TECHNICAL COOPERATION (TC) DOCUMENT

I. Basic Information for TC

▪ Country/Region:	Barbados CCB/CBA
▪ TC Name:	Getting an Early Start in Science, Mathematics, and Literacy: Creation of a LAB School for Early Childhood Development.
▪ TC Number:	BA-T1053
▪ Team Leader/Members:	Sabine Rieble-Aubourg (SCL/EDU) Team-leader; Emma Naslund-Hadley and Rodolfo Scannone (SCL/EDU); Yyannu Cruz and Sara Schodt (Consultant SCL/SCL); Natasha Boyce (CCB/CBA); Natasha Boyce (CCB/CBA); Carolina Veríssimo da Silva (LEG/SGO).
▪ Taxonomy:	Client Support
▪ Date of TC Abstract authorization:	June 6, 2018
▪ Beneficiary:	Ministry of Education, Technological and Vocational Training (METVT)
▪ Executing Agency:	Inter- American Development Bank (IDB); Social Sector/Education Division (SCL/EDU)
▪ Donors providing funding:	OC Strategic Development Program for Social Development (SOC).
▪ IDB Funding Requested:	US$150,000
▪ Local counterpart funding, if any:	n-a
▪ Disbursement period:	42 months (36 months execution period)
▪ Required start date:	October 2018
▪ Types of consultants:	Individual Consultants, University and/ or consulting firms.
▪ Prepared by Unit:	SCL/EDU
▪ Unit of Disbursement Responsibility:	SCL/EDU
▪ TC included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	Yes
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Social Inclusion and Equality; Productivity and innovation.

II. Objectives and Justification of the TC

2.1 Children benefit substantially from preschool education (Barnett, Brown, & Shore, 2004;[1] Gormley, Phillips, & Gayer[2], 2008). Available research shows that children who receive preschool education services are more likely to be ready to receive formal education, experience less behavior problems, and perform better in both early and

1 Barnett, WS, K. Brown, R Shore. 2004. The Universal vs. Targeted Debate: Should the United States have Preschool for all? National Institute for Early Education Research (NIEER).

2 Gormley, W. D. Phillips, and T. Gayer. 2008. “preschool Programs can boost school readiness”. Georgetown University.

later grades as well (Karoly, Kilburn, & Cannon, 2005[3]). In addition, receiving preschool services can also help prevent mental and health problems, particularly in children from at-risk homes (Nelson, Prilleltensky, & Peters, 2003[4]; Prilleltensky, Nelson, & Peirson, 2001[5]). The benefits of receiving quality preschool education continue into adulthood with lower levels of arrests, unemployment, and teen pregnancy (Gilliam & Zigler, 2000[6]). Despite the widespread agreement regarding the benefits of early childhood education, there is still much to be learned about what pedagogical approaches are most conducive to learning.

2.2 **Advances in preschool education:** Cognizant of the importance of early childhood development (ECD), Barbados has made considerable progress in increasing access to preschool education where enrolment is voluntary. Currently, 76% of 3 - 5 year-olds are enrolled in Early Childhood Education (ECE) (gross enrolment is 83%) with girls and boys equally represented. Public providers account for 85% of enrolment (Ministry of Education, Technological and Vocational Training (METVT) 2016), and the Government hopes to achieve universal access by the year 2020. The country has 61 public ECE centers and has most recently added the newly constructed Maria Holder Nursery School at Gall Hill. This new facility has a capacity to enroll 150 children and has a teaching staff of 10 who have either a Diploma, Bachelor's Degree, or Master's Degree.

2.3 **Quality and Equity of Preschool Education Remain Concerns**. Since 2015, the METVT[7] has sought to improve the quality of preschool education, including the development of an ECD curriculum and standards.[8] The curriculum fosters a child-centered teaching approach and speaks to the teaching of emerging literacy, mathematics and science. However, external evaluations (Mind Bloom 2014; and Caribbean Science Foundation[9] (CSF) 2016) suggests that teaching methods in Barbados favor repetition and do not foster creative and critical thinking which is deemed important in today's competitive but also highly uncertain environment (Winthrop[10] 2018). in this respect, the teaching of Science, Technology, Engineering and Math (STEM) subjects is considered a key tool in teaching the 21st century skills because math, engineering, and science emphasize investigation, inquiry, problem solving, and creative thinking (CSF 2016; Naslund[11] 2016) and most importantly help children to become life-long learners (Winthrop[12] 2018). Therefore,

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3 Karoly L.; M. R. Killburn, J. Cannon. 2005. "Proven Benefits of Early Childhood Interventions". RAND Corporation.

4 Nelson, G., Prilleltensky, I., L. Peirson (EDS). 2003." Promoting Family wellness and Preventing Child Matreatment." University of Toronto Press.

5 Prilleltensky, I., Nelson, G., & Peirson, L. (2001). The role of power and control in children's lives: An ecological analysis of pathways toward wellness, resilience and problems. Journal of Community and Applied Social Psychology, 11(2), 143-158.

6 Gilliam, W.S., Zigler (2000). "A critical meta-analysis of all evaluation of state-funded preschool from 1977 to 1998: Implications for policy, service delivery and program evaluation". Early Childhood Research Quarterly, 15 (4), 441-473.

7 The METVT is responsible for children from age 4 starting Pre-Kindergarten.

8 standards stipulate: a 1:15 teacher/ student ratio for 3-5 year olds and 1.25 for 5-6 year olds.

9 Caribbean Science Foundation. 2016. 'Implementation Strategy and Action Plan to Promote a STEM Education, Innovation and Employment Program for Barbados". University of the West Indies; Barbados.

10 Winthrop, Rebecca. 2018. "Leapfrogging Inequality. Remaking Education to Help Young People Thrive". Brookings Institution Press. Washington DC.

11 Naslund-Hadley, Emma and Rosangela Bando (editors). 2015. "All Children count". InterAmerican Development Bank. Washington DC.

12 Winthrop, Rebecca. 2018. "Leapfrogging Inequality. Remaking Education to Help Young People Thrive". Brookings Institution Press. Washington DC.

the METVT wants to achieve the following: (i) ensure that teaching and teacher training practices are aligned to the latest research findings on ECD, particularly regarding the development of early skills in mathematics and science (Naslund-Hadley and Brando 2015[13]) but also literacy; and (ii) that 3-5 year-olds develop early mathematics skills as well as an early love for mathematics, science, and literacy, and are prepared to learn primary level skills in these subject areas.

2.4 **Strategy for providing more STEM ECD services: Creation of a Laboratory School (LAB school)**. As a first step to strengthen the development of early mathematics, science and literacy skills in ECD, the METVT wishes to create an Early Mathematics, Science and literacy laboratory school (LAB School) at the newly constructed Maria Gall Hill Center where education, training and research are interconnected (Wilcox-Herzog & McLaren 2012). A LAB 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 and/or experimenting in pedagogical models and practices that promote innovation.

2.5 Teacher Training. Once created, the Barbados ECD Lab School will be dedicated to test new pedagogical approaches (see ¶2.6), and train early childhood educators who understand and are able to implement developmentally appropriate practices in childcare settings that reflect Barbados' rich and complex society. The school will educate both pre-service and in-service ECD educators and will provide a flow of theory to practice and practice to theory. Specifically, the Barbados ECD Lab School will be designed to prepare teachers who understand and emphasize the key role of relationships, constructive adult-child interactions, and teaching strategies in supporting physical, social, and intellectual development for all young children. The LAB School will model individualized instruction that centers around the student through a teacher guided inquiry and problem-based learning approach, including elements of explicit instruction, based on an enriched version of the national ECD curriculum. The LAB School will be a partnership of the Maria Gall Hill Center and the Erdiston Teacher Training College (ETTC) which operate both under the authority of the METVT.

2.6 Pedagogical Models and practices. The LAB School will design and validate a guided early mathematics, science, and literacy learning model that arises from observed interests of children and meets their developmental, cultural and emotional needs, and serve as a testing ground where these innovative pedagogical practices can be tried, evaluated, and documented and best practices are modeled. The proposed LAB School will be operated by the METVT with technical assistance from a learning institution that focuses on researching educational practices for early childhood learning. It will test different strategies to increase parents' involvement in the education of their children. Successful initiatives will then be scaled up nationally using the METVT's resources. To fully develop and operationalize the concept of the LAB School, the METVT will need technical assistance in the following areas: i) development of a management model of the school including the coordination with a teacher training institution; (ii) design and provision of teacher training and coaching, (iii) development of strategies for parental involvement and education, (iv) support for

[13] Naslund-Hadley, Emma and Rosangela Bando (editors). 2015. "All Children count". InterAmerican Development Bank. Washington DC.

the evaluation of initiatives; (v) design and administer student assessments; and (vi) acquisition of high quality teaching and learning materials.

2.7 The TC is consistent with the Update to the Institutional Strategy 2010-2020 (AB-3008) and is aligned with the development challenge of social Inclusion and inequality and productivity and Innovation by focusing on providing quality ECE focusing on science, mathematics, and literacy. The TC is also aligned with the cross-cutting theme of gender equality and diversity by ensuring that both boys and girls will have equal access to the ECD center and the guidelines for the SOC (GN-2819-I).

III. Description of Activities/Components and Budget

3.1 The proposed Technical Cooperation grant (TC) has the objective of supporting the METVT in the creation of the LAB School for ECD that can serve as a testing and innovation center for approaches that can eventually be implemented on a national scale. The recently constructed Maria Gall Hill Center will house the LAB School. It will have a focus on the teaching and learning of Science, Mathematics, and Literacy; which is aligned with the METVT's goal to improve the teaching and learning of STEM subjects. In addition, the LAB School will develop and test initiatives to increase parent involvement and parent education to motivate them to stay involved in their children's education throughout their school career.

3.2 Component 1: Creation of the LAB School (US$80,480). TC resources will be used to create the LAB School which will require the development of: (i) the management structure and its implementation; and (ii) pedagogical content. For both aspects, TC resources will finance technical assistance that will work with the METVT and the Maria Gall Nursery School to convert it into the LAB school.

3.3 **Subcomponent 1.a. Creation of the Management Structure.** As stated above, a LAB 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. To this end, the new school will be established through a collaboration with the national teacher training institution, the ETTC, and an international learning institution to ensure that pre-service training can be provided to aspiring ECD teachers as well as continuous professional development for in-service teachers. This will require that the existing training program be adjusted, including its content, sequence, and exam schedule, to allow ECD teachers to spend time in the LAB School as part of their training.TC resources will be used to contract the international learning institution to develop the management structure.

3.4 Subcomponent 1.b. Development and Validation of the pedagogical approaches and tools required to improve teaching focusing on Math, science, and literacy. TC resources will be used to provide technical assistance to the METVT and the LAB School to: (i) develop and validate new pedagogical approaches in the targeted STEM areas for 3-5 year olds; (ii) develop parent program that will allow parents to better support the development of their children; and (iii) acquire some printed teaching and learning materials to ensure that the center has the required high-quality materials to successfully serve as a LAB School. Once created, the Barbados ECD LAB School will be dedicated to test new pedagogical approaches, and train early childhood educators who understand and are able to implement developmentally appropriate

practices in childcare settings that reflect Barbados' rich and complex society. To this end, the LAB School will design and validate a guided early mathematics, science, and literacy learning model that arises from observed interests of children and meets their developmental, cultural and emotional needs.

3.5 **Component 2: Evaluation and Dissemination (US$60,000).** The TC resources will be used to contract technical assistance to evaluate and assess the LAB School. TC resources will also be used to develop and validate new student- centered learning approaches and teacher training through classroom observations, evaluating the pedagogical approaches applied, and student assessments. The consultant will also evaluate the parent programs developed to help parents to better support the development of their children. Component 2 will evaluate the following three aspects:

3.6 **(i) Assessment of Students.** To assess the learning of students, learning assessments that will be adapted and/or acquired will include assessments of early literacy skills (e.g. the IDB preschool version of the Early Grade Reading Assessment, EGRA), early numeracy skills (e.g. the IDB preschool version of the Early Grade Math Assessment, EGMA), and vocabulary knowledge (e.g. the PEABODY vocabulary test). TC resources will be used to purchase these assessments (when applicable). Technical assistance (TA) will adapt the assessments to the Barbadian context and validate them; the TA will train staff from the METVT in their application.

3.7 **(ii) Assessment of teachers.** To assess the effects of the pedagogical approaches tested at the LAB School compared to the regular teacher training program provided at ETTC, it is planned to train in the first two years after the LAB School has been created at least 20 new ECD teachers and at least 20 in-service ECD teachers from ETTC to get trained at the LAB School per year[14]. To compare the two teaching settings, classroom observations will be conducted once the teachers return to their classrooms, and teachers will be asked to participate in a content/subject test to assess differences in the teacher preparation. TC resources will be used to conduct a series of classroom observations to measure teacher effectiveness and the quality of classroom interactions between students and teachers as well as the success of various pedagogical approaches to teach the prioritized subject areas. In addition, the results of the classroom observations (that is, the videos produced and subsequent rating of the videos) will be used as a teaching tool. Teachers will have the opportunity to review the videos for self-evaluation purposes. The instruments to be used to guide the classroom observations will be selected during implementation.

3.8 **(iii) Assessment of parent education programs.** The TA will develop instruments to assess the effectives of the parent programs that were developed in the LAB School. The selection of the instruments/ methodology used will be decided during the implementation period.

3.9 The total budget of this TC will be US$150,000 financed by the OC Strategic Development Program for Social Development (SOC).

Indicative Budget (US$)

[14] The ETTC has an intake of an average of 50 new students per year for pre-service training. Currently the system employs 125 ECD teachers who are in need of continued professional development.

Activity/Component	IDB/Fund Funding	Total Funding
Component 1: Creation of the LAB School	80,480	80,480
Component 2: Evaluation and Dissemination	60,000	60,000
Contingency	9,520	9,520
TOTAL	**150,000**	**150,000**

IV. Executing Agency and Execution Structure

4.1 On request by the METVT, the Education Division of the Bank (SCL/EDU) will be the executing agency for the project. Due to the existing work load of METVT staff and general understaffing at the METVT, the METVT asked that the Bank execute the TC as was done with previous Technical Cooperation Grants (BA-T1012 and BA-T1018). As Per Operational Guidelines for technical cooperation operations (GN-2629-1, Annex 10 and Appendix 10 of OP-1155), the Bank executes on request by the beneficiary for an operation considered client service.

4.2 **Procurement.** The activities to be executed are included in the Procurement Plan (Annex IV) and will be contracted in accordance with current Bank procurement policies and procedures. Specifically, Section AM-650 of the Administrative Manual "Complementary Workforce" will be applied in the case of individual consultants, the Policy for the Selection and Contracting of Consulting Firms for Bank-executed OperationalWork (GN-2765-1) and its Operational Guidelines (OP-1155-4) for hiring consulting services of intellectual nature and the Corporate Procurement Policy (GN-2303-20) for logistics and other related services." All intellectual property products that result from the TC will be the property of the Bank.

V. Major Issues

5.1 **Sustainability.** The METVT will continue to support the LAB school once the TC comes to an end. The Maria Holder Nursery School and the ETTC already receive a budget from the METVT.

VI. Exceptions to Bank Policy

6.1 n/a

VII. Environmental and Social Strategy

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

Required Annexes:

- Annex I: Request from the client
- Annex II: Results Matrix
- Annex III: Terms of Reference
- Annex IV: Procurement Plan