Document of the Inter-American Development Bank

**Suriname**

**Consolidating Access to Inclusive Quality Education in Suriname**

**(SU-L1059)**

**monitoring and evaluation plan**

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# Introduction

* 1. This document describes the monitoring and evaluation arrangements for the program for Consolidating Access to Inclusive Quality Education in Suriname (SU-L1059). It lists the instruments for project performance monitoring and specifies the monitoring and evaluation responsibilities of the Project Executing Unit (PEU). It further describes the evaluation plan of the project, focused on the first two components of the project.
  2. The general objective of program is to improve the quality of education in Suriname. This general objective will be pursued by achieving the following specific objectives: (i) to increase the quality of teaching practices and contents in lower secondary, and in early childhood education services for children with low school readiness and non-native Dutch speakers; and (ii) to improve access to adequate school infrastructure for children in remote and semi-urban areas in four priority districts (Wanica, Sipaliwini, Marowijne, and Coronie).
  3. **Component 1. Improved quality of lower secondary and early childhood education.** The aim of this component is to improve the quality and relevance of lower secondary education and the early grades in primary by developing materials, strengthening teacher capacity and monitoring student learning at different stages of the educational path. The component is structured around two sub-components: (i) lower secondary education; and (ii) ) Inclusive education: children with disabilities, early learners and non-native Dutch speakers.
  4. **Component 2. Access to adequate school infrastructure.** This component will improve access to education for students that attend schools in Wanica and will improve the learning conditions of children in three remote districts (Sipaliwini, Marowijne, Coronie).
  5. **Component 3. Management and monitoring of the education sector.** This component aims to improve the capacity of the MOESC to monitor the quality of the education services provided in all schools, public and denomination, and will benefit MOESC staff and school principals.
  6. **Component 4.** **Program administration and Evaluation and Audit.** The objective of this component is to facilitate the execution of the program by supporting project management. This component covers expenses related to the PMU, financial audits, and monitoring and evaluation.

# Monitoring

* 1. The Ministry of Education, Science and Culture (MOESC) through the Project Management Unit (PMU), is responsible for ensuring a constant monitoring of the implementation of the project, to assess the physical and financial progress of all program activities. To achieve this, the Bank and MOESC agreed to use the Results Matrix as the set of expected outputs and outcomes, the Operation Monitoring Matrix as the set of intermediate outputs and milestones, and the activities defined in the Project Execution Plan (PEP) -as the detail of expected activities in timeline-. Thus, the collection of information for the measurement of the indicators identified in the Results Matrix and other operational aspects relevant to the execution of the Program will be the responsibility of the PMU. To facilitate monitoring, the Education Division (SCL/EDU) will periodically conduct field visits and other follow-up tasks.
  2. The minimum monitoring activities are:
     + 1. **Launching Mission.** Perform a mission to launch the program after loan signature (during the first semester of 2020) and update any necessary aspects of Project design before the beginning of execution. In particular, the product matrix and cost assignment by product, must be updated, for PMR initial values be prompted.
       2. **Semi-annual progress reports and Progress Monitoring Report (PMR) update**. Produce semi-annual descriptive reports of the Program, reporting progress in the product and result indicators of the Results Matrix, compared to the correspondent planning. The Results Matrix includes indicators related to the expected impacts (impact indicators), with intermediate results (outcome indicators) and with the activities / processes (output indicators) that will be executed during the development of the program. These activities will be reflected in the PMR as a tool that integrates information on short- and medium-term goals. The semi-annual report will include homogeneous information useful for the supervision of operations, for monitoring the portfolio and for reporting the program's physical and financial program. The report will use as initial inputs the Results Matrix updated at Launching Mission, the cost structure, the programming of the project execution plan, the risk matrix, the procurement plan, among others.
       3. **Update the Project Execution Plan (PEP).** The PEP will contain the specification, costing and programming of all the activities and products of the Program for the achievement of the objectives. The annual update of the PEP should be done before the end of each year (usually by November 30th), including detail level as a typical Annual Operating Plan (AOP). At the end of each year, the Bank will review and agree with the PMU on the activities to be financed during the next period, through the no objection to the updated PEP. The updated PEP can be presented to the Bank any time important changes take places, at least annually.
       4. **Administration Missions and Fiduciary Visits**. Undertake the necessary annual administration missions to provide IDB support in the monitoring of project execution (usually at least two each year). In addition to the administration missions, the Bank will perform the supervision activities it regularly performs, including technical and fiduciary supervision visits to closely monitor the actions described in the Project Execution Plan. For details on the fiduciary visits please see Annex III of the Proposal for Operation Development (POD).
       5. **Project Closing Report (PCR).** At the end of the Program, the Bank team will prepare, in coordination with the PMU, the PCR document with an evaluation of the progress of the indicators established in the Results Matrix during the life cycle of the operation. Other inputs to this document include the impact evaluation described below.

**Monitoring Coordination, Work Plan and Budget:**

**Table 2.1: Supervision Timetable by Quarter**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Activity** | Responsibility | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | | Year 5 | | | | Budget | Financing |
| 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |  |  |
| Launching Mission | IDB (SCL/EDU) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | US$ 6,000 | IDB Transactional Budget |
| Administration mission | IDB, PMU, MOESC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | US$ 54,000 |
| Closing Workshop | IDB, PMU, MOESC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | US$ 6,000 |
| Semi-annual Progress Report | PMU |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | US$ 108,000 | SU-L1059 line 4.1.1.2 |
| Final Report | PMU |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Capacity Building for Monitoring**

* 1. The PMU previous structure will be reinforced with a Monitoring and Evaluation Specialist who will oversee the detailed planning and scheduling of project activities, data collection needs and will monitor the progress of each program related activity.

**Indicators**

* 1. Table 2.3 includes product indicators that will be monitored during the operation. To consider the complete set of indicators with frequency of measure and source of verification, refer to the results matrix.

|  |  |  |
| --- | --- | --- |
| **Table 2.3. Key monitoring indicators, frequency and sources.** | | |
| Monitoring Indicators | Frequency of Measurement | Means of Verification |
| **Component I - Improved quality of lower secondary and early childhood education** | | |
| **1.1 Lower Secondary Education** | | |
| 1.1. Document of the Curricular content redesign plan approved | First year | Technical Committee on Curriculum notification of approval, PMU  Contracts signed, Permanent Secretary.  Teacher attendance list, PMU  List of certifications issued, MOESC.  Verification report by district inspector, MOESC  Online publication, MOESC |
| 1.2. Local consultants to support curricular reform with signed contracts | Semi-annually |
| 1.3. Documents corresponding to the curricular reform for grades 9, 10 and 11 approved | Semi-annually |
| 1.4. Local consultants to support CENASUs strengthening plan with signed contracts | Semi-annually |
| 1.5. Teachers trained for new curriculum | Bimonthly |
| 1.6. Teachers with low teaching qualification that with complete special training program completed | Annually |
| 1.7. Textbooks kits printed and delivered | Semi-annually |
| 1.8. Online platform with digital resources adapted for teachers for teachers available, and yearly expanded | Semi-annually |
| 1.9. Document on the student assessment for 8th grade design approved | Semi-annually |
| 1.10. Document on the student assessment for 7th grade design approved | Semi-annually |
| **1.2. Inclusive education: children with disabilities, early learners and non-native Dutch speakers** | | |
| 1.11. Local consultants to support readiness to learn assessment analysis for the CARE unit with signed contracts | Semi-annually | Technical Committee ECD notification of approval to PMU  Participation list, verified by PMU  District inspector report, MOESC  School survey, MOESC |
| 1.12. Teachers trained in readiness to learn assessment | Semi-annually |
| 1.13. Workshops for parents on Parental Awareness Program (of pre-school and 1° grade students) completed | Semi-annually |
| 1.14. Document for the "Inclusive education plan 2020-2023" approved | Semi-annually |
| 1.15. Schools endowed with tablets with installed specialized software on Dutch Early Learning Program | Semi-annually |
| **Component II** | | |
| 2.1. Document for the School infrastructure Policy approved | Second year | Technical Committee Infrastructure notification of approval to PMU  Supervision firm report.  Supervision report by external firm, MOESC |
| 2.2 Document for the Maintenance Plan for Schools approved | Second year |
| 2.3. Schools constructed and finished with green building measures incorporated | Semi-annually |
| 2.4. Schools renovated or expanded | Semi-annually |
| **Component III** | | |
| 3.1. Documents for EMIS Work Plan phases completed | Semi-annually | Technical Committee EMIS notification of approval to PMU  Participation list, MOESC  Approval letter, MOESC |
| 3.2. Workshops for new partnership for denomination schools completed | Semi-annually |
| 3.3. Document for Improvement Plans at denomination schools implemented within the New Partnership approved | Semi-annually |
| 3.4. Social marketing campaign semiannual plans completed | Semi-annually |

**Table 2.4: Output Indicators**

| **Components** | **Total Cost** | **Year 1** | | **Year 2** | | **Year 3** | | **Year 4** | | **Year 5** | | **Final Target** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Products** | **US$** | **Target** | **US$** | **Target** | **US$** | **Target** | **US$** | **Target** | **US$** | **Target** |
| **Component 1. Improved quality of lower secondary and early childhood education (US$12.7 million).** | | | | | | | | | | | | |
| **1.1 Lower Secondary Education** | | | | | | | | | | | | |
| **1.1.1 Curricular Content Redesign** | | | | | | | | | | | | |
| 1.1 Local consultants to support readiness to learn assessment analysis for the CARE unit with signed contracts | 300,000 | 75,000 | - | 225,000 | 1 | - | - | - | - | - | - | 1 |
| 1.2 Local consultants to support the curricular reform with signed contracts | 1,000,000 | - | - | 234,091 | 12 | 351,515 | 12 | 271,970 | 12 | 142,424 | 12 | 12 |
| 1.3 Documents corresponding to the curricular reform for grades 9, 10 and 11 approved | 1,900,000 | - | - | 277,273 | 2 | 554,545 | 2 | 527,273 | 1 | 540,909 | 1 | 6 |
| **1.1.2 Teachers training and coaching** | | | | | | | | | | | | |
| 1.4 Local consultants to support CENASUs strengthening plan with signed contracts | 340,000 | 69,583 | 2 | 89,167 | 2 | 72,500 | 2 | 72,500 | 2 | 36,250 | 2 | 2 |
| 1.5 Teachers trained for new curriculum | 700,000 | - | - | - | - | 200,000 | 500 | 350,000 | 500 | 150,000 | 352 | 1,352 |
| 1.6 Teachers with low teaching qualification with special training completed | 1,060,000 | - | - | - | - | - | - | 530,000 | 100 | 530,000 | 100 | 200 |
| **1.1.3 Printing of textbooks and development of online resources aligned with curriculum** | | | | | | | | | | | | |
| 1.7 Textbook kits printed and delivered | 1,320,000 | - | - | - | - | 800,000 | 14,000 | 520,000 | 7,000 | - | - | 21,000 |
| 1.8 Online platform with digital resources adapted for teachers, available and yearly expanded | 280,000 | 64,167 | - | 174,167 | 1 | 41,667 | 1 | - | 1 | - | - | 1 |
| 1.9 Document on the student assessment for 8th grade design approved | 700,000 | - | - | 550,000 | 1 | 150,000 | 1 | - | - | - | - | 1 |
| 1.10 Document on the student assessment for 7th grade design approved | 700,000 | - | - | - | - | 592,857 | 1 | 107,143 | 1 | - | - | 1 |
| **Subcomponent 1.2 Inclusive education: children with disabilities, early learners and non-native Dutch speakers (US$4.4 million).** | | | | | | | | | | | | |
| 1.11 Local consultants to support Consultancy services for readiness to learn assessment analysis for the CARE unit with signed contracts | 400,000 | - | - | 100,000 | 5 | 100,000 | 5 | 100,000 | 5 | 100,000 | 5 | 5 |
| 1.12 Teachers trained in readiness to learn assessment | 700,000 | - | - | 118,462 | 50 | 350,769 | 750 | 230,769 | 1,000 | - | - | 1,800 |
| 1.13 Workshops for parents on Parental Awareness Program (of pre-school and 1° grade students) completed. | 460,000 | - | - | 180,000 | 2 | 120,000 | 10 | 80,000 | 10 | 80,000 | 10 | 32 |
| 1.14 Document for the "Inclusive education plan 2020-2023" approved | 1,440,000 | - | - | 570,417 | 1 | 327,083 | 1 | 327,083 | 1 | 215,417 | 1 | 4 |
| 1.15 Schools endowed with tablets with installed specialized software on Dutch Early Learning Program | 1,400,000 | - | - | 1,011,502 | 10 | 160,733 | 40 | 185,861 | 80 | 41,905 | 90 | 90 |
| **Component 2. Access to adequate school infrastructure (US$10.1 million).** | | | | | | | | | | | | |
| 2.1 Document for the School infrastructure Policy approved | 80,000 |  | - | 80,000 | 1 | - | - | - | - | - | - | 1 |
| 2.2 Document for the Maintenance Plan for Schools approved | 40,000 | - | - |  | - | 40,000 | 1 | - | - | - | - | 1 |
| 2.3 Schools constructed and finished with green building measures incorporated | 4,480,000 | - | - |  | - |  | - | 4,480,000 | 2 |  | - | 2 |
| 2.4 Schools renovated or expanded | 5,500,000 | - | - | - | - | 550,000 | 3 | 2,750,000 | 3 | 2,200,000 | 4 | 10 |
| **Component 3. Management and monitoring of the education sector (US$5.2 million).** | | | | | | | | | | | | |
| 3.1 Documents for EMIS Work Plan phases completed | 3,270,000 | - | - | 981,905 | 1 | 1,645,238 | 2 | 428,571 | 2 | 214,286 | 2 | 7 |
| 3.2 Workshops for new partnership for denomination schools completed | 370,000 | 58,333 | 2 | 184,167 | 6 | 127,500 | 7 | - | - | - | - | 15 |
| 3.3 Document for Improvement Plans at denomination schools implemented within the New Partnership approved | 1,200,000 | - | - | - | - | 300,000 | 20 | 600,000 | 60 | 300,000 | 20 | 100 |
| 3.4 Social marketing campaign semiannual plans completed | 360,000 | - | - | 90,000 | 2 | 90,000 | 2 | 90,000 | 2 | 90,000 | 2 | 8 |
| **Program administration (US$1.6 million) and Evaluation and Audit (US$0.4 million).** | | | | | | | | | | | | |
| 4.1 Program administration | 1,492,000 | 60,222 | - | 463,308 | - | 323,308 | - | 454,217 | - | 286,944 | - | - |
| 4.2 Monitoring, Evaluation and Audit | 508,000 | 7,500 | - | 107,500 | - | 127,500 | - | 107,500 | - | 50,000 | - | - |
| 4.2.1 Monitoring | 108,000 | 12,000 | - | 24,000 | - | 24,000 | - | 24,000 | - | 24,000 | - | - |
| 4.2.2 Evaluation | 350,000 | 0 | - | 100,000 | - | 120.000 | - | 100.000 | - | 30,000 | - | - |
| 4.2.3 Audit | 50,000 | 7,500 | - | 7,500 | - | 7,500 | - | 7,500 | - | 20,000 | - | - |
| **Total** | **30,000,000** | **426,806** |  | **6,191,242** |  | **8,459,501** |  | **9,207,173** |  | **5,715,278** |  |  |

# Evaluation

* 1. This section describes the evaluation methodology for the implementation of the Program to improve the quality of Education in Suriname. Sections (a) and (b) describe the research questions and the existing knowledge to motivate the evaluation. Section (c) lists key outcomes. Sections (c) and (d) describe the methodological approach. Section (f) describes the plan for the delivery of results. Section (g) describes the workplan and coordination arrangements.

**Main evaluation questions**

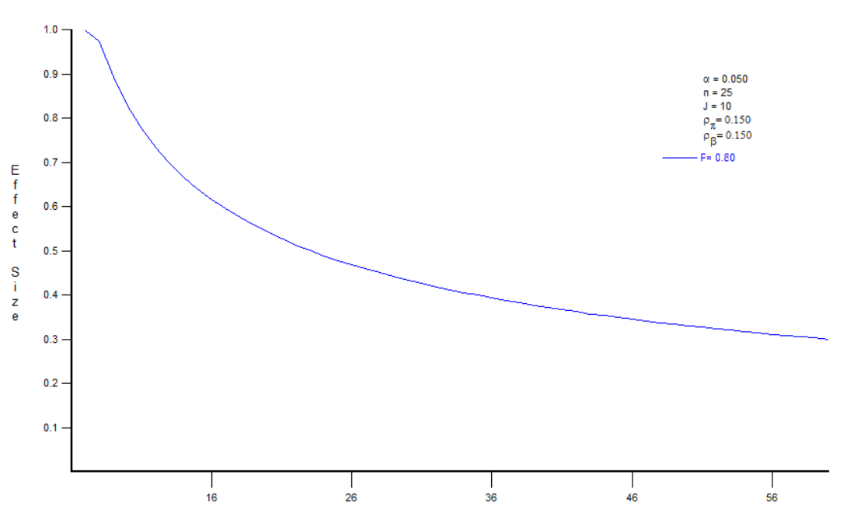
* 1. The main objective of the program is to improve the quality of education in Suriname. This general objective will be pursued by achieving the following specific objectives: (i) to increase the quality of education in lower secondary and early childhood services for children with low school readiness and non-native Dutch speakers; and (ii) to improve access to adequate school infrastructure for children in remote and semi-urban areas in four priority districts (Wanica, Sipaliwini, Marowijne, and Coronie).
  2. Outcome indicators of the evaluation framework will be fully aligned with the approved result matrix of the program “Consolidating access to quality and inclusive education in Suriname (SU-L1059)”. The MOESC information systems periodically collects this data, and under this evaluation plan they will provide researchers with timely updates and appropriate historical series.
  3. The evaluation team will measure how the products joined within the main components associated to the program (and the activities those enable—all described in the products matrix) are associated to several development outcomes that the program aims at improving (presented in the results matrix). Taking advantage of the fact that the products, impacts and outcomes indicators will be measured on a routine basis, the project team will employ a before and after (BA) methodology to describe the degree association between products and their corresponding outcomes. Such analysis will be consistent with the theory of change that motivated the interventions funded by the program and complemented with references to empirical evidence of those relationship found in similar contexts to improve the attribution analysis. However, because attribution of causal impacts using the BA estimator is based on several (often implausible assumptions), we will also seek to answer some key evaluation questions employing methodologies that get us closer to causal inference conclusions.
  4. Due to the multiplicity of products funded by the program, two impact evaluations are proposed to assess the effectiveness of specific interventions. The prioritization of the evaluation initiatives of specific sub-components funded by this program responds to the financial relevance of the products within the total investment of the Bank in this operation, the priority given by the Government of Suriname (GoS) to the activities herein evaluated, and the measurability of empirical results that could lead to a process of knowledge generation to inform education policy in the country. To be consistent with the vertical logic that motivates the program, the evaluation questions seek to respond whether the assumptions implied by the proposed solutions do, in fact, lead to the achievement its objectives. The two specific evaluation initiatives and their corresponding evaluation questions in this plan are described as follows:
  5. **Evaluation Initiative 1 (EI1)**: **Impact of lower secondary Math curriculum reform on quality and relevance of educational services.** This evaluation initiative addresses the most ambitious and substantial part of the SU-L1059 program which accounts for 30% of the investment of the planned reform. Curriculum reform making lower secondary curriculum more relevant for the challenges of the labor market is among MOESC highest priorities. The viability of this evaluation benefits from the fact that a group of international consultants and local experts has been already deployed by the GoS to tackle curriculum reform in primary education with an accent on Math subjects (BE-STREAMING project funded by the Bank SU-L1038). The evaluation will privilege studying impacts of the curriculum reform on student achievement in Math, because mathematics is the first subject in the priority order of the curriculum reform promoted by the MOESC in lower secondary, thus increasing the likelihood of having enough time to measure this outcome during the duration of the project.
  6. The specific evaluation ***questions associated to EI1*** are the following:

1. Will lower secondary math curriculum reform lead to better pedagogical practices by teachers? This question is motivated by the interest in providing causal evidence of the effect of the reform on the **Outcome Indicator** **1: Index of student-teacher interactions;** monitored by the program in the result matrix (Specific Objective 1 in the results matrix).
2. Do retention of students in lower secondary improves as the result of Math curriculum reform? This question is an attempt to provide causal evidence of the effect of the Math reform on the **Impact Indicator 2: Average repetition rate grades 9, 10 and 11** (also to be monitored by the program in the result matrix).
   1. **Evaluation Initiative 2 (EI2): Impact of of endowing schools with tablets with installed specialized software on Dutch Early Learning Program during early childhood on student’s outcomes in preschool and early primary**. The initiative addresses the fact that non-Dutch speaking children in early childhood have been identified as at high risk for school failure. In this context, the MOESC has promoted Output #15 in the products matrix (Output #15. Schools endowed with tablets with installed specialized software on Dutch Early Learning Program) as a targeted intervention for students in schools with high prevalence of non-Dutch speaking children.
   2. The evaluation is supported by the availability of cost-effective technology solutions for language learning, that facilitates deployment of the intervention and data collection for evaluation purposes. The evaluation will test the causal nature of the impact of Output #15 (Schools endowed with tablets with installed specialized software on Dutch Early Learning Program) on the results Indicator #4 (Students in grade 4 with appropriate Vocabulary in Dutch).
   3. The specific evaluation ***question associated to EI2*** is the following: endowing schools with tablets with installed specialized software on Dutch Early Learning Program during early childhood lead more students in grade 4 with appropriate Vocabulary in Dutch ? This question is motivated by the interest in providing causal evidence of the effect of the reform on the **Outcome Indicator** **4** (an indicator associated to the Specific Objective 1 in the result matrix).
3. **Existing knowledge relevant for the proposed evaluations**
   1. ***Curriculum reforms:***  Educational curriculum reforms have been shown to have a positive association with the development of cognitive skills in students (Liao and Bright,1991), as well as with better performance in standardized achievement tests (Bando, Naslund-Hadley & Gertler, 2018). Concerning teaching methodologies, evidence from 10 field experiments conducted in Argentina, Belize, Paraguay and Peru, show that inquiry and problem-based pedagogy has positive effects on students' test scores (Bando, Naslund-Hadley & Gertler, 2018). According to the authors, these results are robust "across a wide set of geographic, socio-economic, and cultural, age/grade, and teacher background contexts.
   2. ***Early childhood development interventions:*** In general, improving early childhood education has been found to have a significant impact on several educational and life-long outcomes. Heckman (2006) and Berlinski, Galiani and Gertler (2006) find that early childhood interventions generate positive impact on skills such as concentration and effort in class. Similarly, Heckman and Masterov (2007) argue that those interventions directly determine future human capital formation, talent development and productivity. Moreover, attending quality pre-school has been found to improve performance at math and language in the future (Berlinksi, Galiani and Gertler, 2006; Cueto and Diaz, 1999; SERCE 2010;), to increase the probability of being in school later in life (Attanasio and Vera-Hernandez, 2004), and to be associated with higher cognitive skills and income (Maluccio et al, 2006; Hoddinott and Bassett, 2008; Chetty et al, 2011; Heckman and Karapakula, 2019).
   3. ***Second language learning:*** In rural Guatemala, Engle and Chesterfield (1996) find increased test scores among children exposed to bilingual education (preschool through fourth grade). Equally important, their results provide evidence of no costs to be paid in terms of the national language of receiving bilingual education. On the same program, Patrinos and Velez (1996) estimate other positive impacts specifically on fiscal savings through reduction of repetition rates equivalent to the cost of providing primary education to approximately 100,000 students annually. They also find gains in individual earnings due to exposure to bilingual education. In Bolivia, Chiswik et al (2000) find similar results regarding bilingual education among indigenous populations. They explain that, among women, indigenous-only speakers earn 25% less than bilingual speakers and that, in general, lack of proficiency in Spanish gets penalized in the labor market. They conclude that bilingual programs may have large positive effects on indigenous peoples.
4. **Key results indicators**
   1. Table 3.1 lists the impact and outcome indicators, its definition, measurement frequency, and data source, reproducing information in the PD’s result matrix. The right column of the table indicates the evaluation method(s) that will be employed to study the program’s impacts.

**Table 3.1 Indicators**

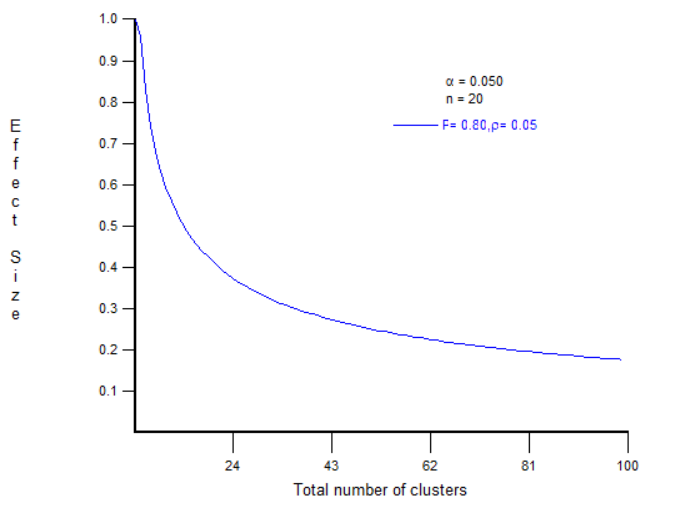
| **Indicator** | **Formula / Definition** | **Frequency of Measurement** | **Source** | **Evaluation methodology** |
| --- | --- | --- | --- | --- |
| ***Panel A. Impact indicators*** | | | | |
| **general Objective:** Improve the quality of education en Suriname | | | | |
| Indicator #1. Average repetition rate in grades 3 and 4 (first two grades of primary education) | Percentage of students that repeated the year in grades 3 and 4 grades as a percentage of all student enrolled in those grades | Yearly, Before and after intervention | MOESC Research and Planning Department Annual Report | Before and after |
| Indicator #2. Average repetition rate grades 9, 10 and 11 (lower secondary) | Percentage of students that repeated the year in grades 3 and 4 grades as a percentage of all student enrolled in those grades | Yearly, Before and after intervention | Before and after + RCT |
| ***Panel B. Outcome indicators*** | | | | |
| **SPECIFIC Objective # 1:** increase the quality of teaching practices and contents in lower secondary and early childhood education services for children with low school readiness to learn and non-native Dutch speakers | | | | |
| Indicator #1. Index of Student-Teacher Interactions[[1]](#footnote-1) | Teaching practices measured by index composed of 4 indicators from CLASS: emotional support, classroom organization, instructional support and student engagement. | Baseline and at end of project | CLASS evaluation report contracted by the PMU. | Before and after+ RCT |
| Indicator #2. Students benefitting from curricular reform in lower secondary | CRF Indicator. Benefits are associated to student that received materials and classes from a trained teacher in grades 9-11 | Yearly, after curriculum implementation | Enrollment records, PMU | Before and after |
| Indicator #3. Entering students to grades 1-3 with a readiness-to -learn assessment applied to measure their needs | Teacher-applied Petersen instrument/assessment for readiness to learn | Yearly at school entry | Teacher assessment | Before and after |
| Indicator #4. Students in grade 4 with appropriate Vocabulary in Dutch | The Dutch Vocabulary Test (CITO, Verhoeven, 1993a) measures student’s receptive vocabulary in Grade 4 by means of a standardized vocabulary test (developed by Central Institute for Test Development). The test consists of 50 items. Four pictures per item are portrayed. The tester says a word and the pupil must point to the correct picture. The score is determined by the number of correct answers. Reliability is reported by the author to be >.90. | Baseline and at end of project | Impact Evaluation Report, PMU | RCT + Before and after |
| Indicator #5. Students benefitting from special programs in ECD | CRF Indicator. Benefits are associated to student that received an assessment from a trained teacher in grades 1-3 | Yearly | Enrollments records, PMU | Before and after |
| **SPECIFIC Objective # 2:** Improve access to adequate school infrastructure for children in remote and semi-urban areas in four priority districts (Wanica, Sipaliwini, Marowijne, and Coronie). | | | | |
| Indicator #6. Student teacher ratio | The indicator is computed using the simple average of the average student teacher ratio in the 9 schools in Wanica close to the new facilities[[2]](#footnote-2) | Baseline and at end of project | MOESC Research and Planning Department with data from Bureau of Examination | Before and after |
| Indicator #7. Percentage of schools that meet minimum conditions for school infrastructure from MOESC | This standard will be defined as part of the infrastructure policy activities planned for year 1 using the indicators available from the school census 2019 in Sipaliwini, Marowijne, and Coronie | Baseline and at end of project | Census survey to the renovated schools, PMU | Before and after |
| Indicator #8. Students benefitting from renovated infrastructure | CRF Indicator. Benefits are associated to student that that attend schools with renovated infrastructure in Sipaliwini, Marowijne, and Coronie | Yearly | Progress project report prepared by the PMU | Before and after |

1. **Evaluation Methodology for EI1.**
   1. **Background**: Provided that early efforts and investments on curriculum development of STEM subjects are carried over, the evaluation will rely on a deployment mechanism that will assign randomly the new curricula to a sub-set of schools, and then roll over the curriculum across the rest of schools through time. The empirical strategy will exploit the random-by-design nature of the implementation, as well as time and geographic differences in roll over, to assess causal effects of the impact of lower secondary STEM curriculum reform on quality and relevance of educational services.
   2. **Data and methods.** System-wide data at school and student level on performance in the TIMSS 8th grade assessment, as well as on quality and internal efficiency of schools must be available. The strategy for causal inference will be derived from a design that will progressively roll over the extension of the new curriculum to random subsets of schools. As the new Math curriculum is expected to be completed by 2023, the team will design a random rollover mechanism to extend the curriculum forming two groups of schools that are balanced in observable characteristics yet differ in when they are assigned to start implementing the new Math curriculum. The main outcome variable of the evaluation will be a set of Math knowledge indicators at the school and student level The evaluation will measure retention of students at baseline right after the curriculum has been developed (expected by 2023) and after the curriculum has been rolled over (2024). An additional outcome will be the changes in pedagogical practices measured by the CLASS indicator.
   3. **Treatment and control groups.** Students in schools that are early adopters of the new curriculum will define a treatment group, and students in schools that are late adopters will form a control group. If the program succeeds, students in the schools where the new curricula was early deployed should perform better in Math during the first year of the roll over than students in schools assigned to enter later to the program. The evaluation will take place at the student level, yet randomization will be at the school level. Provided school and student attributes are balanced (which the research team will test) a difference in averages between students who are enrolled in the schools assigned to implement the new Math curriculum to students in those schools who are not would provide an estimate of program impacts. The identification assumption is that, on average, the students and schools that change to the new curriculum would have had the same performance as the schools that did not change in the absences of the intervention.
   4. The specific RCT design associated to this subset of the evaluation that measures effects at the school level outcomes is a cluster randomized trial with a cluster level outcome, (where schools are clusters). Data availability limitations at the time this proposal was created limit the determination of exact power calculations. Assuming an average of 25 students per cluster (average number of students per relevant classroom within school) we study plausible minimum detectable effect sizes with power 0.80, assuming an intra-cluster correlation on 0.15 (this is a conservative assumption, provided that, for instance, in the Dominican Republic, the intracluster correlation in math scores in standardized test is 0.19—see RD-L1127; the actual calculation will be refined after the team gets access to individual-level test scores for Surinamese students). The graph below (produced using the power analysis software) shows that if the assumptions hold, randomizing 80 schools would allow to detect effect sizes of around 0.32 standard deviations in Math test scores. The evaluation will randomize 80 schools during year 3 of the program to equally sized treatment and control groups.



* 1. **Implementation risks:** The evaluation implementation faces the risk that the Math curriculum is not developed by the end of the third year of the program. Mitigation of that risk is undertaken by promoting the use of local knowledge with curriculum reform in earlier grades that has been created in recent years. The team will also seek to encourage the use of international consultants and an advisory committee that will promote the evaluation. An additional challenge with the design might come from imperfect compliance of teachers in applying the new curriculum. As part of the program’s operations focus groups with the teachers are planned to be implemented as to identify the challenges related with resistance to change in adopting the new Math curriculum, and design strategies on how to address those challenges. In the presence of imperfect compliance, we could refine the evaluation strategy and implement an encouragement design, where teachers in some schools within the treatment branch would be randomized to receive periodic encouragements to adopt the new curriculum and others will not. The encouragement design would allow us to determine the effects using instrumental variable estimator under the assumption that encouragement monotonically induce some teachers to adopt the design.

1. **Evaluation Methodology for EI2.**
   1. **General aspects of the evaluation methodology for EI2**: To assess the causal effect of technology-based learning of Dutch during early childhood on students in grade 4 with appropriate Vocabulary in Dutch, an experimental design will be implemented. First, the program will seek to identify students in the first years of education that do not speak or perform very poorly in Dutch. Such an assessment of proficiency will be based on a survey of languages used at home. Based on the results of that assessment, and on revealed interest by the schools to participate in the initiative, schools will be ranked according the prevalence of non-Dutch speakers. Within the group of schools with less students who speak Dutch, some schools will be randomized to receive the intervention and some others will not. Notice that all schools in the interior Districts of Suriname will receive tablets (approximately 10 tablets per school) as part of this operation. Taking advantage of this intervention (tablets to schools) a random subset of schools with a low proportion of Dutch speakers will be loaded a software for those tablets specialized to learn Dutch (the treatment).
   2. **Data and methods:** The empirical strategy for causal identification of the effects of the program will be based on a lottery-based RCT mechanism that will assign tablets with specialized software (the treatment) to all students in a subset of all the schools with a high prevalence of non-Dutch speakers. A subgroup of non-Dutch speakers in a subset of schools with high incidence of non-Dutch speakers in early childhood will join the treatment group. The randomization of the treatment will be at the school level. The theory of change associated to this intervention assumes that if the program succeeds, students that did not speak Dutch before the intervention and adopted the technology will show better communication capabilities in Dutch than other students, subsequently allowing them to perform better in school than students who do not adopt the technology.
   3. **Power calculations:** The intervention can be considered a cluster randomized control trial with person-level outcomes (where clusters are the schools, and the persons are the students who do not speak Dutch in the schools). Assuming high dispersion in Dutch proficiency (ICC =0.05) and 20 students per class, the minimum detectable effect sizes for different number of schools are presented in the graph below (for a power of 0.80, and a statistical significance of 0.05). The empirical distribution of the rho parameter will be determined after the Dutch exam has been implemented, and power calculations refined accordingly. In the graph below we show that with 60 or more schools, effect sizes of 0.30 standard deviations or smaller could be detected. The evaluation will seek to randomize 60 schools to equally sized treatment and control groups.



* 1. **Implementation risks:** In cooperation with the GoS, the project’s team is working to build a partnership with language learning company with experience in digital and on-line learning to develop a software adapted to Suriname’s cultural diversity. There is a risk of not finding a tool for early childhood language learners that can translate to all 26 languages in Suriname, reducing the impact of the intervention on some children. As a risk mitigation initiative, written materials will also be developed as a complement in case the platform cannot support all the languages.

1. **Coordination, Evaluation, Work Plan and budget**
   1. The design, implementation and supervision of the evaluation plan of the SU-L1059 program will be responsibility of the MOESC. A specialized consultancy will support the MOESC in all the stages of the evaluation plan. All methodological aspects, including data needs, stratification strategy, selection of treatment groups and other parameters for the randomization process, data analysis, empirical strategy for causal inference, results gathering and visualization, results reporting, presentation and dissemination, etc., will be part of the specialized consultancy.
   2. Evaluation and implementation costs will be concentrated in the following activities: (i) Design and implementation of a random design for the new lower secondary curriculum deployment; (ii) Design and implementation of a random assignment for distributing tablets for learning Dutch as second language; (iii) Strategy for establishing a comparable control group within the evaluation strategy of infrastructure investments; (iv) Data management, processing and assessment of additional data needs; (v) Empirical strategy for estimating causal effects for each evaluation; (vi) Results gathering, reporting and visualization and dissemination; (vii) knowledge products publication and dissemination.

**Table 3.2 Costs of measuring ex-post benefits**

|  |  |  |  |
| --- | --- | --- | --- |
| **Evaluation** | **Unitary Cost** | **Total Cost** | **Source** |
| Baseline classroom observation (implementation of CLASS) | $30,000 | $30,000 | SU-T1115  IDB transactional |
| Consultancy – Senior Researcher | $50,000 | $50,000 | SU-L1059  line 4.2.1.2 |
| Consultancy – Randomization strategy and control/treatment group determination | $10,000 | $30,000 |
| Consultancy – Design and implementation of evaluation strategy; data gathering; data analysis, results reporting, visualization. | $10,000 | $30,000 |
| Consultancy – Research assistance for the evaluation plan | $20,000 | $20,000 |
| Translation, transcription, editing of a knowledge product. | $20,000 | $20,000 |
| Dissemination strategy | $10,000 | $10,000 |
| Travel expenses (8 trips) | $2500 | $20,000 |
| Data collection | $30,000 | $120,000 |
| Intermediary Evaluation | $20,000 | $20,000 | SU-L1059 line 4.2.1.1 |
| Final Evaluation | $30,000 | $30,000 | SU-L1059 line 4.2.1.3 |
| Audit | $ 7,000 | $50,000 | SU-L1059 line 4.2.1.3 |
| TOTAL |  | $430,000 |  |
| **TOTAL FINANCED BY PROJECT** |  | **$400,000** |  |

**Table 3.3. Schedule for measuring ex-post benefits**

| **Year** | **2021** | | | | **2022** | | | | **2023** | | | | **2024** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Quarter** | **1** | **2** | **3** | **4** | **1** | **2** | **3** | **4** | **1** | **2** | **3** | **4** | **1** | **2** | **3** | **4** |
| **Timeline for Evaluation Initiative** 1 | | | | | | | | | | | | | | | | |
| Random design and treatment/control group analysis |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Implementation of evaluation strategy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Data analysis, results reporting, visualization. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Results presentation and stakeholder validation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Publication |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Timeline for Evaluation Initiative 2** | | | | | | | | | | | | | | | | |
| Random design and treatment/control group analysis |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Implementation of evaluation strategy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Data analysis, results reporting, visualization. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Results presentation and stakeholder validation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Publication |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Appendix A**

The teacher practices index consists of four indicators from the CLASS framework (Table 3.4).

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 3.4 Pedagogical Practice Index** | | |  |
| Area of Analysis | Description | Indicator | Baseline Suriname (2020) |
| Quality of Teaching Based on the CLASS Framework | | |  |
| Emotional support | Positive relationships among teachers and children, teachers’ abilities to support social and emotional functioning in the classroom | Regard for student perspectives | TBD  (Belize 2017 52.80) |
| Classroom Organization | Well-managed classrooms that provide children with frequent, engaging learning activities | Behavioral management | TBD  (Belize 2017 74.50) |
| Instructional Support | Interactions that teach children to think, provide ongoing feedback and support, and facilitate language development | Analysis and inquiry | TBD  (Belize 2017 26.90) |
| Student Engagement | Student attention and participation | Active Engagement | TBD  (Belize 2017 57.40) |
| Source: CLASS and inputs from loan proposal for Belize (BL-L1018). | | | |

1. See Appendix A to the present document that described the CLASS instrument. [↑](#footnote-ref-1)
2. O.S. TOUT LUI FAUT; O.S. VERL. TOUT LUI FAUT, O.S. I HOUTTUIN ; O.S. II HOUTTUIN ; O.S. DIJKVELD ; O.S. VREDENBURG; DR. DE RUYTER; D.P. TALBOT; Anne Bakkerschool; H.A. Izaakschool [↑](#footnote-ref-2)