Suriname

EDUCATION MANAGEMENT INFORMATION SYSTEMS

SABER Country Report
2016

Key Policy Areas	Status
1. Enabling Environment Suriname has begun the process of building and institutionalizing an EMIS. The Ministry of Education, Culture and Science (MINOWC) lacks a comprehensive legal framework, strategy and policy to drive the process and management of an EMIS. The absence of these has resulted in a lack of commitment towards devoting resources, including human resources and budget, towards developing EMIS as the core Ministry system. This has threatened the long-term viability of the system. In addition, the lack of policies hamper efforts to streamline coordination and sharing of data within the ministry.	Latent
2. System Soundness The current EMIS is a SQLServer based software solution hosted by an outside vendor. The system captures administrative data, including demographic data on schools and teachers. Paper-based annual census forms are used to collect data from schools, which are manually entered into the EMIS system at central level. Trust within the government in the quality of data is low. However, a new School Information Management System is being introduced that has the potential to address a number of the challenges that existed in the legacy OIS system, particularly in the areas of data architecture and data analytics. This process of implementing this system is in its nascent stage.	Emerging
3. Quality Data In Suriname, there are gaps in the methodological soundness underpinning the education data, the EMIS is not aligned with national datasets and there is an urgent need for standardization of processes, data codes, and metadata across agencies. Despite this, there are currently some practices underway to validate the accuracy and reliability of data, although further support is needed both in terms of automated technical validation, as well as manual validation efforts. The EMIS has had issues disseminating findings. The annual education statistics yearbook has not been produced since 2008, making it four years behind schedule and revealing major challenges with periodicity and timeliness.	Latent
4. Utilization for Decision Making Currently, the EMIS data is primarily used for reporting indicators to UNESCO. The data is not being utilized by schools, nor is education data being used to drive the policy agenda within the government. EMIS utilization is limited and does not play a significant role in operational use. Finally, Suriname's EMIS is currently not publicly disseminating education statistics via a website or a statistics yearbook.	Latent

Introduction

In 2011, the World Bank Group commenced a multiyear program designed to support countries in systematically examining and strengthening the performance of their education systems. Part of the World Bank's new Education Sector Strategy, this evidence-based initiative, called SABER (Systems Approach for Better Education Results), uses diagnostic tools for examining education systems and their component policy domains against global standards and best practices and in comparison with the policies and practices of countries around the world. By leveraging this global knowledge, the SABER tools fill a gap in the availability of data and evidence on what matters most to improve the quality of education and achievement of better results.

This report discusses the results of applying the SABER–Education Management Information Systems (EMIS) tool in Suriname. The objectives of this report are to examine the system according to key policy areas, identify successes and challenges in the system, and provide recommendations to support the continued advancement of EMIS in Suriname.

Overview of SABER-EMIS

Information is a key ingredient in an effective education system. SABER–EMIS aims to help countries improve data collection, data and system management, and data use in decision making. SABER-EMIS assesses the effectiveness of a country's EMIS, with the aim of informing policy dialogue and helping countries better manage education inputs and processes to achieve overall efficiency and strong learning outcomes.

A successful EMIS is credible and operational in planning and policy dialogue, as well as teaching and learning. It produces and monitors education statistics within an education system and has a multifaceted structure, comprising the technological and institutional arrangements for collecting, processing, and disseminating data (Abdul-Hamid 2014). It is crucial for tracking changes, ensuring data quality and timely reporting of information, and facilitating the utilization of information in decision making.

The SABER-EMIS assessment methodology is built on four key policy areas that are essential to EMIS and must be assessed to understand and ultimately strengthen the system. Each policy goal is defined by a set of policy levers (actions that help governments reach the policy goal) and indicators (measuring the extent to which the policy levers are achieved) (figure 1).

Figure 1: SABER-EMIS Policy Areas and Levers

Source: Abdul-Hamid 2014

A strong enabling environment lays the foundation for an effective EMIS. Enabling environment refers to the laws, policies, structure, resources, and culture surrounding an EMIS that make data collection, management, and access possible. In essence, this policy area is the context in which an EMIS exists. This defined scope of an enabling environment builds on lessons learned from studies of education management systems.

System soundness ensures key processes, structures and integration capabilities in an effective EMIS. Education data are sourced from different institutions, but all data feed into and make up EMIS. Databases within an EMIS are not viewed as separate databases, but as part of the *whole* EMIS. Key aspects of system soundness include what data are covered in EMIS and how they come together in the overarching system.

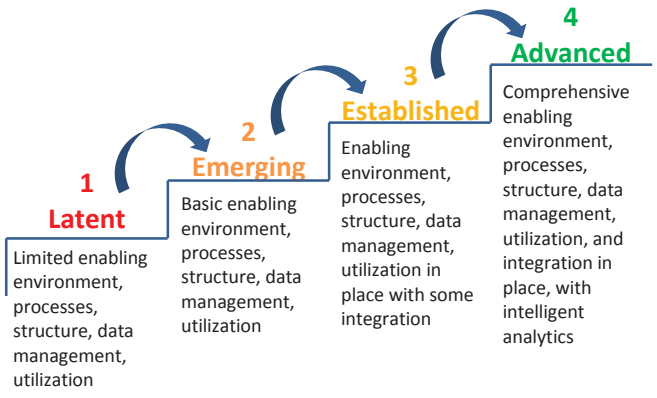
Quality data establishes the mechanisms required to collect, save, produce, and utilize information in an accurate, secure, and timely manner. Data quality is a multidimensional concept that encompasses more than just the underlying

accuracy of the statistics produced. It means that not only are the data accurate, but that the data address specific needs in a timely fashion. Quality data lays the groundwork for utilization.

An effective EMIS is utilized in decision making by all users (parents, students, teachers, principals and policy makers) across the education system. An EMIS needs to be used so that measures can be taken to improve educational quality. Accurate information on education sector performance enables the design of more informed policies and programs. It is imperative to understand where decision making occurs, if the capacity to analyze and interpret education data exists, and if specific data are available to inform decisions.

Using the EMIS data collection instrument, policy levers are scored on a four-level scale (latent, emerging, established, and advanced) to assess the extent to which *both* policy intent and implementation are achieved (Figure 2).

Figure 2: SABER Scoring and EMIS Development



Source: Abdul-Hamid 2014

Approach

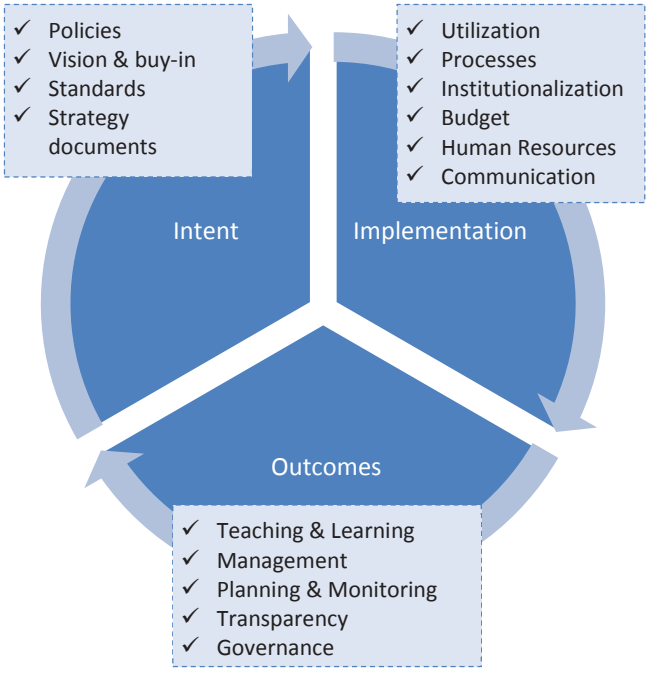
Intent & Implementation

The EMIS assessment examines policy intent and the degree to which intended policies are effectively implemented on the ground (figure 3). Intent refers to the way in which EMIS and its overarching purpose are articulated by decision makers and documented in policies and legislation, as well as standards and strategy documents. Assessing intent alone only reveals part of the picture.

As such, this EMIS assessment also evaluates policy execution. Implementation refers to the degree to which intentions take place during the day to day activities of stakeholders (e.g., policy makers, county administrators, principals, teachers, students, etc.). Implementation can be observed through utilization of EMIS by stakeholders, budget allocation, distribution of human resources, availability of professional development activities, communication and dissemination of information, as well as the extent of institutionalization across the system. Once policy intent and implementation are analyzed, the EMIS assessment explores the results of these two key components, with a focus on system effectiveness and efficiency, in addition to teaching and learning, and management and planning. Strong education systems will ultimately use these outcomes to inform the effectiveness of policies and education strategies and make adjustments as necessary, creating the cyclical process illustrated in figure 3.

In Suriname, EMIS intent and implementation were assessed through desk research, analysis of system applications and utilization, as well as interviews with a variety of stakeholders (table 1).

Figure 3: Policy Intent, Implementation and Outcomes Cycle, with Examples



Source: Authors

Table 1: Measuring Policy Intent and Implementation in Suriname

Policy Intent	Processes	Policy Implementation
• Multiple meetings with MINOWC • Extensive review of relevant policies , national strategies, standards, and planning documents	• Analysis of data quality and comprehensiveness • Examination of professional development activities.	• Interviews national, district and schools levels including policy makers and education stakeholders

Source: Authors

Methodology

The EMIS assessment methodology consists of a review of written policies and technical documents as well as interviews with key stakeholders across the education system to ensure proper implementation.

Research and investigation for the Suriname EMIS assessment took place from March to June, 2015. The authors conducted a comprehensive review of policies, as well as technical documents and other background materials. To further examine policy intent and implementation, a series of interviews and meetings took place with the following entities:

1. Ministry of Education, Science and Culture (MINOWC), including the Development Services Division, Education Inspection Division, Information and Communication Technologies (ICT) Unit, and other education divisions
2. Bureau of Statistics
3. Sample of schools

Country Overview

Suriname is an upper middle income country in northern South America. Suriname borders the North Atlantic Ocean, French Guiana, Guyana and Brazil. One of South America's smallest countries, 95 percent of Surname is covered in forest.

Suriname has a population of 538,200, 27 percent of which is between the ages of 0-14 (World Development Indicators, 2014). East Indians, Creoles, Javanese, Maroons and Amerindians make up the largest ethnic groups in the country, making it one of the most ethnically diverse countries in the world. Over 85 percent of the population lives in coastal districts, primarily concentrated in the capital - Paramaribo (Bureau of Statistics, 2012). Although the interior makes up the majority of the country, it is remote, sparsely populated, highly isolated and poorer than the rest of the country.

Suriname is divided into ten districts, each with a district commissioner. Each district is further divided into *ressorts*, of which there are sixty-two in total. In Paramaribo, the *ressorts* are akin to neighborhoods, however in other districts the resorts are more similar to municipalities.

Although Suriname has a GDP per capita of $16,637, the economy is facing significant challenges (World Development Indicators, 2014). Heavily reliant on its mining industry, the economy is vulnerable to mineral price volatility. As a result, Suriname's annual economic growth dropped from 5.3 percent in 2011 to 1.8 percent in 2014.

Education Overview

MINOWC serves the ten districts across the country. The law stipulates that education is compulsory between ages 7 and 12, but a new law is currently under consideration that would make education compulsory from 4 to 16 years of age. The education system consists of pre-primary education, primary education, junior secondary education, and senior secondary education (Appendix C: Suriname Education Structure). Upon entering junior secondary school, students decide to pursue either general education in preparation for college, or vocational and technical education. Enrollment drops at the secondary level, especially among boys who leave school for work (table 2).

Table 2: Suriname Education at a Glance, 2013

Students	
Pre-primary	18,471
Primary	69,410
Lower secondary	37,933
Upper secondary	13,868
Enrollment Rates, Net	
Pre-primary	78%
Primary	92
Lower secondary	48
Upper secondary	14
Public Expenditure on Education	
As a percentage of GDP	5.0%
As a percentage of government expenditure	15.2

Source: Suriname Department of Research and Planning, MINOWC and Ministry of Finance, 2013

EMIS Background

Previous efforts to implement EMIS in Suriname have encountered significant challenges. The Department of Research and Planning (formally the Department of Research Planning and Monitoring) is responsible for the production of education statistics. From its inception in the 1970s until 2003, all data was collected and recorded by hand. In 2003, an EMIS referred to as OIS (Education Information System) was introduced. According to an external evaluation of OIS (Luursma et al. 2009), the database was initially designed as an Informix database on UNIX. MS SQL Server was later chosen with a client front-end written in Delphi 6. The transition was managed by local firm, Business and Data Solutions (BDS). By the 2004/05 school year, education data was available in OIS and the first education indicators and trends yearbook were published in the 2006/07 school year, with another in 2007/08; however, after that point yearbooks were not published. The Department of Research and Planning is in the final stages of cleaning data from 2008 to 2014. An internal meeting in July will review progress and determine next steps with regard to publishing the data.

Several fundamental issues blocked the effectiveness of OIS implementation. First and foremost, the implementation was heavily focused on establishing the software, but failed to train and build capacity across MINOWC. This process of building capacity and ensuring that the technology is understood and incorporated into MINOWC is referred to as "institutionalizing" or "operationalizing" an EMIS. It is critical to the success of an EMIS because it ensures that:

- Users across MINOWC from teachers to high-level officials understand how to use the EMIS;
- The enabling environment (e.g., policies, standards, budget, etc.) is established to ensure integration across MINOWC and sustainability so that when the government changes, the EMIS will be easily continued by the next administration; and
- Communication about EMIS reaches across the education system so that everyone knows about the value, vision, strategy and objectives of the EMIS and how it contributes to quality education.

Second, due to the absence of effective institutionalization, government transitions took place and when new staff joined MINOWC, there was no context or process for working with OIS. New staff in the Department of Research and Planning lacked the information on OIS that was necessary to maintain momentum around collection, management and utilization of education data. Further, a series of changes in high-level staff, including the Minister of Education and the Permanent Secretary, led to shifts in the EMIS strategy and decisions to stop certain software and vendor agreements and start new contracts elsewhere.

Third, the contract with Business Development Solutions (BDS) did not give full control of education data to the Department of Research and Planning. Instead it effectively made BDS a gatekeeper that the department had to go through anytime it wanted to make changes to existing data. The department can access the data, but cannot add variables or make additional changes to the data.

Finally, the quality of data in OIS is poor. Due to the issues raised above as well as software limitations, OIS is not effectively producing quality data. For example, duplicate records exist, and codes are not up to date with those of other government agencies, causing major integration bottlenecks. As the data is not directly hosted by the Department of Research and Planning, updating fields and codes or adding verification levels is difficult or not possible.

Prior attempts by donors to develop a well-functioning EMIS faced challenges. IDB's Basic Education Improvement Project is a multi-phase operation with two phases spanning an eight year period. The phase I (2004-12) investment totaled US$ 13.7 million and the phase II (2012-16) investment is estimated at US$ 12 million. With regards to EMIS, the program (part of phase II) aimed to finance: (i) a needs assessment to expand the EMIS at MINOWC and school levels; (ii) the consolidation and linking of MINOWC personnel information; (iii) the establishment of a student performance tracking system in at least 150 schools; (iv) an expansion of the physical infrastructure to house an EMIS data center; and (v) training for at least 10 MINOWC staff and staff from the selected schools on using the EMIS (IDB Second Basic Education Improvement Program Loan Proposal). The proposal stated that the Dutch Government, UNICEF and the Flemish Association for Development Cooperation and Technical Assistance (VVOB) would supportMINOWC in strengthening EMIS, but ultimately the EMIS component of this project did not achieve its intended objectives and the proposal was not fully realized. The Department of Research and Planning worked with UNICEF on a school mapping project, but has not worked with UNICEF on activities specific to EMIS.

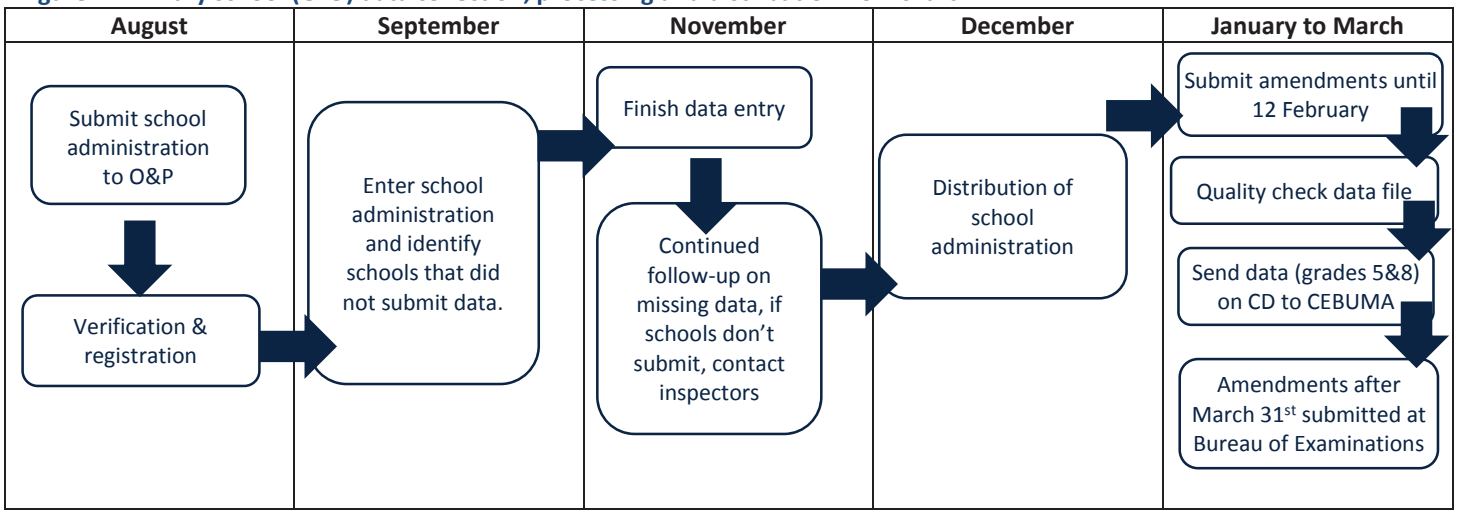
The Government of Suriname has prioritized EMIS, investing in the new system and engaging donors to support the process. UNICEF and IDB also recognize the need for an effective EMIS. Due to resource and operational constraints, neither IDB nor UNICEF are able to lead the advancement of EMIS in Suriname.

Currently, the Government of Suriname is in the process of deploying two new information systems. The Ministry of Finance is implementing an off-the-shelf product by a Canadian software company, FreeBalance. The customized product will launch this year and be used by the finance departments of all 17 ministries. The system will be fully integrated across the government, and will also run according to the Government Finance Statistics (GFS) methodology. MINOWC has also invested in a new product, the School Information Management System (SIMS), a product designed by Milestone Consulting & Solutions NV. Milestone is providing technical support for the roll-out of the product, which will take place this year. SIMS is a web-based, customizable, modular framework that provides a central platform for the management of educational activities and access to data. If deployed and used effectively, the system represents a major opportunity to ease integration issues both within MINOWC and with external agencies.

Major barriers around coordination block MINOWC from effectively collecting, managing and using education data. This challenge was communicated consistently across conversations with MINOWC departments. Based on the current organizational structure, MINOWC has 36 units and 20 of those units collect data (Appendix D: MINOWC Education Organizational Chart). It seems that many of these units have individual processes and systems for collecting, managing and analyzing data. Tremendous gains on efficiency and spending would be made by streamlining siloed data management processes. Additionally, improvements in communication and coordination between units would reduce redundancies. A monthly internal MINOWC staff memo, or even an internal blog could help improve communication and coordination between units.

With regard to data collection, several challenges exist ranging from regional and technical challenges, to coordination issues. First, there are inconsistencies and gaps in reporting from the school level. Schools in the interior especially have challenges reporting data. The current process that the Department of Research and Planning aims to follow has the department receiving school data once per year in August, primarily in hard copy form, which is then manually inputted into an excel table (figure 4). Quality checks and follow-up with schools that did not submit data takes place through November. Between January and March the Department of Research and Planning conducts quality checks and sends a CD with the final administrative data to the Central Bureau for Computerized Administration (CEBUMA).

Figure 4: Primary school (GLO) data collection, processing and distribution flow chart



Suriname EMIS Results

This section presents the main results of EMIS diagnostics described in the previous sections. Results and scores for each policy goal are presented, along with supporting evidence.

Policy Area 1: Enabling Environment

Latent ●○○○

Suriname's enabling environment was assessed in the following areas: (1) Legal Framework; (2) Organizational Structure and Institutionalized Processes; (3) Human Resources; (4) Infrastructural Capacity; (5) Budget; and (6) Data-driven Culture.

Suriname's EMIS lacks a comprehensive and explicit legal framework to drive the process and management of the system. Policy gaps exist in a number of key areas:

- The lack of a comprehensive and explicit EMIS strategy.
- Policies do not clearly define roles and responsibilities.
- Policies do not state budget needs.
- Policies are not in place that set utilization or confidentiality requirements for education data.
- Policies do not mandate technical requirements for the system.
- Some data reporting requirements exist in reporting obligations and instructional standards, as well as subsidy agreements, but they do not appear comprehensive. For example, non-compliance penalties and the ability to implement such penalties are weak.

A good legal framework will strengthen EMIS sustainability by helping the flow of data continue amidst government transitions. In Suriname, changes in administration have been an obstacle to EMIS in the past, and continue as a threat, making the legal framework a priority for improvement.

In Suriname, EMIS struggles in part due to a lack of institutionalization. The central system put in place with the external vendor, Business and Data Solutions, does not effectively empower the Department of Research and Planning to manage, process, adjust and disseminate data on a regular basis. Once up and running, SIMS certainly has the potential to fill this gap. Currently, the Department of Research and Planning must go through the vendor to make changes to data, which takes significant time. Further, the Department of Research and Planning has decided not to continue working with the vendor, but a transition plan to migrate the data from the vendor's server to a server controlled by the Department is a lengthy process.

While the responsibility for collecting, processing, and disseminating education statistics is designated to the Department of Research and Planning, the department is not able to fulfill the full scope of responsibilities at this time. Lack of coordination and communication with other units within MINOWC creates redundancies and impedes efficient progress. For example, schools currently send data to Inspection Bureaus and Research and Planning. In addition, due to conflicting time frames in reporting needs, both the General Bureau of Statistics and O&P collect separate school census data. Identifying one department as the primary collector of data may improve efficiency. The education system specifically, and the government in general, would benefit significantly from a strategy on government data including a law/policy that guides the processes and procedures for working with other government units.

There are no policies in place to streamline coordination and sharing of data, leading to major breakdowns and inefficiencies within MINOWC, across the education system, and between MINOWC and other ministries and bureaus. Duplication of efforts and lack of coordination create challenges that could be alleviated by clear data sharing procedures. Schools currently report the same data to multiple departments at different times of the year. Some schools are more willing to share data than others. A policy that mandates data reporting and provides guidance on coordination may improve this process. Additionally, SIMS provides an opportunity to streamline these efforts with a single point of entry through which schools input data once into an integrated and centralized system, where data is validated and then shared with the appropriate stakeholders.

General improvements to MINOWC's organizational structure and institutional processes will greatly enhance EMIS functionality. For example, the ICT Department is leading the process of securing and implementing the new system; however, the Department of Policy and Planning, one of the primary users of the new system, does not receive consistent communication and updates on the new system. Robust processes and better communication between departments will contribute to the effective rollout of the new system. There appears to be an assumption that once schools input data into the system, data will be validated by the various Inspection Bureaus; however, these Bureaus have not been consulted. Further, much of the data validation process is currently taking place with the Department of Research and Planning. Identifying the department responsible for validating data submitted into the new system, and defining this process is absolutely essential. If this does not happen, the quality of data in the system will be poor, and effective utilization will be significantly blocked, if not impossible.

Currently EMIS in Suriname is struggling due to a significant lack of human resources and opportunities for capacity development. While there are talented staff across MINOWC, lack of complete staffing (Appendix E: Research & Planning Organizational Chart with Current Staffing Numbers), as well as limited professional development opportunities pose formidable challenges to the long-term success of EMIS and should be remedied. Further, staffing guidelines produced by the Ministry of Internal Affairs block the Department of Research and Planning from hiring ICT staff and data analysts that are essential to the department's core work. The core team currently at the Department of Research and Planning is strong and continues to do great work, powered by a sound guiding vision, yet the team is eager to add technical specialists to support them in reaching this vision. An effective EMIS is powered by qualified staff who operate the system and have access to multiple opportunities to improve their performance, and remain current with the latest technology and best practices.

Data supply in Suriname could be improved by establishing a clear data reporting policy and by linking incentives to compliance with data reporting procedures. According to the Legal Affairs Department of MINOWC, because public

schools hierarchically are under MINOWC, neither agreements nor legislation exist to mandate schools to submit data. Instead, requirements for public schools to submit data fall under regular reporting obligations as defined in instructional standards. Data supply is an essential consideration for any EMIS because it ensures the gathering of data at the school-level. In many countries this is done through an annual school census. Explicit policies that mandate data supply and link to a national EMIS policy and strategy help make data supply occur in a smooth and consistent manner.

Policy Area 2: System Soundness

Emerging ●●○○

Suriname's EMIS soundness was assessed in five critical areas: (1) Data Architecture; (2) Data Coverage; (3) Data Analytics; (4) Dynamic System; and (5) Serviceability.

Significant challenges existed in the legacy OIS system, especially in the areas of data architecture and data analytics; however, the new system, SIMS, has been identified, is being customized, and has the potential to advance EMIS in Suriname to a new level. As SIMS is customized and deployed, it will be important to consider data architecture from the perspective of the overarching system and what it intends to produce. Constructing a well-defined wireframe to inform the architecture, using a table of specifications to guide the structure of databases, and ensuring mechanisms to bring data from different sources together are important considerations for the system. As highlighted in the *EMIS Background* section, the legacy OIS system was limited. It focused more on establishing the technological architecture, but failed to build capacity for utilization. The new system should offer the appropriate departments with direct access to data and the ability to run data analysis, tabulations, associations, correlations, projections, and to make changes to variables, create new indicators, etc. With these pathways in place, the project should also include ongoing utilization training.

Currently, MINOWC's data coverage is limited to administrative data. Minimal administrative data is collected via the annual survey circulated by the Department of Research and Planning, which is delivered in hard copy and then manually inputted into the system. According to the Department of Research and Planning, EMIS currently includes data from primary and secondary schools (including religious schools), though there is little data from upper secondary. Minimal data from tertiary education and private schools is collected by the Department of Research and Planning, though efforts are underway to begin collecting more tertiary data. In addition to MINOWC's data collection, the GBS independently collects administrative data from schools, collected primarily through phone calls, although in some cases the Bureau receives data in the form of excel tables. The GBS also collects data from tertiary schools, including the number of part and fulltime students, enrollment rates by degree program and the number of teachers.

Data and statistics have mostly not been analyzed and disseminated since 2008. However, the Department of Research and Planning does track a small scope of indicators (mostly to report to UNESCO). This is a good first step, but more work needs to be done to expand this list and train the Department accordingly. Most of the current indicators track internal, not external, efficiency (such as learning outcomes). Indicators should also examine regional educational variation. In addition, the data behind the indicators needs to be verified to ensure quality. The Department currently tracks the indicators listed in box 1.

Efforts are underway to establish a unique student identifier. Unique student IDs provide the ability to identify students, track their movement and progress in the school system, and collect and report student-level data. This is a strong step forward for EMIS in Suriname. In designing the unique student ID system, ensuring student confidentiality and data security is key. The unique ID should not just be a number that MINOWC uses, but instead a tool that other ministries use as well. To do this effectively and securely, collaboration with other ministries will allow MINOWC to gather a variety of information such as birth registration or certificate, birth date, or other unique IDs. A good student ID system will take combinations of identifiable data and encrypt it, giving each student a unique and unidentifiable ID that will follow them through their academic career. Identifying and training a responsible entity to manage, make changes and update IDs will also streamline the process. Considering unique IDs for teachers and even courses is another step that enables EMIS to better analyze the quality and efficiency of the education system.

Box 1: Department of Research and Planning Tracked Indicators

Enrollment
- Student enrollment by grade and sex
- Number of students enrolled, by age group
- Students enrolled by year and by age group
- Students enrolled by education level
- NER (Net Enrollment Rate)
- GER (Gross Enrollment Rate)
- ASER (Age Specific Enrollment Rate)
- ANER (Adjusted Net Enrollment Rate)
- Year-by-year monitoring of age cohorts. Ages 5 to 15
- SCR (Student Classroom Ratio)
- OOS (Out-of-school children-primary)

Intake
- AIR(Apparent Intake Rate)
- NIR (Net Intake Rate)
- Late entry

Repetition
- Percentage of repeaters by grade and sex
- RR (Repetition Rate by grade)

Completion
- Graduation Rate
- EGPGR (Expected Gross Primary Graduation Ratio)
- Promotion Rate, by age, grade and sex
- Survival Rate, by age, grade and sex
- TR (Transition Rate)
- Dropout Rate, by age, grade and sex
- GPGR (Gross Primary Graduation Ratio)
- PCCR (Primary Cohort Completion Rate)
- SLE (School-Life Expectancy)

Teachers
- Number of teachers by district, grade and gender
- Percentage of female teachers
- PTR (Pupil Teacher Ratio)

MDG Indicator
- Youth literacy rate
- Gender parity index for primary gross enrollment ratio
- Net Enrollment Rate, primary
- Primary Completion Rate

Source: MINOWC

The new EMIS is expected to include a learning management system (LMS), transport data, a financial module, teacher administration data, and an assessment module. A good practice for data coverage includes collection of administrative (student & school), financial, human resources, and learning outcomes data (table 3). While the new system does not need to include all types of data from the onset, designing the system such that greater data coverage can be added in the future would be worthwhile.

Table 3: Data Coverage

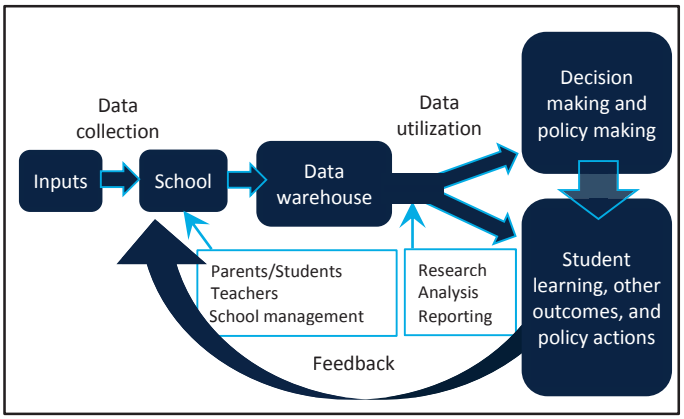
Administrative data	Financial data	Human resources data	Learning outcomes data
➢ Enrollment, access, drop-out rates ➢ Student to teacher, school to student ratios ➢ Completion, progression, survival rates ➢ Behavioral data, absenteeism, late arrivals (students & teachers) ➢ Special-needs data ➢ Efficiency ➢ Teacher qualifications ➢ Financial assistance data ➢ School improvement data ➢ Service delivery indicators	➢ Budget expenditure ➢ School fees ➢ Supply-side items such as textbooks, teaching materials, desks, paper, writing instruments	➢ Salaries (teaching and non-teaching staff) ➢ Conditional cash transfer data ➢ Professional development data ➢ Teacher years of experience ➢ Development courses, training, certifications, allowances for teaching and non-teaching staff ➢ Ministry of Finance data regarding human resources (if applicable)	➢ Grades ➢ National assessments ➢ Classroom assessments

Source: Abdul-Hamid 2014.

Challenges with regard to validity, integration of data, and archived data inhibit serviceability of the system. Databases are not integrated and there are silos at different levels of the education system, which limit evidence-based decision making. Data is archived in the legacy system and is difficult to access because the vendor acts as a gatekeeper, often blocking the Department of Research and Planning from the data, or taking weeks to respond. Overcoming these challenges will move Suriname much closer to an effective EMIS, and also carry positive outcomes for the overall management and efficiency of the education system. Regular maintenance procedures that monitor the quality of EMIS (such as fixing system bugs and upgrading software) are also essential.

Once collected, data does not flow back to local levels and schools via proper, systematic feedback loops. The cycling of analyzed data back to local school systems and schools via printed materials (e.g., school or district report cards) or a transparent dashboard or website is a best practice that encourages school improvement and strong buy-in across the education system (figure 5). Further, provision of information has been linked to increased quality and decreased school fees, outcomes that come about as a result of creating greater competition between schools (Andrabi, Das, and Khwaja 2009).

Figure 5: EMIS Information Cycle



Source: Abdul-Hamid 2014

Policy Area 3: Quality Data

Latent ●○○○

The quality of data captured by Suriname's EMIS was assessed in four areas: (1) Methodological Soundness; (2) Accuracy and Reliability; (3) Integrity; and (4) Periodicity and Timeliness.

In Suriname, there are currently gaps in methodological soundness, EMIS is not aligned with national datasets and there is an urgent need for standardization of processes, data codes, and metadata across agencies. For example, the General Bureau of Statistics should be able to access current, accurate data from the Department of Research and Planning. Every month the GBS receives data from MINOWC. However due to difficulties in ensuring high response rates from schools to the Department of Research and Planning's annual school survey, the GBS has begun conducting its own data collection as well. This is evidence of a breakdown in EMIS. When multiple entities are collecting the same data, problems emerge that stem from having more than one official source of data and variation in data collection, validation and management. Further, it puts added pressure on schools, which are reporting the same data to multiple entities. GBS also follows international standards in data coding, which allows for integration and data sharing. Codes should follow common standards and consistent training and support materials should be provided to ensure that agreed upon standards are understood and followed. Methodological soundness is a fundamental part of quality data because it provides the basis for producing educational statistics from raw data, generally based upon internationally accepted standards, guidelines, and good practices. In developing the new system, establishing strong methodological soundness is a priority, as problems in this area can carry highly problematic repercussions across other parts of the system.

In Suriname, there are currently some practices underway to validate the accuracy and reliability of data, though further support is needed both in terms of automated technical validation, as well as manual validation efforts. Automated procedures to cross-check data do not exist, instead validation is conducted through follow-up phone calls, which is time consuming and inefficient. Throughout meetings, numerous remarks were made about challenges associated with inaccurate and unreliable data. Accuracy and reliability is achieved when source data and statistical techniques are sound, and statistical outputs sufficiently portray reality. This is not yet a reality in Suriname, though pieces of this validation process are underway, and the launch of the new system is a key turning point, with potential to make the necessary adjustments to improve data accuracy and reliability.

EMIS has not been able to produce the annual education statistics yearbook since 2008, making it four years behind schedule and revealing major challenges with periodicity and timeliness. Currently there is not an efficient way to produce timely reports. Data is collected, but not analyzed or disseminated.

With regard to statistical techniques, the Department of Research and Planning needs training on areas such as techniques used to validate data accuracy, as well as calculating a wider variety of relevant indicators (in addition to those listed above). The Department of Research and Planning requested capacity building support in both quantitative and qualitative analysis, good practices in research and planning, as well as excel and SPSS, databases, Microsoft Project, and other ICT-related topics. The General Bureau of Statistics also voiced interest in similar trainings, and highlighted that collaborative training sessions across data collecting agencies would not only increase capacity, but also build alignment and integration between units. The Department has three sections, research, planning and monitoring; however, both planning and monitoring are currently not staffed. For the new system to be effective, these positions must be filled and training in statistical techniques, as well as the other areas mentioned, must be prioritized.

Policy Area 4: Utilization for Decision Making

Latent ●○○○

The utilization of Suriname's EMIS was assessed by examining four areas: (1) openness; (2) operational use; (3) accessibility; and (4) effectiveness in disseminating findings.

In Suriname, EMIS utilization is limited and does not play a significant role in operational use. A significant portion of time is committed to data collection and validation, which is conducted manually with little automated support from the system. Once in the system and validated, data is not analyzed strategically nor is it utilized to achieve learning outcomes.

Suriname's EMIS is not currently disseminating education statistics via a website or the statistics yearbook. As previously described, between 2009 and 2013, data was collected, analyzed and is in the final stages of being validated and cleaned, but there has been no public dissemination of data. Moving forward, efforts to disseminate data (especially circulating it back to schools), consider new platforms for utilization, publish simple comprehensible data, and support capacity of EMIS users are important steps to strengthen the accessibility of EMIS in Suriname. Education statistics should be presented in an understandable manner and widely disseminated using simple platforms for utilization, complemented by user support. Dissemination of education statistics should be strategic and effective. To achieve effectiveness in disseminating findings/results, a dissemination strategy should be developed along with measurable objectives. As the new SIMS platform takes root in Suriname, a dissemination strategy and measures of effectiveness should be put into practice.

EMIS in Suriname is not open to education stakeholders. Openness is a central part of utilization and is demonstrated by a system that is accessible to education stakeholders, in terms of both their awareness of the system, and their capacity to use the system. When openness is achieved, stakeholders can use the system in accordance with the legal framework, and current and potential EMIS users are aware of the EMIS and its outputs**.** Additionally, EMIS users have the skills to interpret, manipulate, and utilize data produced by the system, in order to ultimately disseminate findings.

Summary

This assessment highlighted weaknesses in the current EMIS in the areas of enabling environment, system soundness, quality data, and utilization. Suriname's EMIS benchmark (table 4) portray a country that has experienced some difficulty in establishing an effective EMIS. Government officials at MINOWC are keenly aware of these issues and eager to identify and pursue solutions.

A variety of contributing factors make this a promising time for EMIS in Suriname. There is high-level buy-in, both within MINOWC and across the government, to improve processes for collecting, managing and utilizing data. MINOWC selected a new system with strong potential for robust data coverage. Powered by political will and stakeholder interest, the country is now poised to move into the next stage of steady EMIS advancement.

To make the most of current opportunities, MINOWC could benefit from thinking strategically about EMIS, not only as an information system, but holistically in the context of the larger education system. A thoughtful, long-term strategy needs to focus on moving from a software platform to an institutionalized system. The government is addressing some of these issues by deploying a new software solution. However the move to a new EMIS needs to be executed carefully as it requires serious planning, budgeting, capacity building, proper sequencing, communication and collaboration. All stakeholders need to be involved to ensure system completeness. Intergovernmental collaboration between ministries, and collaboration between departments within ministries is essential, as it is critical to maximize proper implementation and better returns on government expenditures.

For EMIS to steadily advance, MINOWC must get the technical aspects right in regard to customization and deployment of the new product. Simultaneously, efforts should be made to link EMIS with overarching education goals, use the system to answer key policy questions, track progress to strategic goals, and to plan into the future.

In examining successful EMIS deployments, decision makers often set a 3 to 5 year plan with strategic EMIS milestones. Milestones might include rolling out a new module or program, expanding data coverage, or integrating with another agency. Mapping to each milestone, decision makers identify the necessary staff, professional development, and technical tools necessary to reach the milestone; as well as the associated measures that assess the extent to which the milestone was achieved.

Recommendations and Proposed Activities

This section presents a set of recommendations and proposed activities based on the assessment of EMIS in Suriname (table 4).

Recommendations and activities aim to improve the overall EMIS functionality in a sustainable and effective manner, to ensure better access and use of information for decision making, planning, and student learning. Future activities to improve the EMIS should be strategically designed such that they incrementally boost dimensions of the EMIS to a more advanced level, ultimately improving overall EMIS functionality in a sustainable and effective manner. The Strengths Weaknesses Opportunities Threats (SWOT) identification (table 5) summarizes key points from the needs assessment and informs recommendations.

Table 4: Suriname EMIS Rankings

1. Enabling Environment	**Latent** ●○○○
2. System Soundness	**Emerging** ●●○○
3. Quality Data	**Latent** ●○○○
4. Utilization for Decision Making	**Latent** ●○○○

Table 5: Suriname EMIS SWOT Profile

Strengths	Weaknesses
• Political will and **buy-in** from high-level officials • The Department of Research and Planning is eager and has been working on identifying their weaknesses and a roadmap to move forward • Identification and procurement of a **new system** and eagerness to move on with **customization** and **implementation**	• Previous attempts to implement the EMIS did not consider two important aspects, **institutionalization and operationalization** of the system. This is what contributed to failures and missteps. • Absence of explicit EMIS **policies to ensure sustainability and continuity of operation** • Insufficient **coordination** within MINOWC and with external agencies, including schools • **Human capacity** at the Ministry and capacity at school levels is missing at all levels • Limited channels for **communication** to inform and update stakeholders, for example between the ICT team and the Department of Research and Planning.
Opportunities	**Threats**
• Many **school principals** are eager to implement EMIS and have strong training and **experience** • Many schools are effectively **managing data** on their own, outside of EMIS • New EMIS system has potential to expand **data coverage** to include **financial, human resources**, and **learning outcomes** data. • The experience of the Ministry of Finance implementing the FreeBalance system may lead to the sharing of experiences by providing **integration** and **training**	• Barriers to **coordination and communication** continue to exist • Rushing to implement the new system (SIMS) could lead to breakdowns and failures - implementing **new technology** is difficult • Not having the process fully institutionalized could be affected by changes in government and will threaten **system sustainability** in the long term • Staff **turnover**

Given that Suriname has invested in a new information management system called SIMS, considerable time should be spent planning its design and implementation. This should include a review of the system's existing technical capabilities, followed by subsequent efforts to design necessary modules for data collection, data processing, analysis, and utilization at local, regional and central levels. Ensuring pathways for integration should be a priority, including the complete migration of data from old systems such as OIS, as well as integration of the new system with additional ones such as the Ministry of Finance's FreeBalance software or the information system used by the Bureau of Examinations. Even if these systems are not immediately integrated, key steps to ensure the integration should be undertaken at this early stage.

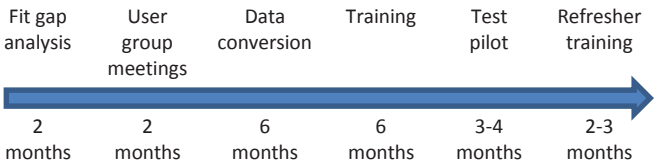
The customization and rollout of SIMS will be a complex and challenging process, some of the essential activities that will contribute to effectively implementing the new system are:

- ***Fit/Gap analysis*** – Develop a strategy that identifies the extent to which the new system fits the needs and meets the necessary requirements of Suriname's education system. This process should identify the major gaps, and employ techniques to address them.
- ***User group meetings*** – Convene stakeholder groups at all levels including MINOWC (Research and Planning, Inspection Bureaus, Examination, etc.) and representative groups from schools (teachers, principals and parents) to review goals with regard to data utilization. What key questions do users want to have answered by the data? How will the data be used to monitor and guide the larger education strategy? Work backwards to identify data coverage needs based on these questions. Also, user group meetings should identify key areas of responsibility, for example, which groups are responsible for data validation? User group meetings also clarify collaboration and data sharing procedures.
- ***Establish the enabling environment*** – A review of existing policies (policy gap analysis) and identification of areas where more comprehensive EMIS policies might be able to enhance the system's effectiveness.

- ***Training*** – Significant investment and time must be directed toward training at all levels of the education system. Training should continue over time, with an initial training followed by refresher trainings.
- ***Test pilot*** – Provides an opportunity to test the system. Removing bugs and software errors at this time will make user adoption easier.

Some of these activities are outlined below (figure 6), with the minimal recommended timeline for each. Activities and timeline are subject to high levels of variability, but on average, rolling out a new information system will take at least two years to be fully completed.

Figure 6: Sample Project Timeline



Building and strengthening a team to lead the efforts in implementing, maintaining and driving forward Suriname's EMIS is vital to the success of the new system. As part of this process, the Department of Research and Planning should be recognized as the initial and primary recipient of education data. Currently, primary and lower secondary schools report data directly to the Department of Research and Planning; however, senior secondary schools report to the Inspection Bureaus. The Department of Research and Planning is in the process of working with the Inspection Bureaus to transition all school data to go directly to Research and Planning. This transition will help streamline the flow of data and positions the Department of Research and Planning to be primarily responsible for Suriname's EMIS.**The Government of Suriname should support the Department of Research and Planning in recruitment, capacity building and training**, to help the Department reach its vision of becoming "a professional research center with data collected, managed, analyzed, and utilized at all levels of the education system". O&P should be strengthened with additional technical ICT staff, to increase in-house expertise where possible. Strengthening coordination and cooperating with the ICT team is also vital to success.

A consistent need for capacity building across MINOWC was voiced across meetings. MINOWC staff are highly capable and have a strong sense of where their strengths and weaknesses lie. There are opportunities to build capacity at all levels of the education system, in areas ranging from enabling environment and system soundness, to quality of data and utilization of data for decision making. Training should continue over time, with initial training programs followed by refresher trainings.

The type of data collected and indicators produced by the EMIS should be reviewed and further developed. Workshops with the Department of Research and Planning that include participants from other MINOWC departments as well as schools, could review existing data and determine the adjustments to data coverage and the indicators produced. Once data and key performance indicators are identified, dashboards need to be developed in order to monitor indicators.

Security protocols for the new system may need to be reviewed and revised. The Department of Research and Planning should lead this process with input from technical teams and the EMIS vendor.

The launch of SIMS presents an opportunity to increase the participation of schools, including having schools report data directly into a centralized and integrated system. This reduces chances of error in data handling and recording, and saves a substantial amount of time, previously committed to manually inputting hand-written data into the system. This type of integrated system would also increase efficiency for principals who currently report data to multiple sources. With SIMS they will be able to simply report data into the system once, where it can be accessed by other departments. Efficiency gains also extend beyond MINOWC. For example, the Department of Research and Planning reports data to the General Bureau of Statistics among other agencies, and the General Bureau of Statistics also collects and validates education data separately. Currently a tremendous amount of time and effort is going into data collection and reporting processes that are inefficient and redundant, a challenge that was emphasized by MINOWC staff.

The validity of data need to be ensured through both technical and manual processes. Automated and built-in mechanisms to conduct audits, quality assurance measures, and flag inconsistent/inaccurate data need to be established.

Further, processes to hold schools and regional offices accountable for the accuracy of data should be put in place. Regular internal and external audits need to be established. The Department of Research and Planning should lead these validation efforts.

Improve data utilization for better system-wide efficiency as well as teaching and learning practices. Too often a country will spend considerable investment in establishing an EMIS, but will overlook the critical aspect of utilization. An EMIS is only as good as its utilization. Without being used, data loses its value. Additionally, utilization is not limited to central government, but must include district and school-level stakeholders, as well as parents, students, and even community members.

Schools should be active data users. Schools are the frontline of data collection, and for data collection to be truly effective, teachers and principals should do more than simply collect data for a school census. The Department of Research and Planning should develop utilization training materials for teachers and principals with the goal of helping them to understand the value of data and gain tangible skills in data manipulation. Additionally, the new SIMS platform should provide a direct access point to EMIS data. It should be capable of creating feedback loops carrying national and regional analysis back to schools so that the flow of data is not one-directional. Training strategies, such as networks of trainers, could be employed to scale training opportunities across the country.

In order to achieve all these recommendations, the enabling environment for EMIS needs to be strengthened. This involves developing an explicit EMIS policy that includes key elements such as budgeting, human resources, institutional structure, data collection and utilization. EMIS policies drive the effectives of an EMIS, while securing the sustainability of the system. Drawing from regional and global best practices, the design of a comprehensive EMIS strategy, and associated policies, should be a phased process led by the Department of Research and Planning. Preparation of this document and related policies could include a series of conversations and workshops with stakeholders across MINOWC, as well as external stakeholders from relevant government agencies such as the General Bureau of Statistics, the Ministry of Planning, the Bureau of Examinations and the Inspection Bureaus.

EMIS policies drive effectiveness and safeguard the system in a variety of ways. Policies that mandate EMIS and EMIS resources establish continuity and sustainability for the system. Further, policies that specify responsibilities and roles for data collection and management prevent interference from external agencies. Similarly, policies that guide processes and procedures for working with other units and other sources of data contribute to improvements in quality, efficiency, and integration. Policies can also help to establish the supply of data into the EMIS by requiring schools to submit data in a timely manner, and positioning the EMIS team as the primary data collection authority.

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Acronyms

ADEK	Anton de Kom University
AHKCO	Academy of Arts and Culture
BDS	Business and Data Solutions
EMIS	Education Management Information System
GBS	General Bureau of Statistics
GLO	Primary School
IBO	Department of Inspection Basic Education (Inspektie Basis Onderwijs)
ICT	Information and Communication Technologies
IDB	Inter-American Development Bank
IMEAO	Institution for Secondary Economic and Administrative Education
IOL	Institute for Advanced Teachers Training
KO	Pre-primary School
LMS	Learning Management System
LOBO	Training College for Teachers of Vocational Education
MINOWC	Ministry of Education, Science and Development
MULO	Junior Secondary General Education
NATIN	Senior Secondary Technical/Vocational
O&P	The Department of Research and Planning (Onderzoek en Planning)
OIS	MINOWC's first EMIS (Onderwijs Informatie Systeem)
PTC	Polytechnic College
SABER	Systems Approach for Better Education Results
SIMS	School Information Management System
SWOT	Strengths, Weaknesses, Opportunities, and Threats
VOJ	Junior Secondary Level Education
VOS	Senior Secondary Education
VWO	Senior Secondary General Academic Education
HAVO	Senior Secondary General Ordinary Education
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	The United Nations Children's Fund
VVOB	The Flemish Association for Development Cooperation and Technical Assistance

References

Abdul-Hamid, Husein. 2014. “SABER EMIS Framework Paper.” World Bank, Washington, DC.

EP-Nuffic. 2014. “Landen-module: Suriname.”

Government of Suriname. 2013. “Jaarplan 2014.”

Inter-American Development Bank. 2012. “Second Basic Education Improvement Program (2nd BEIP) – Phase 1: Loan Proposal. (SU-L1019).”

Luursma, E; Nabben, M; Brands, J. 2009. “From OIS towards EMIS, report 2.” Freeman Management Consultants.

Milestone Consulting Solutions. “School Information Management System (SIMS).” http://www.milestonecs.biz/index.php/sims. Accessed March 16, 2016.

Ministery of Education, Science and Culture (MINOWC). 2013. “ICT in Education: Report of current status. e-Education worldwide and specifically in Suriname (Situational analysis).” Government of Suriname.

___. 2014. “National Policy and Strategy on ICT in Education.” Government of Suriname.

___. 2012. “De Nieuwe Leerkracht: Voorstel tot gefaseerde vernieuwing van de opleiding.” Government of Suriname.

___. 2014. “Suriname: Education for All Report 2010-2013.”

Stichting Leerplanontwikkeling (SLO). 2011. “Evidence-based curriculumontwikkeling in Suriname.”

___. 2011. “Op weg naar een curriculum voor het basisonderwijs: Curriculumraamwerk en leerlijnen”

World Development Indicators 2014. Washington, DC: World Bank. doi:10.1596/978- 1-4648-0163-1.

Appendix A: Summary of Policy Lever Benchmarking

Policy goal	Policy lever	Score[a]	Weight	Benchmark
Enabling environment	Legal framework	0.33	15%	Latent
	Organizational structure and institutionalized processes	1.77	15	Emerging
	Human resources	0.94	15	Latent
	Infrastructural capacity	1.04	15	Emerging
	Budget	0.26	15	Latent
	Data-driven culture	0.57	10	Latent
System soundness	Data architecture	1.67	20	Emerging
	Data coverage	0.44	30	Latent
	Data analytics	0.88	15	Latent
	Dynamic system	0.86	15	Latent
	Serviceability	1.62	20	Emerging
Quality data	Methodological soundness	1.35	25	Emerging
	Accuracy and reliability	0.62	25	Latent
	Integrity	0.23	25	Latent
	Periodicity and timeliness	0.67	25	Latent
Utilization in decision making	Openness	0.36	15	Latent
	Operational use	0.26	50	Latent
	Accessibility	0.12	20	Latent
	Effectiveness in disseminating findings	0.40	15	Latent

a. 0–0.99 = Latent; 1–1.9 = Emerging; 2–2.9 = Established; 3–4 = Advanced.

Appendix B: Extended Rubric, Suriname Scores Highlighted in Red

Policy levers		Indicators	Description of best practices	Scoring			
				Latent	Emerging	Established	Advanced
POLICY AREA 1: ENABLING ENVIRONMENT			**The system contains crucial components of a comprehensive enabling environment, which addresses related policy elements and enables the functioning of an effective and dynamic system**	**The system lacks major components of a comprehensive enabling environment**	**The system contains basic components of a comprehensive enabling environment**	**The system contains most components of a comprehensive enabling environment**	**The system contains crucial components of a comprehensive enabling environment**
1.1	**Legal framework**	Institutionalization of system: EMIS is institutionalized as an integral part of the education system and the government	An existing legal framework supports a fully functioning EMIS	A legal framework is not in place	Basic components of a legal framework or informal mechanisms are in place	Most elements of a legal framework are in place	There is an existing legal framework to support a fully functioning EMIS
		Responsibility: responsibility for collecting, processing, and disseminating education statistics is given to a clearly designated institution or agency					
		Dynamic framework: the legal framework is dynamic and elastic so that it can adapt to advancements in technology					
		Data supply: the legal framework mandates that schools participate in EMIS by providing education data					
		Comprehensive, quality data: the requirement for comprehensive, quality data is clearly specified in the EMIS legal framework					
		Data sharing and coordination: the legal framework allows for adequate data sharing and coordination between the Ministry of Education and agencies and/or institutions that require education data					

Policy levers		Indicators	Description of best practices	Scoring			
				Latent	Emerging	Established	Advanced
		Utilization: the legal framework emphasizes data-driven education policy					
		Budget: the education system budget includes a line item for EMIS					
		Confidentiality: the legal framework guarantees that respondents' data are confidential and used for the sole purpose of statistics					
1.2	**Organizational structure and institutionalized processes**	Organizational structure and institutionalized processes	The system is institutionalized within the government, has well-defined organizational processes, and has several functionalities beyond statistical reporting	The system is not specified in policies, and what exists does not have well-defined organizational processes; EMIS has limited functionalities	The institutional structure of the system is not clearly specified in policies, it has some organizational processes, and its functionalities are limited	The institutional structure of the system is defined within the government, it has defined organizational processes, but its functionalities are limited	The system is institutionalized within the government, has well-defined organizational processes, and has several functionalities beyond statistical reporting
1.3	**Human resources**	Personnel: the core tasks of EMIS are identified and EMIS is staffed with qualified people	Qualified staff operate the system, and opportunities are available to improve their performance and retention	Minimum standards of qualification are not met for the majority of staff that operate the system and opportunities are not available to improve their performance and retention	Some staff are qualified to operate the system, and limited opportunities are available to improve staff performance and retention	The majority of staff are qualified to operate the system, and frequent opportunities are available to improve staff performance and retention	All staff are qualified to operate the system, and well-established opportunities are constantly available to improve staff performance and retention
		Professional development: professional training is available for EMIS staff					
1.4	**Infrastructural capacity**	Data collection: tools for data collection are available	The system has a well-defined			The system has an infrastructure that	The system has a well-defined infrastructure

Policy levers		Indicators	Description of best practices	Scoring			
				Latent	Emerging	Established	Advanced
		Database(s): databases exist under the umbrella of the data warehouse and have both hardware and software means	infrastructure to perform data collection, management, and dissemination functions in an integral manner	The system lacks a well-defined infrastructure	The system has a basic or incomplete infrastructure	allows it to perform some of its functions in an integral manner	to fully perform its data collection, management, and dissemination functions in an integral manner
		Data management system: a system is in place that manages data collection, processing, and reporting					
		Data dissemination: data dissemination tools are available and maintained by the agency producing education statistics					
1.5	**Budget**	Personnel and professional development: the EMIS budget contains a specific budget for EMIS personnel and their professional development	The system budget is comprehensive, ensuring that the system is sustainable and efficient	The system suffers from serious budgetary issues	The system has a basic or incomplete budget	The system budget contains the majority of required categories to ensure that most parts of the system are sustainable and efficient	The system budget is comprehensive, ensuring that the system is sustainable and efficient
		Maintenance: the EMIS budget contains a specific budget for system maintenance and recurrent costs					
		Reporting: the EMIS budget contains a specific budget for reporting costs					
		Physical infrastructure: the EMIS budget contains a specific budget for physical infrastructure costs					
		Efficient use of resources: processes and procedures are in place to ensure that resources are used efficiently					

Policy levers		Indicators	Description of best practices	Scoring			
				Latent	Emerging	Established	Advanced
	Data-driven Culture	Data-driven culture	A data-driven culture prioritizes data as a fundamental element of operations and decision making, both inside and outside of the education system	The system suffers because there is not a data-driven culture that prioritizes data management and data utilization in decision making	The system has a data-driven culture that demonstrates a basic appreciation of data and interest in developing better data utilization practices	A data-driven culture exists that prioritizes data management and utilization within and beyond the education system	A data-driven culture exists that prioritizes data management and utilization within and beyond the education system, and evidence of that culture is present in daily interaction and decision making at all levels
POLICY AREA 2: SYSTEM SOUNDNESS			**The processes and structure of EMIS are sound and support the components of an integrated system**	**The system lacks processes and structure**	**The system has basic processes and a structure that do not support the components of an integrated system**	**The system has some processes and a structure, but they do not fully support the components of an integrated system**	**The processes and structure of the system are sound and support the components of an integrated system**
2.1	**Data architecture**	Data architecture	The data architecture is well defined to ensure full system functionality	The system's data structure does not have a well-defined data architecture	The system's data architecture includes some components; however, it is incomplete	The system's data structure has most elements of the data architecture; however, it has some deficiencies that affect the system's functionality	The data architecture is well defined to ensure full system functionality
2.2	**Data coverage**	Administrative data: EMIS contains administrative data	The data in the system are comprehensive and cover administrative, financial, human resources, and learning outcomes data	The data in the system are far from being comprehensive, and coverage is limited	The data in the system include some of the data areas	The data in the system include most but not all of the data areas	The data in the system are comprehensive and cover all data areas
		Financial data: EMIS contains financial data					
		Human resources data: EMIS contains human resources data					
		Learning outcomes data: EMIS contains learning outcomes data					

Policy levers		Indicators	Description of best practices	Scoring			
				Latent	Emerging	Established	Advanced
2.3	**Data analytics**	Data analytics	Tools and processes are available to perform data analytics at different levels on a regular basis	Tools and processes are used to perform limited tabulations	Basic tools and processes are available, but the system is not capable of conducting advanced analytical steps (e.g., predictive models, projections)	Tools and processes are available; however, data analytics are not performed regularly	Tools and processes are available to perform data analytics at different levels on a regular basis
2.4	**Dynamic system**	Quality assurance measures: the system is dynamic and maintains quality assurance measures Data requirements and considerations: mechanisms exist for addressing new and emerging data requirements System adaptability: EMIS is elastic and easily adaptable to allow for changes and/or advancements in data needs	The system in place is elastic and easily adaptable to allow for changes /advancements in data needs	The system in place is not easily adaptable to changes /advancements in data needs, as no quality assurance standards are used	The system in place is not easily adaptable and requires significant time and resources to accommodate changes and/or advancements	The system in place is easily adaptable, but it remains reasonably complex	The system in place is elastic and easily adaptable to allow for changes/ advancements in data needs
2.5	**Serviceability**	Validity across data sources: information brought together from different data and/or statistical frameworks in EMIS is placed within the data warehouse using structural and consistency measures Integration of non-education databases into EMIS: data from sources collected by agencies outside EMIS are integrated into the EMIS data warehouse Archiving data: multiple years of data are archived, including source data, metadata, and statistical results Services to EMIS clients: services provided by the system to EMIS clients include ensuring the relevance, consistency, usefulness, and timeliness of its statistics	Services provided by the system are valid across data sources, integrate non-education databases into EMIS, and archive data at the service of EMIS clients by ensuring the relevance, consistency, usefulness, and timeliness of its statistics	Serious issues exist related to data validity and consistency	Inconsistencies exist related to data validity and consistency	The data are consistent and valid; however, some concerns still exist	Services provided by the system are valid across data sources, integrate non-education databases into EMIS, and archive data at the service of EMIS clients by ensuring the relevance, consistency, usefulness, and timeliness of its statistics

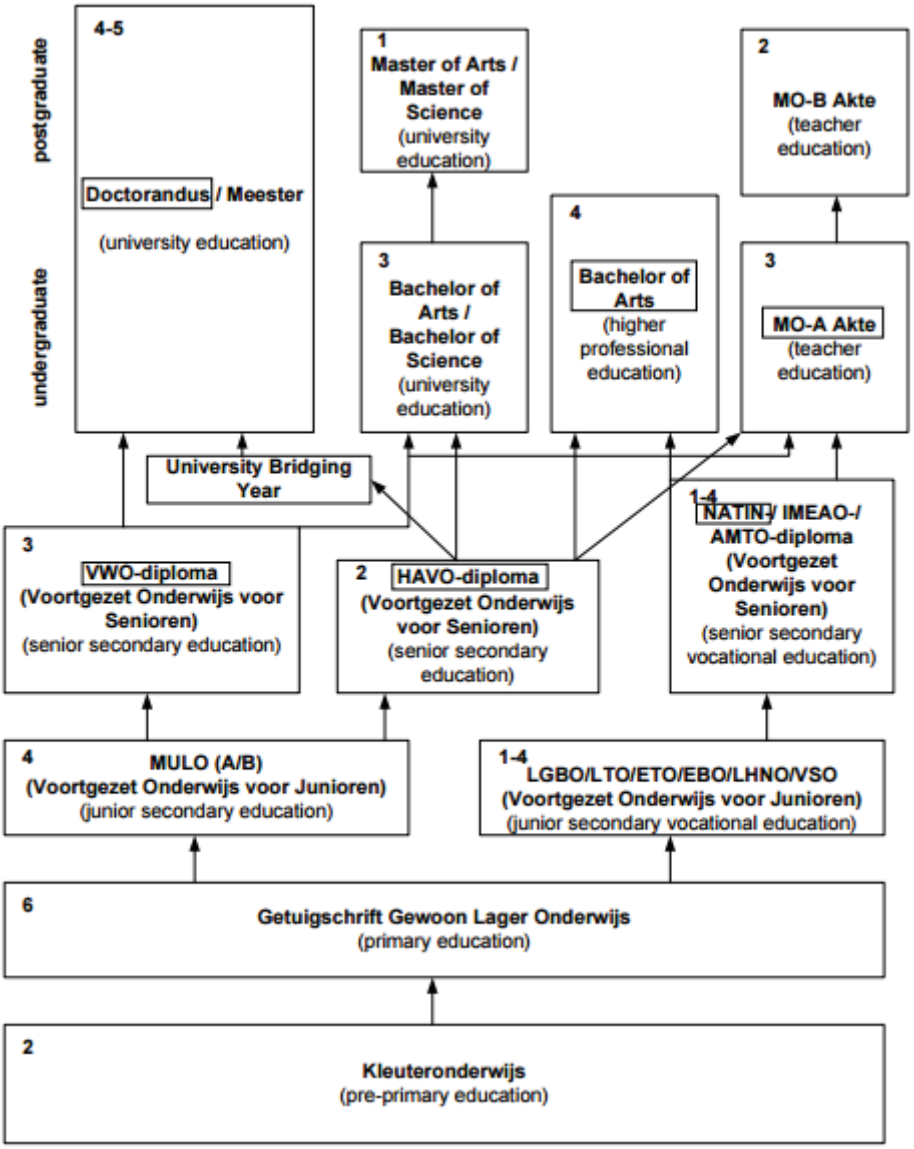
Policy levers		Indicators	Description of best practices	Scoring			
				Latent	Emerging	Established	Advanced
POLICY AREA 3: QUALITY DATA			**The system has the mechanisms required to collect, save, produce, and utilize information, which ensures accuracy, security, and timely, high-quality information for use in decision making**	**The system lacks mechanisms to collect, save, or produce timely, high-quality information for decision making**	**The system has basic mechanisms to collect, save, and produce timely, quality information; however, its accuracy might be questionable**	**The system has most mechanisms in place needed to collect, save, and produce timely, high-quality information for use in decision making; however, some additional measures are needed to ensure accuracy, security, and/ or timely information that can be used for decision making**	**The system has the required mechanisms in place to collect, save, produce, and utilize information, which ensures accuracy, security, and timely, high-quality information for use in decision making**
3.1	**Methodological soundness**	Concepts and definitions: data fields, records, concepts, indicators, and metadata are defined and documented in official operations manuals along with other national datasets and endorsed by the government	The methodological basis for producing educational statistics from raw data follows internationally accepted standards, guidelines, and good practices	The methodological basis for producing educational statistics does not follow internationally accepted standards, guidelines, or good practices	The methodological basis for producing educational statistics follows the basics of internationally accepted standards, guidelines, and good practices	The methodological basis for producing educational statistics follows most required internationally accepted standards, guidelines, and good practices	The methodological basis for producing educational statistics from raw data follows internationally accepted standards, guidelines, and good practices
		Classification: defined education system classifications are based on technical guidelines and manuals					
		Scope: the scope of education statistics is broader than and not limited to a small number of indicators (e.g., measurements of enrollment, class size, and completion)					
		Basis for recording: data-recording systems follow internationally accepted standards, guidelines, and good practices					
3.2	**Accuracy and reliability**	Source data: available source data provide an adequate basis for compiling statistics	Source data and statistical techniques are sound and	Source data and statistical techniques	Source data and statistical techniques have	Source data and statistical techniques follow most required	Source data and statistical techniques are sound and

Policy levers		Indicators	Description of best practices	Scoring			
				Latent	Emerging	Established	Advanced
		Validation of source data: source data are consistent with the definition, scope, and classification as well as time of recording, reference periods, and valuation of education statistics	reliable, and statistical outputs sufficiently portray reality	lack soundness and reliability	basic soundness and reliability, but statistical outputs do not portray reality	elements to be sound and reliable, but statistical outputs do not portray reality	reliable, and statistical outputs sufficiently portray reality
		Statistical techniques: statistical techniques are used to calculate accurate rates and derived indicators					
3.3	**Integrity**	Professionalism: EMIS staff exercise their profession with technical independence and without outside interference that could result in the violation of the public trust in EMIS statistics and EMIS itself	Education statistics contained within the system are guided by principles of integrity	Education statistics contained within the system are not guided by principles of integrity	Education statistics contained within the system are guided by limited principles of integrity (one of the three principles of professionalism, transparency, and ethical standards)	Education statistics contained within the system are mostly guided by principles of integrity (two of the three principles of professionalism, transparency, and ethical standards)	Education statistics contained within the system are guided by all three principles of integrity: professionalism, transparency, and ethical standards
		Transparency: statistical policies and practices are transparent					
		Ethical standards: policies and practices in education statistics are guided by ethical standards					
3.4	**Periodicity and timeliness**	Periodicity: the production of reports and other outputs from the data warehouse occur in accordance with cycles in the education system	The system produces data and statistics periodically in a timely manner	The system produces data and statistics neither periodically nor in a timely manner	The system produces some data and statistics periodically and in a timely manner	The system produces most data and statistics periodically and in a timely manner	The system produces all data and statistics periodically and in a timely manner
		Timeliness: final statistics and financial statistics are both disseminated in a timely manner					
POLICY AREA 4: UTILIZATION FOR DECISION MAKING			**The system is wholly utilized by different users for decision making at different levels of the education system**	**There are no signs that EMIS is utilized in decision making by the majority of education stakeholders**	**The system is used by some education stakeholders, but not for major policy decision making**	**The system is used by most education stakeholders but is not fully operational in governmental decision making**	**The system is wholly utilized by different users for decision making at different levels of the education system**
4.1	**Openness**	EMIS stakeholders: EMIS primary stakeholders are identified and use the system in accordance with the legal framework	The system is open to education stakeholders in terms of their awareness and capacity to utilize the system	The system lacks openness to education stakeholders in terms of their awareness and capacity to utilize the system	The system is open to some education stakeholders in terms of their awareness and capacity to utilize the system	The system is open to the majority of education stakeholders in terms of their awareness and	The system is open to all education stakeholders in terms of their awareness and capacity to utilize the system
		User awareness: current and potential EMIS users are aware of EMIS and its outputs					

Policy levers		Indicators	Description of best practices	Scoring			
				Latent	Emerging	Established	Advanced
		User capacity: EMIS users have the skills to interpret, manipulate, and utilize the data produced by the system to ultimately disseminate findings				capacity to utilize the system	
4.2	**Operational use**	Utilization in evaluation: data produced by EMIS are used to assess the education system	Data produced by the system are used in practice by the main education stakeholders	Data produced by the system are not used in practice by education stakeholders	Data produced by the system are used in practice by some education stakeholders	Data produced by the system are used in practice by the majority of education stakeholders	Data produced by the system are used in practice by the main education stakeholders
		Utilization in governance: data produced by EMIS are used for governance purposes					
		Utilization by schools: data produced by EMIS are used by schools					
		Utilization by clients: data produced by EMIS are used by clients (including parents, communities, and other actors)					
		Utilization by government: the system is able to produce summative indicators (derived variables) to monitor education system					
4.3	**Accessibility**	Understandable data: data are presented in an easily digestible manner	Education statistics are presented in an understandable manner and are widely disseminated using clear platforms for utilization, complemented by user support	The system suffers from serious accessibility issues	The system has major accessibility issues	The system has minor accessibility issues	Education statistics are presented in an understandable manner and are widely disseminated using a clear platform for utilization, complemented by user support
		Widely disseminated data: education statistics are disseminated beyond the Ministry of Education and/or the education statistics–producing agency to other EMIS stakeholders					
		Platforms for utilization: platforms are standardized across EMIS and are customizable to user needs					
		User support: assistance is provided to EMIS users upon request to help them access the data					
4.4	**Effectiveness in disseminating findings**	Dissemination strategy: national governments have an information dissemination strategy in place	Dissemination of education statistics	Dissemination is neither strategic nor effective	Dissemination is reasonably	A dissemination plan has been implemented;	The dissemination of education statistics via

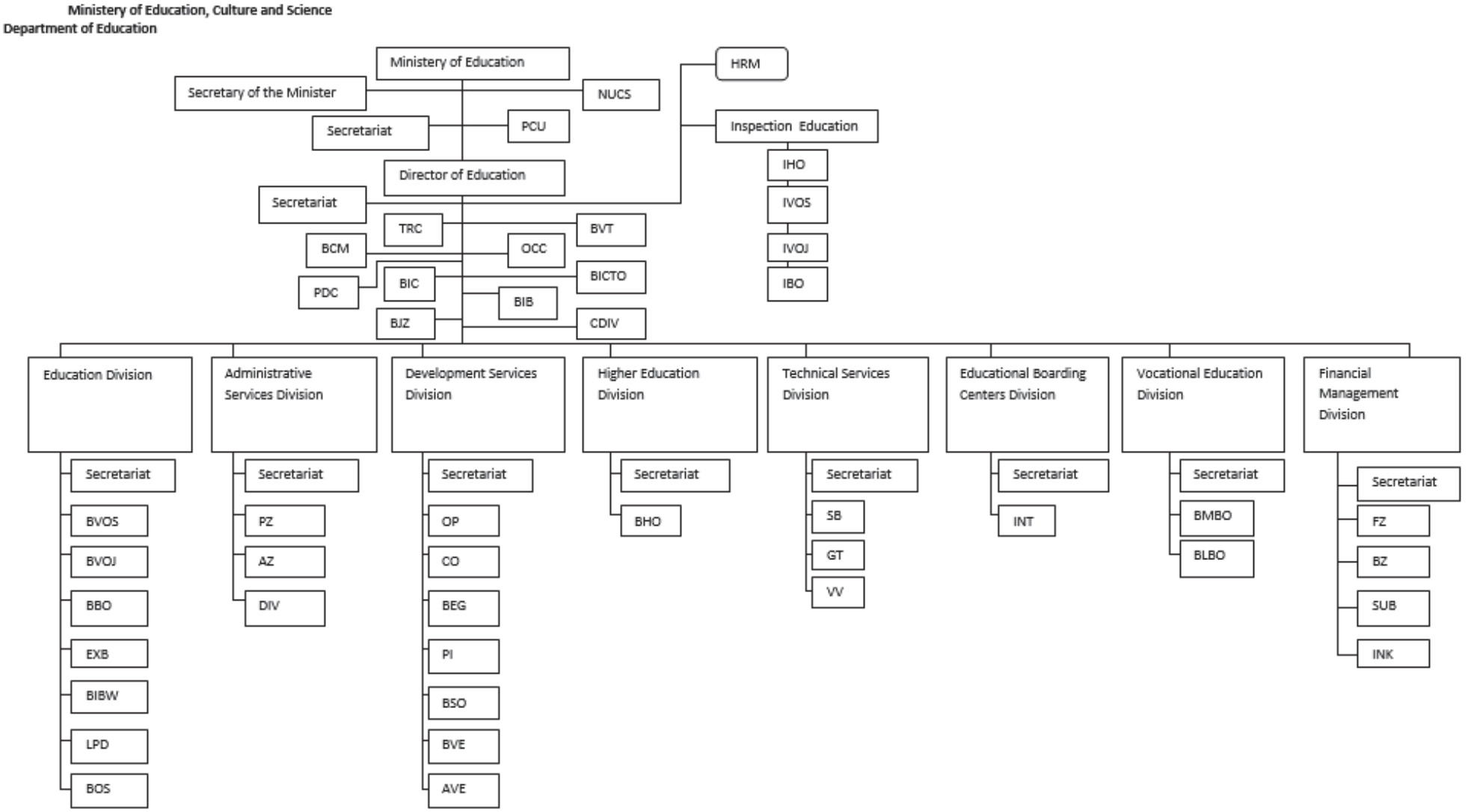
Policy levers		Indicators	Description of best practices	Scoring			
				Latent	Emerging	Established	Advanced
		Dissemination effectiveness: dissemination of EMIS statistics is effective	via EMIS is strategic and effective		strategic, but ineffective	however, room exists for improvement (for full effectiveness in relation to strategic engagement)	EMIS is strategic and effective

Appendix C: Suriname Education Structure



Source: ED-Nuffic, 2014

Appendix D: MINOWC Education Organizational Chart



Minister van Onderwijs / *Minister of Education*

NUCS	Nationale Unesco Commissie – *National Unesco Commission*
PCU	Project Coördinatie Unit – *Project Coordination Unit*

Directeur van Onderwijs / *Director of Education*

TRC	Teacher Resource Centers – *Teacher Resource Centers*
BCM	Bureau Communicatie en Media – *Office of Communication and Media*
BIB	Bureau Internationale Betrekkingen – *Office of International Relations*
BIC	Bureau Interne Controle – *Office of Internal Oversight*
BICTO	Bureau Informatie, Communicatie, Technologie en Onderwijs - *Office of Information, Communication, Technology and Education*
CDIV	Centrale Documentatie en Informatie Voorziening – *Central Documentation and Information Services*
BVT	Bureau Vertalingen – *Office of Translations*
BJZ	Bureau Juridische Zaken – *Office of Legal Affairs*
IHO	Inspectie Hoger Onderwijs – *Inspection, Higher Education*
IVOS	Inspectie Voortgezet Onderwijs op Senioren niveau – *Inspection, Senior Secondary Education*
IVOJ	Inspectie Voortgezet Onderwijs op Junioren niveau – *Inspection, Junior Secondary Education*
IBO	Inspectie Basisonderwijs – *Inspection, Primary Education*
PDC	Pedagogisch Didactisch Centrum – *Pedegogical Didactic Center*
OCC	Onderwijs Coördinatie Centra – *Education Coordination Centers*
HRM	Human Resource Management – *Human Resource Management*

Onderdirectoraat Onderwijs / *Education Division*

BVOS	Bureau Voortgezet Onderwijs op Senioren niveau – *Office* of *Senior Secondary Education*
BVOJ	Bureau Voortgezet Onderwijs op Junioren niveau – *Office of Junior Secondary Education*
BBO	Bureau Basisonderwijs – *Office of Primary Education*
EXB	Examenbureau – *Office of Exams*
BIBW	Bibliotheekwezen – *Library Science*
LPD	Leermiddelen, Productie en Distributie – *Textbook, Production and Distribution*
BOS	Bureau Onderwijs Informatie en Studiefaciliteiten – *Office of Education Information and Study Facilities*

Onderdirectoraat Administratieve Diensten / *Administrative Services Division*

PZ	Personeelszaken – Personnel Services
AZ	Algemene Zaken – *General Affairs*
DIV	Documentatie en Informatie Voorziening – *Documentation and Information Services*

Onderdirectoraat Ontwikkelingsdienst / *Development Services Division*

OP	Onderzoek en Planning – *Research and Planning*
CO	Curriculum Ontwikkeling – *Curriculum Development*
BEG	Begeleiding - *Supervision*
PI	Pedologisch Instituut – Pedagogical Institute
BSO	Bureau Speciaal Onderwijs – *Office of Special Education*
BVE	Bureau Voorschoolse Educatie – *Office of Preschool Education*
AVE	Alfabetisering en Volwassen Educatie – *Literacy and Adult Education*

Onderdirectoraat Hoger Onderwijs / *Higher Education Division*

BHO	Bureau Hoger Onderwijs – *Office of Higher Education*

Onderdirectoraat Technische Diensten / *Technical Services Division*

SB	Schoonmaak en Bewaking – *Cleaning and Security*
GT	Gebouwen en Terreinen – *Buildings and Grounds*
VV	Vervoer – *Transportation*

Onderdirectoraat Educatieve Studenten Opvang Centra – *Educational Boarding Centers Division*

INT	Internaten – *Boarding Schools*

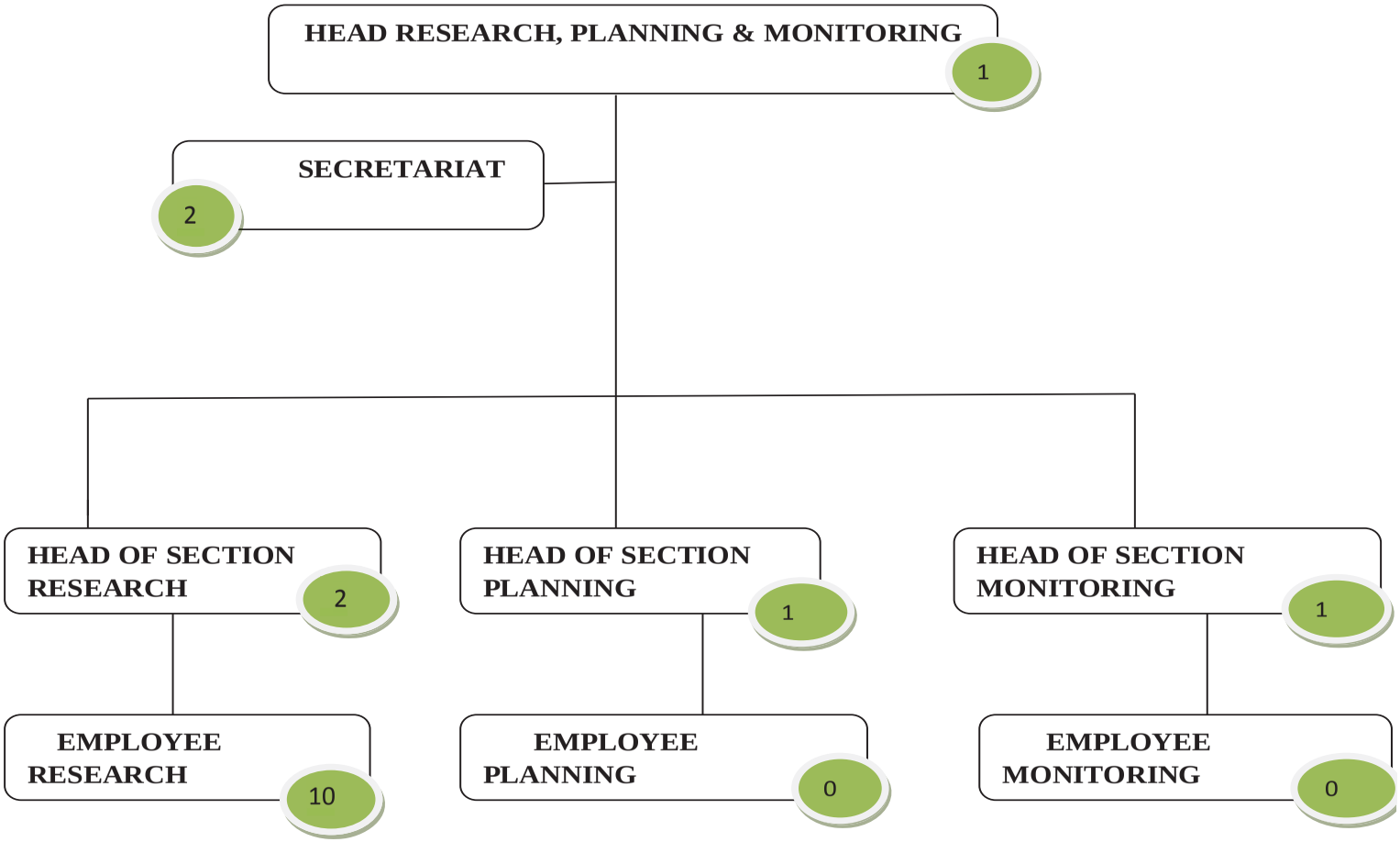
Onderdirectoraat Beroepsonderwijs / *Vocational Education Division*

BMBO	Bureau Middelbaar Beroepsonderwijs – *Office of Secondary Vocational Education*
BLBO	Bureau Lager Beroepsonderwijs – *Office of Primary Vocational Education*

Onderdirectoraat Financieel Beheer / *Financial Services Division*

FZ	Financiële Zaken – *Financial Services*
BZ	Begrotingszaken – *Budgetary Affairs*
SUB	Subsidie – *Subsidies*
INK	Inkoop – *Procurement*

Appendix E: Research & Planning Organizational Chart with Current Staffing Numbers



www.worldbank.org/education/saber

The Systems Approach for Better Education Results (SABER) initiative collects data on the policies and institutions of education systems around the world and benchmarks them against practices associated with student learning. SABER aims to give all parties with a stake in educational results—from students, administrators, teachers, and parents to policy makers and business people—an accessible, detailed, objective snapshot of how well the policies of their country's education system are oriented toward ensuring that all children and youth learn.

This report focuses specifically on policies in the area of Education Management Information Systems.

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