primary level. | # Male students | 0 | 2019 | 0 | 1,000 | 2,000 | 5,000 | 5,800 | 13,800 | Project Progress Report, prepared by the PEU. | CRF Indicator. Benefits are associated to changes in teachers' |

| Indicators | Unit of measure | Baseline Value | Baseline Year | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | End of Project | Means of verification | Observations[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | pedagogical practices. |
| **OUTCOME # 2:** Improve the quality of secondary education teachers by improving teaching practices with a focus on student-centered science and mathematics learning. | | | | | | | | | | | |
| Indicator #5. Pedagogical practice index at the secondary level | % | TBD | 2024 | 0 | 0 | 0 | 0 | TBD | TBD | TVSI contracted by the PEU. | The index is composed of TVSI in 4 dimensions: emotional support, classroom organization, instructional support and student engagement. Yearly targets expressed as gains relative to the baseline value. See M&E for baseline data collection. |
| Indicator #6. Quality of Teaching Index at the secondary level | % | TBD | 2024 | 0 | 0 | 0 | 0 | TBD | TBD | CLASS contracted by the PEU | The index is composed of 4 indicators from CLASS. Yearly targets expressed as gains relative to the baseline value. See M&E for baseline data collection. |

| Indicators | Unit of measure | Baseline Value | Baseline Year | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | End of Project | Means of verification | Observations[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Indicator #7. Female Students beneficiaries enrolled in the STEAM Laboratory School | # Female Students | 0 | 2019 | 0 | 0 | 0 | 50 | 50 | 100 | EMIS data extracted by the PEU. | CRF Indicator. Benefits are associated to changes in teachers' pedagogical practices. |
| Indicator #8. Male Students beneficiaries enrolled in the STEAM Laboratory School | # Male Students | 0 | 2019 | 0 | 0 | 0 | 50 | 50 | 100 | EMIS, data extracted by the PEU. | CRF Indicator. Benefits are associated to changes in teachers' pedagogical practices. |
| Indicator #9. Female Students benefitted by teachers trained in IPP STEAM education | # Female Students | 0 | 2019 | 0 | 0 | 0 | 0 | 6,160 | 6,160 | Progress project report prepared by the PEU | CRF Indicator. Benefits are associated to changes in teachers' pedagogical practices. |
| Indicator #10. Male Students benefitted by teachers trained in IPP STEAM education | # Male Students | 0 | 2019 | 0 | 0 | 0 | 0 | 5,800 | 5,800 | Progress project report prepared by the PEU | CRF Indicator. Benefits are associated to changes in teachers' pedagogical practices. |
| **OUTCOME # 3:** Promote gender-sensitive STEAM teaching. | | | | | | | | | | | |
| Indicator #11. Gender Sensitive Pedagogical practice index at the secondary level | % | TBD | 2024 | 0 | 0 | 0 | 0 | 5 | 5 | INERSECT sex equity classroom index | Pro-gender flag indicator. The index is composed 4 indicators |

| Indicators | Unit of measure | Baseline Value | Baseline Year | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | End of Project | Means of verification | Observations[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| relative to that without the program (counterfactual) | | | | | | | | | | | from INERSECT: Praise, acceptance, remediation and criticism. Yearly targets expressed as gains relative to the baseline value. See M&E for baseline data collection. |

**OUTPUTS**

| Outputs | Unit of measure | Baseline Value | Baseline Year | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | End of project | Means of verification | Observations[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **<u>Component # 1</u> Inquiry- and Problem-based Learning in the Primary School Classroom** | | | | | | | | | | | |
| Output #1. Primary school Principals, General and Local Managers, and Education Officers trained in school administration and | # Persons | 0 | 2019 | 0 | 100 | 100 | 120 | 0 | 320 | Project progress report, prepared by the PEU. | The objective is to provide school administrators and education managers with the knowledge, skills and attitude to become pedagogical leaders. Upon successful completion of 40 hours of professional development, |

| Outputs | Unit of measure | Baseline Value | Baseline Year | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | End of project | Means of verification | Observations[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| educational management. | | | | | | | | | | | candidates are awarded a Certificate in School Leadership granted by Junior Colleges. |
| Output #2. Parents trained to increase their participation in school management. | # Parents | 0 | 2019 | 0 | 500 | 500 | 500 | 0 | 1,500 | Project Progress Report, prepared by the PEU. | The objective of the 9-hour training is to familiarize parents with IPP in Math, Science and English language; engage them in activities to decrease the climate footprint of their school; and increase their engagement in their children's education. |
| Output #3. Teachers trained in Inquiry- and Problem-based learning | # Teachers | 0 | 2019 | 0 | 500 | 500 | 500 | 0 | 1,500 | Project Progress Report, prepared by the PEU. | CRF Indicator. The objective is to train teachers in IPP in Math, Science and English language. Upon successful completion of 80 hours of professional development, candidates are awarded a Professional development certificate from Mount |

| Outputs | Unit of measure | Baseline Value | Baseline Year | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | End of project | Means of verification | Observations[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Saint Vincent University in Canada. |
| **Component # 2 STEAM Learning in the Secondary School Classroom** | | | | | | | | | | | |
| Output #1. Construction Document Package (Technical Drawings and Specifications ) depicting the STEAM School Design approved | Document package | 0 | 2019 | 1 | 0 | 0 | 0 | 0 | 1 | MoEYSC approval attained by the PEU. | The objective is to obtain all the documents needed to tender the construction, ensuring design compliance with MoEYSC requirements; and with principles of sustainability and green design. |
| Output #2. STEAM Lab School Constructed | School | 0 | 2019 | 0 | 0 | 0 | 0 | 1 | 1 | Works Completion Certificate signed by the MoEYSC, attained by the PEU. | The objective is to provide formal evidence that the building completion has been approved by MoEYSC (see architectural link). |
| Output #3. STEAM Laboratory School Furnished | School | 0 | 2019 | 0 | 0 | 0 | 0 | 1 | 1 | Project Progress report, prepared by the PEU. | The list of furniture will be specified in the final conceptual design document (see architectural link). |
| Output#4. Teachers trained through STEAM | Teachers | 0 | 2019 | 0 | 0 | 0 | 50 | 50 | 100 | Project Progress report, | Pro-gender flag indicator. The objective is to provide teachers with 80 |

| Outputs | Unit of measure | Baseline Value | Baseline Year | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | End of project | Means of verification | Observations[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Laboratory School | | | | | | | | | | prepared by the PEU. | hours of professional development in gender-sensitive classroom practices and inquiry-and problem-based learning at the technical and secondary levels of education. |
| **Component # 3 Evaluation** | | | | | | | | | | | |
| Output #1. Primary education endline completed | Document | 0 | 2019 | 0 | 0 | 0 | 1 | 0 | 1 | External consultancy report, contracted by the PEU. | The objective of the document is to inform MoEYSC of the changes produced at the primary level of education. |
| Output #2. Video study secondary education completed | Document | 0 | 2019 | 0 | 0 | 0 | 0 | 1 | 1 | External consultancy report, contracted by the PEU. | The objective of the document is to inform MoEYSC of the changes in teaching practices produced at the secondary level of education. |
| Output #3. RCT Baseline report completed | Document | 0 | 2019 | 0 | 0 | 0 | 1 | 0 | 1 | External consultancy report, contracted by the PEU. | The objective of the document is to inform MoEYSC on the baseline of the STEAM Lab school. |
| Output#4. Evaluation | Document | 0 | 2019 | 0 | 0 | 0 | 0 | 1 | 1 | External consultancy | The objective of the document is to inform |

| Outputs | Unit of measure | Baseline Value | Baseline Year | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | End of project | Means of verification | Observations[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Endline report completed | | | | | | | | | | report, contracted by the PEU. | MoEYSC on the impacts of the STEAM Lab on the achievement of its objectives. |
| **<u>Component #4:</u> Project Management** | | | | | | | | | | | |
| Output #1 PEU operated | | 0 | 2019 | 1 | 1 | 1 | 1 | 1 | 1 | Project Progress Report, prepared by the PEU | The objective is to have a fully operational PEU, defined at a minimum as a unit with a Project coordinator, Procurement Officer, and Finance Officer. |

# FIDUCIARY ARRANGEMENTS

| | |
|---|---|
| **Country:** | Belize |
| **Project Name:** | Education Quality Improvement Program (EQIP) II |
| **Project Number:** | BL-L1030 |
| **Executing Agency (EA):** | Ministry of Education, Youth, Sports and Culture (MoEYSC) |
| **Prepared by:** | Brodrick Watson and Patricia Yamilee Payen (FMP/CBL) |

## I. EXECUTIVE SUMMARY

1.1 This project is the second phase of EQIP and aims 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. The MoEYSC through the same Project Execution Unit (PEU) will be responsible for the execution of EQIP II. In November 2018 the project team applied the Platform for Analysis of Institutional Capacity (PACI) methodology to conduct an institutional capacity assessment of MoEYSC and the PEU to execute EQIP II.

1.2 Public Financial Management (PFM) in Belize is at a functional level in the areas of budget formulation, budget execution, cash management and accounting. These functions are facilitated mainly using the national integrated financial management system, SmartStream. The Auditor General Department has responsibility for the external audit and control of the Government of Belize (GOB) and, even though uses modern audit techniques, is faced with significant capacity constraints. On the other hand, internal audit and the procurement system are not adequately developed. Taking into consideration the state of PFM and the results of the PACI assessment, the overall fiduciary risk of EQIP II is determined to be medium.

1.3 The Bank recommends the use of the national systems in the project for the budgeting, treasury and accounting and reporting functions. However, given the level of development of the internal control, external control and procurement systems, the Bank recommends: i) that an adequate internal control system is designed and outlined in the Project Operations Manual; ii) that an independent audit firm is contracted as auditors of EQIP II; and iii) that the IDB procurement policies is used in the procurement of goods, works, consulting and non-consulting services for the project.

1.4 The project will be funded with IDB loan of US$ 10 million and GOB counterpart of US$100,000.

## II. EXECUTING AGENCY´S FIDUCIARY CONTEXT

2.1 The Constitution of Belize is based on the Westminster parliamentary model and was last updated March 2017. It defines the legislature as the National Assembly with authority to approve laws, including the national budget. Additionally, it defines the mandate of the Auditor General to hold the government accountable for its stewardship of public funds.

2.2 The five laws and regulations that provide guidelines for PFM are: (i) Finance and Audit (Reform) Act of 2005, last amended in 2011; (ii) Financial Orders; (iii) Stores Orders; (iv) Control of Public Expenditure Handbook; and (v) Fiscal Transparency and Responsibility Regulation, 2010. The GOB has recognized the need for strengthening of the legal framework that pertains to PFM and in mid-2016 formed a PFM Law Working

Group that is in the process of combining and updating the PFM-related legislations and guidelines.

2.3 SmartStream system is an integrated financial management suite used by the ministries and departments, including MoEYSC, for processing, recording and reporting all the payments clearing to and from the Consolidated Revenue Fund. It comprises of the following modules: (i) financials (ledger, payables and funds control); (ii) human resources (payroll and personnel, taxes, and social security); and (iii) procurement (payables and purchasing). The budgeting, treasury and accounting and reporting function of the Central Government of Belize is adequately deployed and integrated through SmartStream.

2.4 There are some established internal control procedures that supports the financial management environment of the MoEYSC with regards to contract administration and transaction management. However, there are no formal handbook or manual on internal control and the GOB does not have an established internal audit directorate. The Auditor General Department conducts external audit of the ministries, including MoEYSC, but are behind on the annual audits with the latest published audit report corresponding to fiscal year ending March 31, 2012.

2.5 The GOB lacks a specific/concrete national policy/legislation framework for procurement administration. Additionally, the MoEYSC does not have a section or staff exclusively responsible for procurement in the MoEYSC. The MoEYSC will hire a procurement specialist to conduct the tasks and responsibilities related to the procurement function and this will be included as a special condition prior to first disbursement.

## III. FIDUCIARY RISK EVALUATION AND MITIGATION ACTIONS

3.1 The overall fiduciary risk of the project, which was evaluated using the PACI methodology, is deemed to be medium. Below are the main risks which were identified and their respective risk rating and mitigation measures.

**Table 1. Main Risk Areas and Mitigating Measures**

| Risk | Risk rating | Risk Response |
|---|---|---|
| If a high-quality procurement specialist cannot be identified and the new procurement specialist requires a lengthy transition period, it may cause delays in procurement of works and a possible extension of the project. | Medium (6) | **Mitigation measures** will include: (i) Ensure the PEU is fully staffed at the time of first disbursement with a procurement specialist that has previous experience form IDB operations; (ii) Review procurement methods to improve efficiency and reduce time; (iii) Begin the procurement process for works with technical cooperation; (iv) Ensure project activities, including procurement, are closely monitored using the appropriate project management tools.<br><br>**Responsibility for implementation:** IDB and the PEU<br><br>**Timeline for implementation**: Core PEU Staff (Project Coordinator, Project Officer, Procurement and Finance specialists) will be included as a condition prior while the other mitigation measures (2,3 & 4) will be done during project design and throughout project execution. |

## IV. FIDUCIARY ARRANGEMENTS FOR PROCUREMENT EXECUTION

4.1 **Procurement execution**. Procurements for the proposed project will be carried out in accordance with Document GN-2349-9 ("Policies for the Procurement of Goods and Works Financed by the Inter-American Development Bank") dated March 2011 and; Document GN-2350-9 ("Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank") dated March 2011, as well as the provisions established in the loan contract and the Procurement Plan (PP). In addition, for all projects, the Borrower is required to prepare and submit to the Bank a draft General Procurement Notice (GPN).

i. **Procurement of works, goods and non-consulting services**. The procurement plan (PP) for the program, covering the duration of project execution, can be accessed through the following link. The PP indicates the procurement method to be used for the acquisition of goods and the contracting of works or non-consulting services. The review of technical specifications in all cases, during the process of selection is the responsibility of the sector specialist of the operation.

ii. **Procurement of consulting services**. The PP for the operation, covering the duration of project execution, can be accessed through the following link. The PP indicates the procurement method to be used for the selection and contracting of consulting services. The Borrower is responsible for preparing and implementing the project; and therefore, for preparing the Terms of References (ToRs), short lists, selecting the consultants, and awarding and subsequently administering the contract.

4.2 **Single / Sole source selection and/or direct contracting**. To be used only in exceptional circumstances and is based on the Bank's no objection to the justification. The requirements for single source selection are provided for under Sections 3.6 and 3.7 (GN-2349-9) and Sections 3.9 – 3.13 (GN-2350-9). The following procurements will be recommended for inclusion in the loan contract as single-source selection for approval by the Board of Directors:

i. Heuristica Educativa for the video study of classroom practices. This firm is qualified and considered an agency with exceptional worth for the assignment in accordance with 3.10(d) of the Bank's policies for selection and contracting of consultants (GN-2350-9). The single source selection is also in line with 3.10(a) of the same policy, which allows for the continuation of previous work carried out by the firm. Following a competitive bidding process (BL-L1018; 3186/OC-BL), Heuristica Educativa successfully conducted the video study of classroom practices in EQIP I classrooms. The baseline collected in EQIP I control classrooms will constitute the baseline for the assessment of classroom practices in EQIP II. To ensure consistency in coding and measurement, the MoEYSC has requested that Heuristica Educativa be contracted to undertake the video study.

ii. Mount Saint Vincent University (MSVU) for the implementation of the activities related to the primary education teacher training. This firm is qualified and considered an agency with exceptional worth for the assignment in accordance with 3.10(d) of the Bank's policies for selection and contracting of consultants (GN-2350-9). The single source selection is also in line with 3.10(a) of the same policy, which allows for the continuation of previous work carried out by the firm. Following a competitive bidding process (BL-T1049), the MSVU successfully developed and implemented the EQIP pedagogical approach in the Belize district (Hull, Ferguson, Näslund-Hadley, Lynn, & Chen 2018). As a result of positive effects identified through a rigorous external evaluation, MSVU was directly contracted under EQIP I (BL-L1018; 3186/OC-BL) to

bring the IPP model to scale. As part of EQIP I, MSVU successfully developed and implemented corresponding IPP models for Science and English, which were piloted and found effective through a nationwide RCT (Bando, Näslund-Hadley & Gertler 2018). Based on the effectiveness of the IPP model, the MoEYSC has requested that resources from EQIP II be used to roll out IPP to the 50% of primary schools that have not yet benefitted from the model.

4.3 **Selection of individual consultants**. Individual consultants are employed on assignments for which: (i) teams of personnel are not required; (ii) no additional outside (home office) professional support is required; and (iii) the experience and qualification of the individual are the paramount requirement. Individual consultants are selected on the basis on their qualifications for the assignment. Advertisement is not required and consultants do not need to submit proposals. Consultants shall be selected through comparison of qualifications of at least three candidates among those who have expressed interest in the assignment or have been approached directly by the Borrower. Individual consultants may be selected on a sole-source basis with due justification in exceptional cases. This is to be carried out in accordance with Section V (Selection of Individual Consultants) of GN-2350-9 in paragraphs 5.1- 5.4.

4.4 **Training**. The detailed PP indicates to which consultancy services training and workshops are applicable. As per GN-2350-9 if the assignment includes an important component for training or transfer of knowledge to Borrower staff or national consultants, the TOR shall indicate the objectives, nature, scope, and goals of the training program, including details on trainers and trainees, skills to be transferred, time frame, and monitoring and evaluation arrangements. The cost for the training program shall be included in the consultant's contract and in the budget for the assignment.

4.5 **Recurrent expenses**. Include payment of utilities and other office operating expenses of the PEU, if any.

4.6 **Domestic preference**. Determining whether it is appropriate and necessary to use domestic preference in the evaluation of bids should be guided by Appendix 2 of GN-2349-9 paragraph 1- 6.

4.7 **Other**. Use of national or other documents than the Bank standard documents for competitive bidding: none.

**Table 2 - Thresholds (in US$)**

| International competitive bidding threshold* | | National competitive bidding range ** (complex works and non-common goods) | | Consulting services |
|---|---|---|---|---|
| **Works** | **Goods** | **Works** | **Goods** | **International short list** |
| ≥1,000,000 | ≥100,000 | 100,000 – 1,000,000 | 25,000 - 100,000 | ≥200,000 |

* When procuring simple works and common goods and their amount is under the International Competitive Bidding thresholds, Shopping may be used.
** When procuring complex works and non-common goods with amounts under the NCB range, Shopping shall be used.

4.8 **Procurement supervision – PP and supervision.** The PP for the operation covering the duration of project execution can be accessed through the following the link. It indicates the procedures to be used for the procurement of goods, the contracting of works or services, and the method of selecting consultants, for each contract or group of contracts.

It also indicates cases requiring prequalification; the estimated cost of each contract or group of contracts; the requirement for prior or post review by the Bank. The procurement plan will be prepared to cover an initial period of eighteen (18) months and updated annually or whenever necessary, or as required by the Bank (www.iadb.org/procurement)

## V. FINANCIAL MANAGEMENT

5.1 **Programming and budget**. The budget preparation process begins each year with the budget call whereby the Ministry of Finance distributes a circular outlining the timeline and required forms to be completed by each ministry, department and agency. The Borrower has committed to allocate, for each fiscal year of project execution, adequate fiscal space to guarantee the execution of EQIP II based on information contained in the corresponding annual operating plan.

5.2 **Accounting and information systems**. Accounting and reporting for EQIP II will facilitated through SmartStream, in accordance with international financial and reporting standards and international public-sector accounting standards when applicable. It is expected that the accounting and reporting system of the project will: (i) facilitate the recording and classification of all financial transactions according to source of funding and categories of investment; and (ii) provide information related to, planned versus actual financial execution of the project, commitments made under the project, the financial plan for a six months period, financial statements, performance reports and any other reports that may be required from time to time by the MoEYSC and/or the Bank.

5.3 **Disbursements and funds flows**. In accordance with the norms of GOB, a designated bank account within the Central Bank of Belize will be utilized for the receipt of loan resources. For day-to-day operational expenses, the PEU will make payments from the Consolidated Revenue Fund account and on submission of a memo to the Ministry of Finance, the funds are then reimbursed from the Central Bank Account to that account.

5.4 As evidenced from the disbursing norms of loans and the anticipated commitments and obligations of the project, it is expected that the Advance of Funds methodology will be mainly used for the project. The Advance of Funds when used, will be based on the true liquidity needs of the project for a period not exceeding six months. Subsequent advances may be disbursed once 80% of the total accumulated balance pending justification has been submitted and accepted by the Bank.

5.5 To request disbursements from the Bank, the following forms and supporting documents will be submitted:

**Table 3 - Type of Disbursements**

| Type of Disbursements | Mandatory Forms | Optional Forms/ Information that may be requested by the IDB |
|---|---|---|
| Advance of Funds | Disbursement Request/ Financial Plan | List of commitments/ physical and/or financial progress reports |
| Reimbursements of payments made | Disbursement Request/ Project Execution Status/ Statement of Expenses/Reconciliation of Bank Resources | List of commitments/ physical and/or financial progress reports |
| Direct Payment to Supplier | Disbursement Request/ Acceptable Supporting Documentation may include invoices and acceptance of completion of works and/or delivery of goods and services to satisfaction of GOB | List of commitments physical/financial progress reports/evidence that goods/services have been satisfactorily received |

5.6 **Internal control and audit**. The PEU will assume the responsibility for designing and implementing a sound system of internal control for EQIP II. The details of this system should be documented in the POM.

5.7 **External control and reporting**. Given the capacity constraints of the Auditor General's Department, an eligible private audit firm will be hired to conduct the annual and final financial statement audits.

5.8 **Financial supervision plan**. The initial financial supervision plan of the project will focus on: (i) activities related to the implementation and follow-up of arrangements and systems being implemented for the fiduciary management of the project; (ii) follow-up on the implementation status of risk mitigating measures; and (iii) capacity building of PEU personnel in the Bank's procedures and requirements.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/19

Belize. Loan ____/OC-BL to Belize
Education Quality Improvement Program (EQIP) II

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with Belize, as borrower, for the purpose of granting it a financing to cooperate in the execution of the Education Quality Improvement Program (EQIP) II. Such financing will be for the amount of up to US$10,000,000 from the resources of the Bank's Ordinary Capital, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on __ _____ 2019)

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