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Republic of Tajikistan

EDUCATION MANAGEMENT INFORMATION SYSTEMS

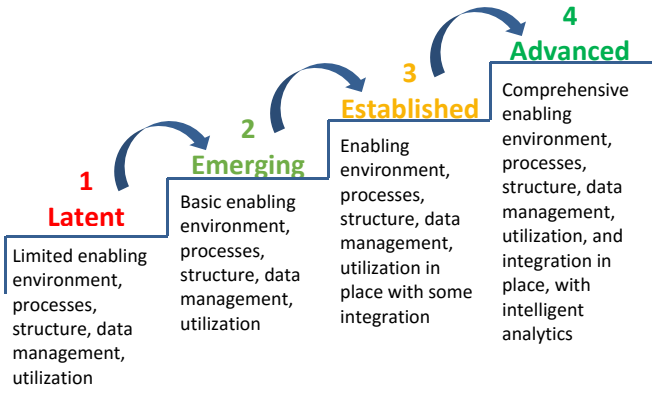
SABER Country Report
2017

Key Policy Areas	Status
1. Enabling Environment EMIS in the Republic of Tajikistan is supported by strong policies, people, and processes at the central and local level. Two core policies effectively position EMIS as the point of reference system that collects, processes, and disseminates education data on a regular basis. They guide the systematic flow of data from schools to local governments and finally to the central level. Policies outline the data-sharing procedures with stakeholders and ensure that confidentiality of data is maintained. While the strong legal framework puts Tajikistan at an established level, there needs to be a stronger effort from the government to create a data-driven culture in the country to ensure that stakeholders value and understand education data. Additionally, training and professional development activities would be beneficial in addressing issues in relation to implementing these policies.	Established ●●●○
2. System Soundness Using a Microsoft platform, EMIS captures basic demographic data on students and teachers; however, learning assessment, financial, human resource, and noneducation data are not integrated. Data are sourced annually at the school level through a census form, which is then submitted to the local education offices and later to the Ministry of Education and Science. While schools can request data from the government, no established procedures are in place to provide continuous feedback to schools on the data provided. The system is capable of performing only basic tabulations; however, increased focus on data analysis can be useful to better understand education performance.	Emerging ●●○○
3. Quality Data Concepts, classifications, and definitions are documented in official EMIS manuals, but data quality is reduced by limited professional standards and validation mechanisms. Technically, data are validated at the local and central level, which should utilize the EMIS capability of flagging data inconsistencies. However, no policies or external audits are in place to correct for unreliable or missing data. Professional integrity standards and data transparency are missing, which potentially lead to a misinterpretation of data, thus reducing data quality. The entire process of data collection, management, and reporting takes three to four months, and no delays have yet been experienced.	Emerging ●●○○
4. Utilization for Decision Making While data utilization is embedded in the policy framework, stakeholders cannot fully utilize EMIS data. The main user of EMIS data is the government, which uses the data for assessing education performance, improving accountability, and managing resources. Lack of data awareness, Internet access, and limited communication and training prevent most stakeholders outside of central level from accessing and using EMIS.	Emerging ●●○○

Introduction

The Systems Approach for Better Education Results (SABER) is an established tool designed to support countries in systematically examining and strengthening the performance of their education systems. Part of the World Bank's Education Sector Strategy, SABER 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.

Figure 1: SABER Scoring and EMIS Development



Source: Abdul-Hamid 2014.

This report discusses the results of applying the SABER–Education Management Information Systems (EMIS) tool in Tajikistan. 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 Tajikistan.

Approach 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.

Figure 2: SABER-EMIS Policy Areas and Levers

Policy Areas	
Enabling Environment	***Policy Levers***: legal framework, organizational structure and institutionalized processes, human resources, infrastructural capacity, budget, data-driven culture
System Soundness	***Policy Levers:*** data architecture, data coverage, data analytics, dynamic system, serviceability
Quality Data	***Policy Levers***: methodological soundness, accuracy and reliability, integrity, periodicity, and timeliness
Utilization for Decision Making	***Policy Levers***: openness to EMIS users, operational use, accessibility, and effectiveness in disseminating findings

Source: Abdul-Hamid 2014.

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).

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 establish 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 lay 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.

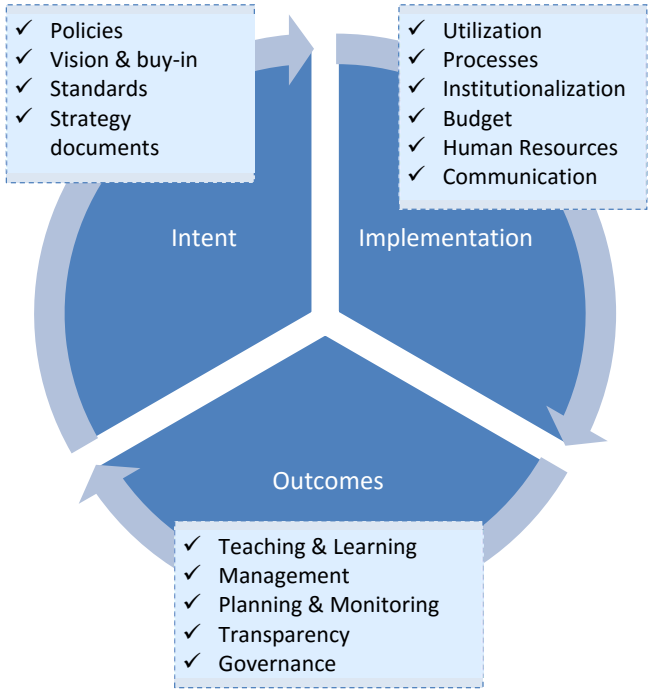
Using the EMIS data collection instrument, policy levers are scored on a four-level scale (latent, emerging, established, and advanced) to assess the extent to which *both* policy intent and implementation are achieved (figure 2**Error! Reference source not found.**).

Assessing Policy Intent and 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 reveals only 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). Implementation can be observed through utilization of EMIS by stakeholders, budget allocation, distribution of human resources, availability of professional development activities, and 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.

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



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

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 Tajikistan EMIS assessment took place from June to October 2016. 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 and Science of the Republic of Tajikistan (MoES)
2. District Departments of Education
3. Agency of Statistics of the Republic of Tajikistan
4. Two focus groups with principals and teachers from public schools

Table 1: Measuring Policy Intent and Implementation in Tajikistan

Policy Intent	Processes	Policy Implementation
• Multiple meetings with MoES and district departments of education • Focus groups (school directors and teachers) • Extensive review of relevant policies, national strategies, standards, and planning documents	• Analysis of data quality and comprehensiveness • Examination of professional development activities	• Interviews at national, district, and school level including policy makers and education stakeholders

Country Overview

The Republic of Tajikistan is a small, mountainous landlocked country in Central Asia with a GDP per capita of USD $1,240 and population of 8.4 million people (World Bank 2016). While the economic growth rate in the country has been approximately 5.3 percent, higher than the average growth rate in Central Asia, there is high income inequality, which is reflected by a Gini coefficient of 0.31. Twenty percent of the richest own 40 percent of the wealth in the country (World Bank 2016). The main source of economic activity is agriculture, forestry, fishing, and mining. Given its heavy reliance on exports of natural resources, the country remains exposed to macroeconomic shocks. In addition, corruption and uneven economic reforms add to the fragility of the economic situation in the country.

From 1995 to 1997, the country was exposed to a civil war, which adversely affected the infrastructure and schools, which in turn had a negative impact on the quality of education. Since then, the government has made significant efforts to restore the system by introducing a series of reforms to improve education management, quality, and access. However, the progress has been slow and often hindered by emergencies such as floods, earthquakes, and other natural disasters. **The education system consists of 11 years of primary and secondary education.** Primary education lasts for four years followed by seven years of secondary education. The country has high net primary and secondary enrollment rates but very low preprimary enrollment rate (see table 2), mainly because of the civil war during which many preschools were destroyed. While significant efforts are being made to reverse this trend, enrollment is still low.

The quality of education in Tajikistan is difficult to measure. The country has never participated in any national or international learning assessments, which makes it difficult to assess the learning outcomes in the country. Moreover, there is significant gender disparity in enrollment rates. The gender parity index for secondary enrollment is 0.89. Dropouts rates and low attendance is common more among females than males.

The public expenditure on education is around 5 percent of the GDP, which is below the Organisation for Economic Co-operation and Development (OECD) average of 6 percent. Majority of the expenditure goes into teacher salaries which accounts for 73 percent of the total budget. Given the fragile situation of education system, the government needs to consider investing more into school improvement and quality of education.

Table 2: Education Indicators at a Glance, 2015

Schools	
Preprimary	508
Primary	3,392
Secondary	
Students	
Preprimary	85,777
Primary	683,162
Secondary	1,045,185
Net Enrollment Rates	
Preprimary	8.6%
Primary	97.3%
Secondary	83.2%
Government Expenditure on Education	
As % of GDP	5.2%
As % of Government Expenditure	16.3%

Source: World Bank.

Tajikistan 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

Established ●●●○

Tajikistan'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.

The government of Tajikistan institutionalized the development of EMIS in 2007, with the aim of (1) creating a common platform for integration of education for use by various education stakeholders, namely, teachers, principals, curriculum planners, inspectors, auditors, planners, advisors in the field of policy, political leaders, government officials, contributors, parents, and students, and (2) providing the MoES an adequate means of information support for development, monitoring, and implementation of education policies and decision making.

Two core policies guide and influence the efforts of EMIS in Tajikistan. The "EMIS RT Conception" and "Methodology of the Automated Data in Education" clearly define the role and responsibilities of the MoES with regard to data collection, processing, and management of education data**.** However, no information is provided on the technical specifications, infrastructure, software, and hardware on which EMIS is built.

The current policies clearly outline the procedures of ensuring that the respondents' data are kept secure. However, since the available data in the EMIS are available only at the aggregate student level, and do not contain individual-level information on students, teachers, and parents, confidentiality is not an issue in the country.

While schools can access EMIS data upon request, no mechanisms have been established to guide the flow of information back to schools. Feedback loops create an information cycle that brings EMIS analysis back to the school level and can ultimately improve response rates and accuracy of data. While schools can have access to education data published, the process is very cumbersome. Schools have to make a request to the local department of education to provide them with the required information. As such, usage is low.

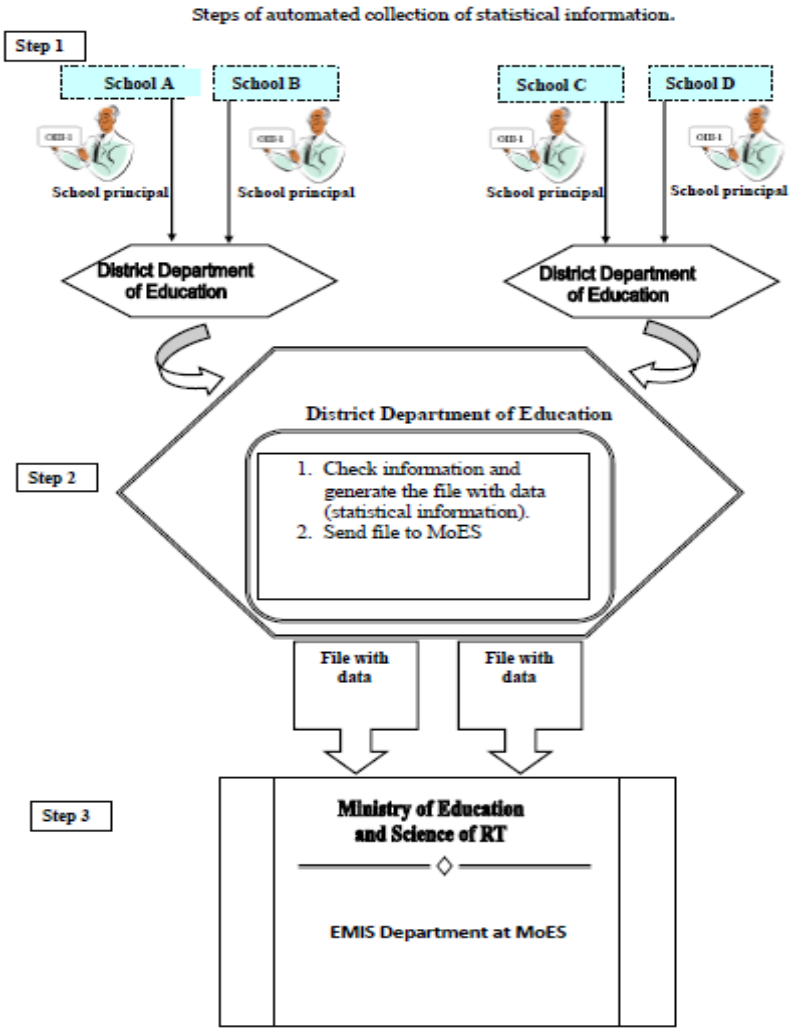
Processes to share data with other government departments and other stakeholders exist, but they are not comprehensible to the stakeholders. While the policies define how the education data are to be shared among stakeholders, this information is available in PDF files, which makes it inconvenient for users to access and understand this information. For example, the Ministry of Education collects some disability and health data, but the policy does not emphasize how to streamline or even automate these transactions. There is potential here to increase efficiency and drive better utilization of data.

Policies exist that mandate schools to comply with the data collection process and provide data on time. All school principals are responsible for data collection and providing data on time; failure to comply results in warnings and penalties. As a result, there is a 100 percent response rate from schools, and to date, no cases of lack of compliance on the part of schools to provide data have been reported.

The EMIS team resides within the MoES, consisting of four staff. The staff is responsible for collection of data, inputting the collected data into EMIS, and producing annual education statistics. The information technology team is separate from the EMIS team, whose role is provide support to the EMIS server and any other technical issue.

The core components of EMIS (hardware and software) are funded by donors and development partners, while the EMIS operations are covered under the ministry's budget. The daily activities related to EMIS are covered in the ministry's budget, which includes collection of data, generation and publishing of reports, website maintenance, and staff salary. However, the costs incurred on activities such as software upgrades, training, and system maintenance are not covered in the budget. It is important that the government develop a plan to incorporate EMIS funding into its budget, so that the system can be sustained even after the funds from donor support end. In particular, the EMIS budget should include a line item for each of the following categories: (a) data collection, (b) auditing, (c) staffing, (d) training and professional development, (e) data dissemination, (f) infrastructure, and (g) regular maintenance of system.

Figure 4: Institutionalization of EMIS Data Collection Process



Source: MoES, Republic of Tajikistan.

Opportunities for training EMIS staff and data users are limited. No investment is undertaken by the government to provide training for EMIS staff in using the system. EMIS staff and data providers often find themselves handicapped because of lack of training on using the system. The government should focus on creating a policy that underscores the importance of continuous training for data users (including EMIS staff, principals, teachers, and parents) to analyze information and generate necessary reports that can be used by decision makers across the system to assist in development of new policies and other key strategic decisions.

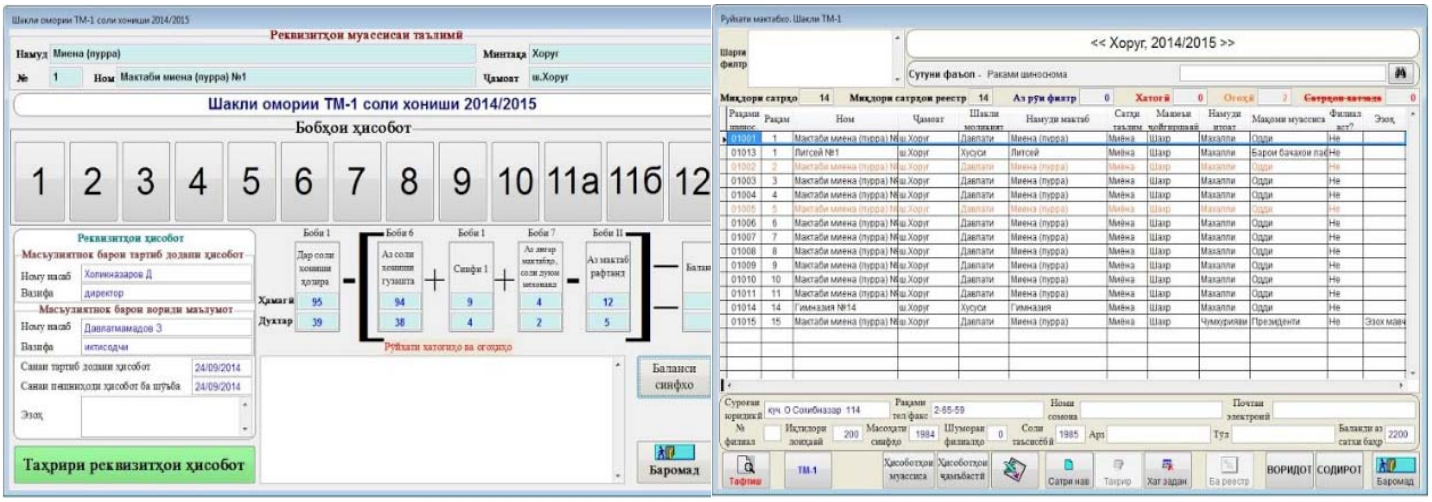
Tajikistan has a weak culture of evidence-based decision making. Although the "RT EMIS Conception" highlights the use of data to inform decision making, the value of data is not fully understood by education stakeholders. The government needs to initiate efforts to promote the collection and utilization of data within and beyond the education system. This ensures a sense of accountability on each stakeholder, which makes the entire system more efficient.

Policy Area 2: System Soundness

Emerging ●●○○

A basic infrastructure supports EMIS in Tajikistan. EMIS exists at the central level, where data collection, entry, and analysis occurs within MoES. A data warehouse comprises various databases, with several departments within the ministry in charge of them, but they are not linked with each other and are not integrated into one platform. EMIS is an in-house built system, which manages the data using the software Microsoft FoxPro. It works under the Windows server 2003 operating system, which is outdated. Microsoft Excel is used to conduct some basic statistical analysis, and documents are published using Microsoft Word.

Figure 5: Snapshot of the EMIS System, Microsoft FoxPro



Source: MoES, Republic of Tajikistan.

Currently, MoES's data coverage is limited to administrative data. Minimal administrative data are collected via the annual survey circulated by MoES, which is either delivered as hard copy to schools by the district departments that do not have access to computers or via email to schools with computers. EMIS currently includes data from preprimary, primary, and secondary schools. All private and public schools are also required to provide data. The data covered include student administrative data such as age, gender, and enrollment numbers, some health data such as immunization records, and special needs data. This information is disaggregated by age and gender. In addition, some of the service delivery indicators are tracked such as availability of textbooks, computers, phone supplies, and availability of bathrooms. In addition, basic teacher information is also collected such as teacher qualifications and their allocation to schools. Extended data on school finances, such as school spending and salary information, are not included. Lack of learning outcomes data creates a significant gap in the extent to which EMIS can inform users and lowers the quality of education data.

Table 3: Data Coverage, Best Practice, Tajikistan

Data Type	Best Practice	Tajikistan
Administrative data	• School and individual level demographic data on schools, students and teachers • Health • Attendance (enrollment, repetitions, dropout, progression, etc.) • School resources	• School-level demographic data only • Health (immunization and special needs data only) • Attendance (enrollment, repetitions, dropouts) • School resources (infrastructure, student-to-teacher ratio, student to classroom ratio, student-to-school ratio, students per classroom)
Financial data	• Budget and revenues • Spending • Cash transfers and subsidies • Unit cost per student	A school finance database (including teacher salaries) exists, but it is not under the EMIS umbrella
Human resource data	• General demographics • Salaries • Performance evaluations • Professional development	• General demographics • Teacher Professional Development (conducted once in 3–5 years at the time of a teacher's transition to the next category level)
Learning outcome data	• Classroom assessments • National assessments • International assessments	EMIS does not contain any learning data

Source: Adapted from Abdul-Hamid 2014.

The annual school census forms are used to collect education data from schools. The method of data collection is both technological and nontechnological. In schools with computers, the school deputy director enters the necessary information into the census forms, which is then sent to the EMIS team at the central level via email or portabledrives. In schools without computers, paper-based forms are used to fill the data, which are then sent back to the district department of education. Since every district department of education has a computer in their office, they manually enter the information on the forms on their computers and send the information to the central team via email/ hard drive.

The system is capable of performing only basic tabulations; however, increased focus on data analysis can be useful to better understand the education performance. Microsoft products are mainly used to conduct analysis and for reporting purposes. Analysis is conducted using pivot tables and pivot charts, which draw data from the system to conduct descriptive analysis, data tabulations, and data relationships, as needed by the users. Data can be easily aggregated and disaggregated by age, gender, schools, and districts. It is also possible to calculate ratios (e.g., teacher-student ratios), rates (e.g., transition rates, enrollment rates, etc.), and relationships between variables (e.g., gender and enrollment). Although this information can be produced in real time, outputs from this analysis are used by the staff only to produce the annual statistics handbook, published annually. Besides this, no other advanced statistical tools are used to perform projections and estimations of statistics (e.g., projecting enrollment rates for the next five years).

EMIS at the central level is a standalone system and is not integrated with other databases managed by other departments (e.g., assessment, human resources, finance), which limits evidence-based decision making. Integration of the existing data modules will move Tajikistan closer to an effective EMIS and 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.

The entire process of data collection, processing, and dissemination takes about three months, and no delays or issues have been associated with this process. The data collection begins around mid-August, which is close to the beginning of the academic year. Schools are required to submit all the information by November, and the data are published by December on the MoES website.

There are limited mechanisms by which the collected data are sent back to schools in the form of a feedback loop. Once collected, data do not flow back to the local level and schools via proper, systematic feedback loops. The schools must request this information from the local education departments every time they need any data, which is a very cumbersome process. The cycling of analyzed data back to local school systems and schools via printed materials (e.g., school or district report cards) or a dashboard or website is a best practice that encourages school improvement and strong buy-in across the education system. Further, provision of information has been linked to increased quality and decreased school fees, outcomes that come about because of creating greater competition between schools (Andrabi, Das, and Khwaja 2009).

Policy Area 3: Quality Data

Emerging ●●○○

An operational manual exists that guides EMIS staff on how to collect and manage education data. It contains basic information such as definitions of EMIS concepts, indicators collected, and metadata. In addition, statistical data provided by EMIS RT are broadly in line with recognized international standards, guidelines, and best practices, such as the UNESCO Institute of Statistics and OECD. However, EMIS is not aligned with national datasets, and there is an urgent need for standardization of processes and data codes across agencies. Blueprints and tables of specifications are lacking to provide instructions on the structure of the various modules, data formats, and layouts. 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, because problems in this area can create highly problematic repercussions across other parts of the system.

Education data captured by EMIS are linked to the overall education strategy of using data to inform policies, planning, and management in the education sector. It was developed with the intention of sharing information across different agencies and institutions to make informed decisions to improve quality of education in the country.

The scope of education statistics in EMIS is restricted to a small number of indicators such as enrollments, completion rates, and basic demographic indicators at the school level. The data collected are not comprehensive (see table 3 for a comprehensive list of education indicators), and the data do not track individual student and school performance longitudinally. Moreover, no registry is in place to provide details on all schools that do provide and don't provide education data.

Validation mechanisms are in place at the local and central level to monitor the quality of data entered into the system. The quality of data generated by EMIS is dependent on the quality of information collected from schools. Inadequate and incomplete information can compromise the quality of outputs produced by the system, which in turn can affect the ability of the government to make sound policy decisions. For this reason, having strong validation mechanisms at the school and central level as well as automated, statistical tools to flag suspicious data are of critical importance.

School principals are accountable for providing accurate data to the government. Local departments of education are accountable to ensuring that their local schools are providing accurate data to the government; they continuously verify the data provided by the schools. MoES selects a sample of the schools to verify the data quality regularly. Additionally, EMIS has some data validation mechanisms to verify the data entered into the system.

Professional integrity may reduce data quality. It is unclear if mechanisms are in place to prevent the misinterpretation of data once published. Additionally, the government does not seem to have a designated strategy to promote research and its publication. This could potentially cause the government to forgo new insights. The potential misinterpretation and limited of research insight can potentially lead to wrongful decisions based on lesser quality data.

EMIS staff are bound by a professional code of conduct while performing their duties. Clear procedures are in place that require staff to follow any professional conduct. However, no efforts are made to promote research by the team using the data generated from EMIS. Also, the statistical practices are not transparent. No public information is made available regarding how the data were collected or compiled. There is a lack of awareness of the publications and education statistics produced by EMIS.

Policy Area 4: Utilization for Decision Making

Emerging ●●○○

While EMIS is open to all stakeholders, the main users of EMIS data are the government of Tajikistan, MoES, district departments of education, and the Agency of Statistics. EMIS is a hierarchal initiative established to feed data from schools to MoES. Although the ministry collects data through EMIS, its usage is limited only to the allocation of resources and for improving accountability of the education system. The government and MoES use the data to calculate grants and funds needed to be disbursed to the schools, allocation of additional resources, planning allocation of teachers to different schools, and planning the work with special needs students. District departments of education use the data for planning of teacher training. The Agency of Statistics uses the data to determine to calculate the student population in the country. Schools, principals, teachers, parents, and students do not use the data for making any education-related decisions.

Schools and other stakeholders (e.g., parents, communities, and students) are not using any data for informed decision making. A data-driven culture is lacking in the society. Schools do not maintain any data to monitor the performance of teachers and students in the classroom. The student's report card is the only means by which parents can determine the performance of students, which is also limited to school examination grades. No mechanisms are in place by which parents can determine school performance, make school choices, or determine their child's performance. Efforts should be made to engage these critical stakeholders and train them on the importance of data. As a first step, workshops should be conducted in schools to train them on how to collect and maintain data to make school development plans and improve student performance in classrooms.

An annual statistics handbook is produced from the data collected from the school census. This report is printed and published on the ministry's website every year. Although this is a useful tool for education stakeholders to assess the education system, it is rarely used in practice. Lack of user awareness of the existence of these reports (due to poor dissemination strategies) makes them inaccessible for most stakeholders.

Efforts could be made to improve the dissemination of data so that users are more aware and understand the benefits of data. Newsletters, publications, report cards, and other documents could be produced that would cater to the needs of various stakeholders, such as parents, teachers, principals, and other communities. Regular announcements of the reports published via emails, postal services, and newspapers could increase awareness. These dissemination materials ensure utilization of information from parents to schools to education authorities and national governments.

Recommendations and Proposed Activities

This section presents a set of recommendations and proposed activities based on the assessment of EMIS in Tajikistan (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 assessment and informs recommendations.

Table 4: Tajikistan EMIS Rankings

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

Table 5: Tajikistan EMIS SWOT Profile

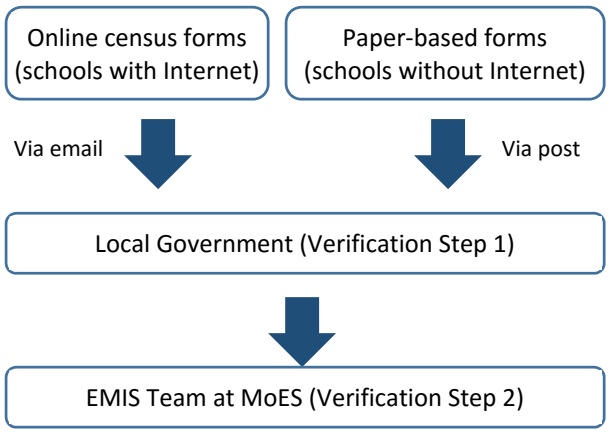
Strengths	Weaknesses
• *Political will* and buy-in from high-level officials • *Policies* established that institutionalize EMIS • *Timeliness* in compilation of education statistics	• Lack of detailed *policies* and dedicated EMIS *budget* • Limited *documentation* on the structure of the system • Education databases at the central level *not integrated* • Lack of *individual-level* student data • Lack of access to EMIS via the Internet • *Accessibility* of data as an issue
Opportunities	**Threats**
• Routing *donor funding* through government systems • Transitioning to a *web-based EMIS* system • Expanding the range of *education statistics* collected	• Heavy dependence on *donors for funding* • *Limited training and professional development activities* for staff and schools • *Limited utilization* of data for decision making • Lack of *data validation mechanisms*

The EMIS policy should be more comprehensive and should include clearly outlined mandatory practices to be adopted by various education stakeholders at each level of the education system. A well-defined EMIS policy should have clearly stated procedures and regulations for (a) central, local, and school reporting requirements, (b) defined responsibility and ownership of data, (c) allocation of EMIS budget, (d) data collection processes, (e) data submission requirements, (f) procurement guidelines (if purchasing the software/hardware from an external vendor), (g) technical EMIS specifications, (h) type of data collected, (i) data validation mechanisms (internal and external), (j) confidentiality clauses, (k) dissemination strategy, (l) extent to which data should be utilized by stakeholders, (m) code of conduct for staff, and (n) professional development activities.

The data collected in the school census forms should be expanded to all levels of the education system, namely, preprimary, primary, secondary, secondary, and tertiary. In addition, the data collected should be expanded to include learning data, financial data, and extensive human resources data. This information should be collected at the individual level because it would provide more useful information to schools, teachers, and parents as well as increase their engagement in the process.

There is a need to transition to a web-based EMIS system, with schools and local governments having access to the common platform to share and disseminate data. Currently, some schools still fill out paper-based census forms because of lack of access to Internet. Attempts should be made to provide all schools with Internet access, so that not only would the data collection process be made easier, but stakeholders also would be able to get information on student performance in real time through their computers. Every school employee (schoolmaster or -mistress, deputy principal, student, teacher) and parents will have a login and password and may enter the system from any computer or mobile device via the Internet. For example, while at home or at work, the parent may monitor progress and attendance of his or her child and connect with teachers and administrative school personnel; students may do homework remotely, review their electronic diary or class schedule, associate with their teacher, etc. In addition, provision should be made to provide regular feedback to schools based on the assessment of school data.

Figure 6: Current EMIS Process

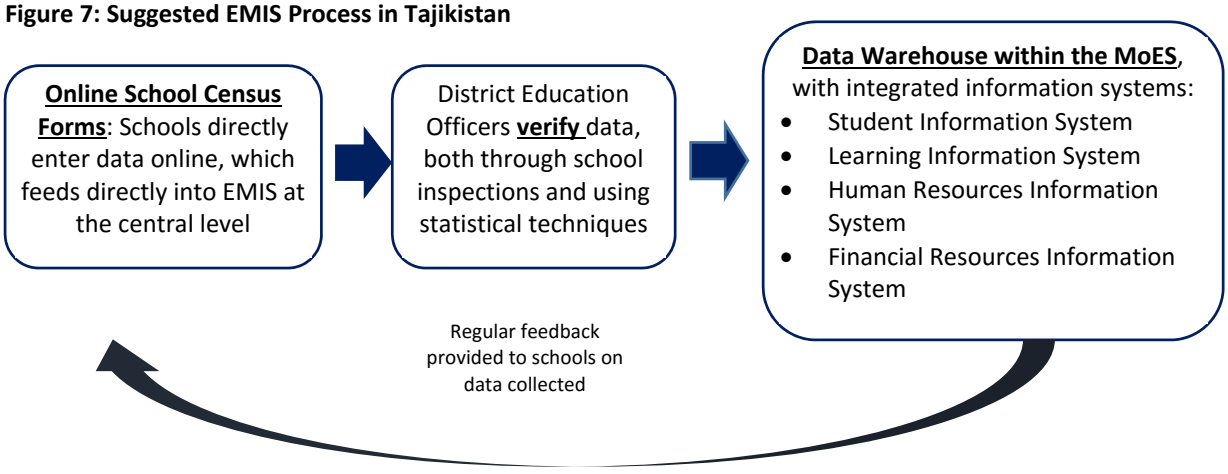


Transitioning to a web-enabled system should be complemented with the integration of the different databases within MoES. Development of an integrated information system of education management, which includes education statistics and data from other ministries and departments (such as finance, health, labor) would allow for a more holistic understanding of the education performance by equipping stakeholders with a large variety of data. Figure 6 shows the current flow of information, and figure 7 proposes suggested recommendations for improving the mechanism.

High-quality data are necessary for effective data utilization. Effective data utilization is possible if the data are reliable, accurate, and useful. Even though indicators are defined in operation manuals, the scope of indicators should be expanded. To ensure high-quality data, effective data validation mechanisms are necessary.

The government needs to develop mechanisms to upgrade the skills and EMIS staff and data providers at the school, local, and central level. This could be done in a variety of ways: (a) holding seminars for key EMIS staff to make them aware of the best practices of EMIS utilization, especially in Russia and other countries in the region that have a good system to share lessons learnt, or (b) regular training sessions (virtual and face-to-face) for school teachers and local staff who are collecting education data to ease the process of data collection.

Figure 7: Suggested EMIS Process in Tajikistan



Professional development plans and trainings will enable EMIS staff and education stakeholders to strengthen their analytical skills. There is no or limited provision for EMIS staff professional development in the EMIS annual budget. Annual evaluations of EMIS staff are important, and should be improved and continued. Here the crucial factor is the

effective utilization of the evaluations to improve human resources within EMIS staff through targeted professional development plans.

Strengthening system soundness by expanding the scope of indicators in combination with instruction and training for EMIS staff. EMIS staff should fully understand each indicator and their definitions, which can be facilitated by additional instruction and training. This is particularly true in the case of Tajikistan, where the scope of indicators should be expanded. Each (new and old) indicator should be defined in accordance with international standards, so that staff can collect reliable and accurate data. The training for EMIS staff should aim to implement international best practices and internalize standardized definitions of indicators.

EMIS should include clear guidelines of ethical standards for staff to ensure data integrity. Currently, there is a lack of ethical standards and conflict of interest guidelines, which may limit data integrity. No processes are in place to enforce penalties in case of misuse or wrongful manipulation of data. This calls for an established set of ethical guidelines and processes in the case of noncompliance, which is needed for the professionalization of staff.

With regard to privacy and safety of data, a mandate should be developed that could specify the access and rights of various users. Rights to access to information should be limited both according to the scope of available information and according to possibilities of entering new data and editing existing data. As part of this, the system administrator should adjust the rights of the users to access. The safety system should include data cryptography, protection of the user's session, and means of data backup. Specialists at education regulatory bodies should have access to summarized information on schools via a web interface and be able to receive necessary statistical data on a real-time basis themselves.

Data allow for smart decisions and efficient resource allocation. Data must be fully integrated into the EMIS to allow for strategic planning and efficient utilization. Data offer detailed information on the needs of resources and with a central planning tool, which facilitates the use of scalable options. These will improve efficiency and offer cost reduction opportunities, such as in the areas of procurement of school equipment such as computers. The possibility of effective and targeted strategic planning and resource allocation underscores the benefits of EMIS.

While the EMIS collects education data regularly, utilization is weak. MoES needs to focus its attention on developing mechanisms to create a data-driven culture where all education stakeholders are using data to inform and improve student education outcomes. Specifically, EMIS should provide education data that enables (a) students to manage quality of his or her education, (b) parents to understand their children's learning, (c) teachers to manage the quality of students' education on his or her subject, (d) school managers to use the data to manage schools and monitor the performance of their staff, (e) district and local education offices to manage and monitor the quality of education in their respective jurisdictions, and (f) MoES to monitor, assess and improve the quality of education in the country.

Box 1: Potential Uses of EMIS

- ✓ Registry of Schools
- ✓ Planning Schedule of Different Activities
- ✓ Training and Professional Development Activities
- ✓ Managing Human Resources
- ✓ Managing Finances
- ✓ Assessing Performance across Schools and Districts
- ✓ Managing School Courses
- ✓ Developing School Report Cards
- ✓ Statistics Website
- ✓ Dashboards with Education Data Analytics
- ✓ Annual Education Statistics Reports
- ✓ Real-time Data Updating

The EMIS would benefit from feedback loops. Feedback loops ensure the connection between data providers (e.g., teachers, students, parents, and the community) and data users (e.g., government, education policy makers, teachers, principals). They facilitate data system openness by granting access to a broad spectrum of data users. Information needs to both flow from the central to the regional and local level and vice versa. Schools, teachers, and parents need to be presented with education data in such a manner that they can utilize the information and improve learning outcomes. The EMIS in Maryland, U.S.A., provides effective feedback to schools in the form of a School Progress Index. It is also used by policy makers to identify schools in need of intervention (box 2).

Box 2: Feedback to Schools in the Form of the School Progress Index in Maryland, U.S.A.

In **Maryland, U.S.A.,** the School Progress Index is a successful feedback mechanism for schools and is utilized on the central, regional, and local level to identify potential need for intervention. It evaluates schools on a continuous scale based on the variables of Achievement, Growth, Gap Reduction, and College- and Career-Readiness. It also makes results of each school available publicly via the annual Maryland Report Card, which also contains demographic data, enrollment and attendance rates, absentee rates, student mobility, teacher qualifications, and data about students receiving special services. The index identifies schools for intervention, support, and recognition, depending on their progress. The state affords top-performing schools with greater flexibility, while lower-performing schools receive progressively more prescriptive technical assistance, targets for performance, and monitoring. To effectively position schools for success, national, state, and local governments provide schools with data that they can use to benchmark their students' performance against student performance metrics at local and national levels, as well as tools to organize and analyze that data.

Source: MSDE 2012.

At the school level, individual school report cards may be used to provide feedback to schools. School report cards should be developed that provide information related to infrastructure needs, structure of the education system, teachers, student performance, etc. It is important to design the school report cards effectively, so that the schools can utilize the information presented to them. They need to be clear, accurate, and useful. Ensuring that every school receives individual feedback, which (aside from highly sensitive data) is accessible to the general public, facilitates comparison between different schools. Not only would such a feedback loop improve data access and utilization, but it would also aid schools in the achievement of their planning and development goals. Many countries have already implemented such report cards and have also designed an index that enables parents to compare index scores nationwide (box 3).

Box 3: Examples of Feedback Mechanisms in the Form of School Report Cards

In ***Australia***, feedback mechanisms have been established to include individual school report cards. Education stakeholders can compare school performance on the "mySchool" website, where the information is publicly available. mySchool calculates an index score and provides an overview of general school indicators, which allow parents to compare schools from all over the country (ACARA 2016).

Similarly, in ***Chile*** school performance data are made publicly available to provide feedback to the schools, parents, and other stakeholders. The school performance data are all accessible online, and parents can use a search option linked to the unique school's ID number. In addition, Chile publishes a ranking of best performing schools in the country. The highest ranked schools are rewarded with financial benefits (Bruns, Filmer, and Patrinos 2011).

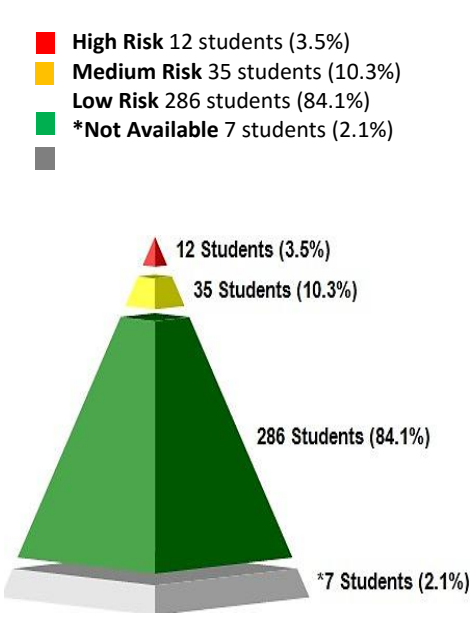
In ***Uganda*** the Ministry of Education provides feedback to schools and parents in the form of school report cards. These school profiles are based on the data provided by the annual school census. They are distributed to headmasters, parent-teacher associations, and elected officials. The school report cards have been well-received and make it possible for headmasters, parents, and the community to track the performance of the school (Cameroon 2012).

The establishment of an "early warning system" to identify children at risk of dropping out or poor achievement should be explored. The EMIS does not yet track students and their performance across time. Data collection could be expanded to track student performance, and then EMIS should be equipped with an early warning system to help identify and predict future problems in the performance of schools, students, and teachers, which would help policy makers intervene earlier and more effectively. An important factor is academic indexing for students at risk. The academic indexing system in Maryland, U.S.A., is an excellent example of how early warning signs are identified and communicated to teachers, who then have the ability to intervene early on to prevent students from dropping out or failing courses (figure 8).

Figure 8: Academic Indexing in Maryland, U.S.A.

Academic indexing supports all education stakeholders in identifying students at risk. The value of data is even apparent at the microlevel. For instance, in Maryland a risk index was developed that identifies students at risk. The figure to the right illustrates the color coding for students at no risk, medium, and high risk. When parents and students have real-time access to student learning data, as they do in Maryland, then they are able to track their own progress and identify deficiencies in their performance early on. Just as importantly, teachers can use data to track progress toward Student Learning Objectives. By tracking each of their students' progress in a computerized system, it is easier to identify and carry out necessary intervention for students at risk. By comparing student records against their classmates, longitudinal support can be given in a more targeted, efficient, and effective manner. Principals and school administrators actively use data to evaluate teachers, monitor school progress, and manage school plans. Policy makers use data to monitor education quality and equity, improve accountability, and gauge effectiveness of policies and programs.

Source: Provided to authors by Cecil County, 2014.



Establishing a culture of data is crucial. A data-driven culture ensures that information is collected, assessed, and utilized to improve students' learning. EMIS and the information it provides should be at the core of every education architecture. The need for data is omnipresent, and information should be shared. This means that policy makers push for data utilization and data awareness at every level. The creation of a single database system can also facilitate interministry data sharing. Many countries have already pushed for data-sharing initiatives between different ministries.

Governments should create a strong data-driven culture in the country by shifting the focus of schools from being mere providers of education data to actual users of it. Therefore, not only should EMIS allow collection of statistical data from schools, but it should be a complex system whereby schools may solve their everyday educational tasks with essential automation of their activities, specialists of education regulatory bodies may receive updated, reliable, and multifaceted information on schools within their jurisdiction, students may receive information on their education, and parents can monitor their child's progress. Having such information, all participants of educational relations may increase quality of education.

Acknowledgments

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Abbreviations

EMIS	Education Management Information Systems
MoES	Ministry of Education and Science
OECD	Organisation for Economic Co-operation and Development
RT	Republic of Tajikistan
UNESCO	United Nations Educational, Scientific and Cultural Organization

Appendix A: Summary of Policy Lever Benchmarking

Policy goal	Policy lever	Score[a]	Weight	Benchmark
Enabling environment	Legal framework	1.78	17%	Emerging
	Organizational structure and institutionalized processes	3.56	17%	Advanced
	Human resources	2.20	17%	Established
	Infrastructural capacity	2.75	17%	Established
	Budget	1.27	17%	Emerging
	Data-driven culture	1.33	15%	Emerging
System soundness	Data architecture	1.18	20%	Emerging
	Data coverage	0.77	30%	Latent
	Data analytics	2.00	15%	Established
	Dynamic system	1.42	15%	Emerging
	Serviceability	1.70	20%	Emerging
Quality data	Methodological soundness	2.64	25%	Established
	Accuracy and reliability	1.44	25%	Emerging
	Integrity	1.00	25%	Emerging
	Periodicity and timeliness	1.67	25%	Emerging
Utilization in decision making	Openness	2.28	15%	Established
	Operational use	1.25	50%	Emerging
	Accessibility	3.02	20%	Advanced
	Effectiveness in disseminating findings	2.60	15%	Established

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

Appendix B: Extended Rubric, Tajikistan 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					
		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, and 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

		Database(s): databases exist under the umbrella of the data warehouse and have both hardware and software means 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	infrastructure to perform data collection and 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
1.5	**Budget**	Personnel and professional development: the EMIS budget contains a specific budget for EMIS personnel and their professional development 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	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
	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 Financial data: EMIS contains financial data Human resources data: EMIS contains human resources data Learning outcomes data: EMIS contains learning outcomes 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
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	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, because 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

		changes and/or 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	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
		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					
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	The methodological basis for producing educational statistics does not follow internationally accepted standards,	The methodological basis for producing educational statistics follows the basics of	The methodological basis for producing educational statistics follows most required internationally	The methodological basis for producing educational statistics from raw data follows internationally accepted standards,

		Classification: defined education system classifications are based on technical guidelines and manuals	accepted standards, guidelines, and good practices	guidelines, or good practices	internationally accepted standards, guidelines, and good practices	accepted standards, guidelines, and good practices	guidelines, and good practices
		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 reliable, and statistical outputs sufficiently portray reality	Source data and statistical techniques lack soundness and reliability	Source data and statistical techniques have basic soundness and reliability, but statistical outputs do not portray reality	Source data and statistical techniques follow most required elements to be sound and reliable, but statistical outputs do not portray reality	Source data and statistical techniques are sound and reliable, and statistical outputs sufficiently portray reality
		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					
		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 capacity to utilize the system	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					
		User capacity: EMIS users have the skills to interpret, manipulate, and utilize the data produced by the system to ultimately disseminate findings					
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,	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,
		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	complemented by user support				complemented by user support
4.4	**Effectiveness in disseminating findings**	Dissemination strategy: national governments have an information dissemination strategy in place Dissemination effectiveness: dissemination of EMIS statistics is effective	Dissemination of education statistics via EMIS is strategic and effective	Dissemination is neither strategic nor effective	Dissemination is reasonably strategic, but ineffective	A dissemination plan has been implemented; however, room exists for improvement (for full effectiveness in relation to strategic engagement)	The dissemination of education statistics via EMIS is strategic and effective

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 policymakers 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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