

EMIS in Somalia: A Baseline Overview

Draft Report

June, 2018

1 Introduction

Education is one of the top priorities of the recently published Somalia National Development Plan (2017-2019). The NDP builds on the solid foundations of the New Deal Compact for Somalia, which articulated national priorities between 2014-2016. The NDP envisions some ambitious targets, including expansion of access to education, improving quality of education by increasing the number of teachers at primary and secondary levels, and development of the necessary policy and regulatory frameworks to support the education sector.

Data and information play a key role in supporting education development. As Cassidy notes, a well-functioning and comprehensive Education Management Information System (EMIS) encompasses ‘a system of people, technology, models, methods, processes, procedures, rules, and regulations that function together to provide education leaders, decision makers, and managers at all levels with a comprehensive, integrated set of relevant, reliable, unambiguous, and timely data and information to support them in completion of their responsibilities’.¹ Given this, strengthening of the Somalia EMIS is a critical prerequisite for achieving the educational goals of the NDP.

In developing strategies to strengthen EMIS in any country it is essential to start by analysing and building on what already exists, both to harness existing systems and capacity and to avoid unnecessary duplication of efforts and initiatives. Consequently, this report provides an overview of the status of EMIS in Somalia as a contribution to current initiatives of the Ministry of Education, Culture and Higher Education (MoECHE) to strengthen EMIS in the country.

2 The Policy and Planning Environment

Given its recent history, Somalia unsurprisingly has no formal policy or legislation yet in place on EMIS. However, the MoECHE has placed very strong emphasis on the importance of its EMIS in supporting future education and planning. As evidence of this, it has prepared a detailed Education Sector Statistics Plan (2018-2020) or ESSP, which notes that:

EMIS should supply managers and stakeholders at all levels of Somalia’s education sector with comprehensive, shared, accurate and up to date information and data for planning, resource allocation, monitoring and evaluation in order to support a strong culture of data driven decision making.

Thus, EMIS is envisaged as much broader than simply an annual statistics survey and is rather conceptualized very much along the lines outlined by Cassidy above. As the ESSP indicates:

As Somalia moves towards decentralized system, there is a strong need to ensure robust and timely data is available at the sub-national level for preparation of Local Education Strategic Plans to inform local education policies and for micro level planning of resource allocation to schools. As planning becomes increasingly decentralized there is a need for detailed education data at the district and school levels to inform district and school development planning. This will ensure increasingly accurate and timely data is available at all levels of the education system.

¹ Cassidy, 2006: 27 in Abdul-Hamid, H. (2014). What Matters Most for Education Management Information Systems: A Framework Paper. Retrieved November 21, 2017 from http://wbgfiles.worldbank.org/documents/hdn/ed/saber/supporting_doc/Background/EMIS/Framework_SABER-EMIS.pdf

The ESSP notes that:

The legal framework for use of EMIS is largely non-existent...There is also no policy document detailing how data is collected, managed, analyzed, disseminated, and verified...Nor does there exist a policy document detailing how EMIS data will be expanded to capture information for missing education sub-sectors such as ABE, TVET or ECE.

To begin to fill this gap, the ESSP presents a detailed strategy for EMIS in Somalia, with a mission to ‘promote a culture of evidence-based policy, planning and decision making through provision of timely, relevant, accurate and complete information in a sustainable and integrated manner using well trained and highly motivated staff with necessary resources and appropriate technology’. The general objectives of the ESSP are:

- a) *Increasing access to and the quality of service delivery in early childhood, basic, secondary and tertiary education through the provision of improved access to and use of timely, quality education data on which to base planning.*
- b) *Ensure that education administrators have improved tools at their disposal to access and utilize education data to plan, monitor and evaluate the education system so as to ensure better utilization of available resources.*
- c) *To develop improved ICT, planning and professional skills needed by education administrators that can increase the effectiveness and efficiency of the ministry and school management.*

This is then accompanied by a detailed set of goals, strategies, and actions, which are presented in Appendix 1 of this report. This is accompanied by a detailed action plan, although it should be noted that lack of finances and technical support means that implementation of this plan, which included several planned activities for 2017, has not yet commenced.

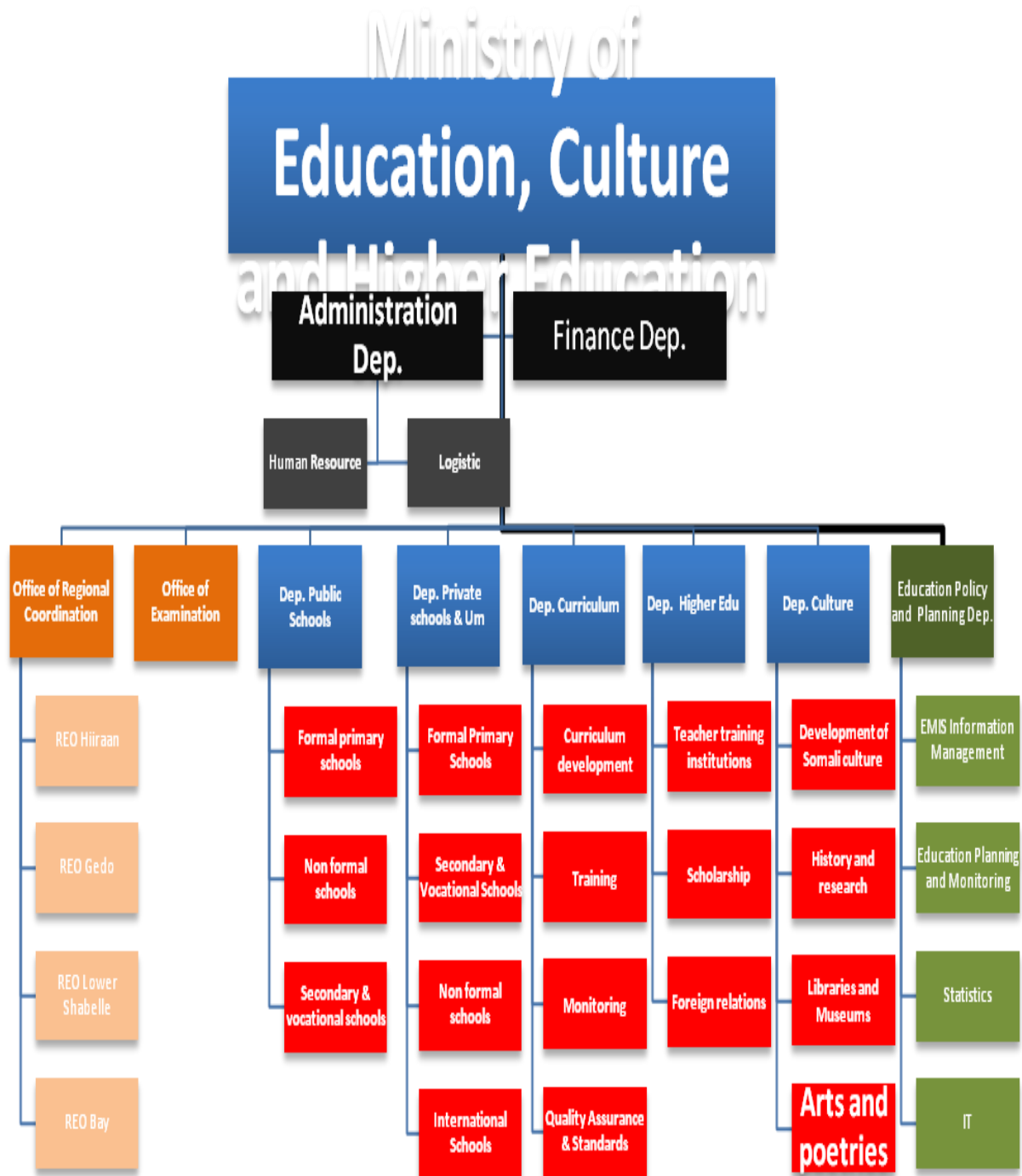
Commitment to strengthening of an integrated, Federal EMIS was reinforced at a recent Conference of the Ministers of Education of the Federal Government and the Regional State Governments, held in Galmudug, Dusamareb on 16-17 April, 2018. The Statement issued from this Conference made the following commitments regarding countrywide educational data collection:

- I. *To carry out nationwide educational data collection using collective system.*
- II. *The Ministry of Education of the Federal Government to enhance the growth of educational data collection authorities at regional state levels.*
- III. *Organizations that support education in the country to obey the Ministry of Education of the Federal Government and the ministries of education of the regional states in the data collection*

3 National EMIS

Within the MoECHE, the unit responsible for education sector statistics is the EMIS Unit, which falls under the Department of Planning as per the organogram below:

Figure 1 MoECHE Structure



The EMIS Unit is responsible for managing the Somalia Education Management Information System and Statistics (SEMISS). This covers all the key education sectors: Pre-Primary; Primary (formal primary, integrated Quranic schools and Alternative/Accelerated Basic Education or ABE); Secondary; Technical and Vocational Education and Training (TVET) and Technical Secondary Schools; and Higher Education. It covers all 18 regions of Somalia except Somaliland. The focus of the SEMISS is to coordinate the Annual Statistics Survey and prepare an Annual Statistics Yearbook.

Below is a summary of the capacity of the EMIS Directorate, including enumerators and supervisors in the field (who are not full-time staff):

Number of people	Position	Educational level	Function/Role
120	Data collection	Secondary up to University degree level	Data collection/Enumerators
20	Coordinators/ Supervisors	University level	Supervising data collection exercise
10	Data entry	University degree	Entering data in to the system(software)
5	Heads of EMIS Units	University degree	Office Management and coordination
1	Software Engineer	University degree (ICT degree and Experience)	System setup and software maintenance
1	Statistician	University degree (ICT and Statistics background)	Data analysis and reporting

Data is collected annually via printed institutional census surveys and captured in a software application called Pacific Island Nation Evaluation Analysis Policy and Planning Leveraging Education Statistics (PINEAPPLES), which was introduced in 2011. It is based on Microsoft SQL Server technology and is compatible with Microsoft applications such as Microsoft Excel, which are used to perform statistical analysis, and Microsoft Word, which is used to create and publish documents. The system was donated by the Australian government.

The process comprises: initial planning; training of data collectors; data collection; data checking and error resolution; data analysis; and data reporting and dissemination. To simplify this workflow, the census survey has been extensively re-designed and reduced from an initial 27-page to a 13-page questionnaire. This re-design was done in consultation with all Directorates in the MoECHE and incorporated feedback from school principals, regarding questions for which they either do not have data or are unwilling to provide answers (for example, on questions pertaining to financial data). To provide an indication of the scope of coverage of the survey, the current Primary School Survey is presented in Appendix 2; there are similar surveys for pre-primary and secondary schools, which are slightly different in length.

In previous years, data collection was undertaken by head teachers, but the EMIS Unit is now using enumerators from NGOs, schools, and Regional Education Offices (REOs), having discovered that this is more efficient. After receiving training, enumerators go to schools to collect data (currently visiting around 1,300 schools, which is estimated as covering around 75% of all schools). As there are several different school systems operational in Somalia, under different umbrellas (public, private, NGO, religious, and so on), it is necessary to determine the number of schools each year, as well as to verify that the school is still operational, before dispatching enumerators. The most efficient method of communication with school principals is using cellular phones (the EMIS Unit has mobile numbers for close to 100% of school principals, compared to email addresses for only around 30%). This is facilitated by the fact that Somalia has excellent cellular coverage across the country, although its coverage of mobile data is much lower. One key challenge in this process, though, is to incentivize all schools to share reliable and timely data, especially as so many schools in Somalia are not State schools. Although the coverage is improving, there are not yet adequate incentives in place to ensure compliance by all schools in the country.

During visits to schools, enumerators complete two copies of the survey, one of which stays with the school and the other which is sent to the State-level Ministry office and from there to the Federal Ministry. However, three copies of the survey are printed for each school to provide a back-up in case mistakes are made while the survey is being completed. From the time when enumerators are dispatched, it typically takes around two to three weeks for all surveys to be returned to the Federal level, where data is captured by personal in the EMIS Unit. With reductions in the scope of the survey, it is estimated that one data capturer can process 10 to 15 questionnaires per day, although this process can be adversely affected in the event of power failures.

a technical assessment of EMIS in Somalia was undertaken in 2016 by Charlie Goldsmith Associates and Forcier Consulting, on behalf of UNICEF. This evaluation highlighted several concerns with EMIS in Somalia, including the following:

- EMIS is a discrete unit that falls under the Department of Policy and Planning, rather than an information system that underpins and supports all the activities of the Ministry.
- Information is collected using paper forms, which is time-consuming, expensive, and prone to error.
- Data collected by various departments tends to remain within that department; if it is shared, this takes place on an ad hoc basis. This leads to much duplication of effort around data collection.
- IT systems also proliferate within the Ministries of Education leading to separate and un-integrated IT systems to manage HR information about teachers, examination data, and the EMIS itself.
- The Pineapple[s] software currently in use (see <http://www.pineapples.com.au/>) requires specialist knowledge to operate, leading to information bottlenecks within Ministries, and does not support import of data, and its export functionality is not particularly user-friendly, nor widely understood among users.
- Due to the large number of actors involved – including the relevant governments, at Federal and sub-Federal levels, international organizations, NGOs, communities, corporations, and influential diaspora – information available is extremely fragmented, with Ministries often having only partial or anecdotal awareness of activities in the education sector.

This report makes the following recommendations, all of which seem appropriate to the context of implementation outlined above:

- 1) Replace the current EMIS software with a software solution that is more adaptable and intuitive, that supports data collection through smartphones, that is open source, and that can form the core of a broader IT system that can support all the activities of the Ministries of Education, including HR, examination administration, quality assurance, and so on. This could offer a near-real-time Education Management Information System, with ongoing input from inspection visits and so on, able to drive decisions around planning and resourcing; non-sensitive information at school-level and above could be made accessible to the public via a website, enabling the development of social accountability mechanisms.
- 2) In each of the three zones, support a rolling pilot of decentralised data collection, data entry and data validation, beginning with two regions and gradually rolling out geographically and functionally across the zone. In South Central Somalia, the involvement of federal bodies such as the Interim Jubba Administration could be considered as an axis of support, as could other major stakeholders in the education sector, such as the education umbrellas.
- 3) Simultaneously, support the central Ministries of Education in the areas of data analysis, data utilisation and data dissemination, so that the EMIS is able to support the broader functioning of the Ministry's activities.

Likewise, the ESSP includes a brief review of challenges in EMIS implementation, several of which mirror those identified in the 2016 EMIS review. In addition, it notes the following:

- *School principals who are the chief sources of data from school level do not have a means through which to verify that data provided in printed questionnaires format is entered correctly into the EMIS.*
- *The EMIS unit has a small number of staff under the policy and planning department of the ministry... Professional development is generally lacking within the EMIS unit.*
- *There is no standalone budget dedicated towards EMIS operations from the government allocations to MoECHE.*
- *Common IDs for teachers, subjects and schools, among others, are not used in a consistent fashion, which would help data integration and support more reliable data analysis. Combined with the use of multiple databases, this creates risks of data errors and incorrect data analysis. Additionally, many key educational indicators for primary and secondary are not captured by*

school census activities, particularly in relation to efficiency indicators such as repetition and drop-out and learning outcomes of children.

- *There does not appear to be any mechanism to minimize data errors throughout [the data collection] process. The manual questionnaire does not enforce skip logic, consistency checks or basic data validation. Data inconsistencies are identified when data is entered into the system, with data verification at that point being difficult and requiring school principals to be contacted directly, which is not always possible. Additionally, there are no validation mechanisms at regional levels to monitor the quality of data entered into the questionnaires.*
- *Local education authorities do not access [the Education Statistics Year Book (ESY)] and consequently cannot use the information to improve school performance through effective 'feedback' loops...There is no online platform where reports can be accessed...School principals do not have access to the ESY report and therefore are not able to assess the progress their individual schools are making...Currently there is no communication strategy within the MOECHE to effectively disseminate findings to a wide range of stakeholders, particularly at state and regional levels for education and government officials and to schools level to ensure that EMIS data is utilized by school managers to improve the performance of schools.*

3.1 The GPE Education Sector Program Improvement Grant 2018-2020

In support of the broader programmes of the MoECHE, the Global Partnership for Education (GPE) has prepared a Concept Document for a proposed Education Sector Program Improvement Grant (ESPIG) to run from 2018 to 2020. The ESPIG will be implemented by the GPE's technical partner in Somalia, which is Care International. As part of the development of this document, five detailed studies were undertaken:

- 1) A review of secondary data on exclusion from education;
- 2) A review of secondary data on practices for policy implementation;
- 3) A comprehensive mapping of development partner contributions to the education sector;
- 4) A review of social protection practices; and
- 5) An analysis of secondary data on access, retention, learning outcomes, transition and completion.

Analysis of the references in these reports indicates that some use is made of the MoECHE EMIS, but there is also heavy dependence on external sources of data, including reports from UNICEF, the United Nations Population Fund, the United Nations Development Programme, the World Food Programme, the World Bank, Care International, and others.

The ESPIG reports that the cost of data collection for the Annual School Census is high – 'approximately US\$ 66 per school surveyed'. According to the report,

In the 2016-17 school census 113 data collectors and 25 coordinators were trained and deployed. Data were collected on paper forms and captured centrally. The data collection budget estimated the total cost to be approximately US\$98,570.

It goes on to list several challenges facing EMIS, which are similar to those outlined above:

- *Dependency on external funding;*
- *Insufficient human capacity development at the Member State level;*
- *No feedback loop enabling states, regions and districts to utilize the data;*
- *Paper-based data collection and issues with data quality, data verification and ambiguous questions;*
- *Parallel systems (such as the 2016 Rapid Assessment of Schools exercise);*
- *No linkages to teacher registration and examination databases;*
- *Exclusion of alternative basic education, ECCE and TVET; and,*
- *Technical issues with the EMIS software.*

It further notes that the MoECHE has established examinations for Grade 8 and Form 4 (end of secondary), which are managed by a Department of Examinations and overseen by an autonomous National Examination Board. However, it adds that:

The data are reported by the ESA [Education Sector Analysis] as being unreliable. Firstly, the two largest private school networks do not participate in the Grade 8 examinations and only joined the Form 4 examinations in 2016. Secondly, the pass rates appear high: in 2013-15 marking was conducted at the school level. Encouragingly, the 2016 data were considered more reliable with higher participation of networks, criterion-based marking, National Curriculum Framework competency-based examinations and more effective supervision and moderation.

As is noted above, though, there are no linkages between the examinations system and the EMIS.

Drawing from its analysis, the ESPIG incorporates a focus on strengthening system capacity, which should help to improve national processes of data collection and analysis. Thus:

The third component of the ESPIG is to strengthen system capacity at the MoECHE and Member State MoEs to regulate, manage and monitor schools, with a focus on: the use of evidence-based approaches; designing simple, user-friendly strategies to increase the adoption of guidelines; building staff capacity to use improved approaches; building synergies with development partners; and support district offices to carry out regular monitoring activities.

The programme also notes its intention, in measuring achievement of defined results, to:

- *[Ensure] complementarity with MoECHE data systems and other regular or one-off data collection exercises conducted by development partners, wherever possible;*
- *Within the program components, [strengthen] MoECHE data collection systems (for example, MLA and school monitoring).*

3.2 Recent Developments

In early 2018, the MoECHE has developed a detailed plan to support implementation of the ESSP (see Appendix 3). To facilitate its work, it has also established a mailing list that is being used to distribute communication to EMIS focal points at Federal and State levels, as well as at all development partners active in Somalia. It has also used this communication mechanism to distribute a survey on existing EMIS initiatives, responses to which are incorporated into this report. Its current focus is on defining key indicators and benchmarks that should underpin further development and strengthening of the EMIS in Somalia. This process will first be undertaken internally within the Ministry, after which consultation will be broadened to include State governments and key development partners. It is expected that this will be the first step in designing a revised EMIS for use at the Federal level, as well as to identify key data standards and technical protocols to underpin EMIS sub-systems across States.

In addition, the Ministry has developed a detailed plan to commence data collection for the 2017/18 school census. The estimated budget for this activity is US\$207,940. This is intended to cover the following activities: review and finalization of questionnaires; identifying trainers and enumerators; training of trainers and enumerators; printing data collection tools; sending data collection teams to schools and completing the surveys; reviewing, cleaning, and validating the data; capturing data; data analysis; printing and dissemination of the Annual Census Yearbook; hosting of an EMIS Yearbook validation workshop at the MoECHE; and preparation for the following year. However, due to financial constraints, the MoECHE is not able to implement this plan without support from development partners and is thus engaging with various potential partners to the necessary funding to conduct the school census for the current academic year.

4 EMIS at State Level

Various State Ministries of Education report having some level of EMIS capacity in place within their Ministries. Below is a summary of information received from States via an electronic survey:

4.1 Galmudug

The Galmudug Ministry of Education reportedly captures data on primary and secondary education in Galmudug through its Department of Planning. The Department comprises the following personnel:

Number of people	Position	Educational level	Function/Role
2	Head department and deputy	Minimum Bachelor in ICT	Managing and controlling all activities about the new system software
15	Regional and District staff	Minimum Secondary Certificate	<ul style="list-style-type: none"> • Supervising Data collection • Ensuring data to be collected for its timeframe • Collecting data from the schools those have no access
150	Head teachers	Bachelor	Collecting data and uploading it

Data collected reportedly covers the following

- Students data for student registration: including ID, name, mother's name, date of birth, place of birth, gender, residence, contacts (mobile number and email), student status (active, dropout, transfer, graduate and others), current class, picture, and guardian's information such as contacts and relationship.
- Teacher information: including ID, Name, date of birth, title, gender, hire date, education level, qualification, shift, contacts, status, basic salary and assigned school.
- School registration: including registration number, registration date, school name, school type, district, location address, contact person, email, school telephone, language, authority, established date, no of classes, no of toilets, school furniture (tables and chairs),
- Class registration: including class ID, class name, class level, school, learning shift, academic year and class master information.
- School financials.
- Examination data: including academic year, class, subject, date and exam type (Monthly exam, mid-term exam and final exam).
- Student transfer data.

Data is collected when the school opens and then throughout the year when there are specific events such as: a new student enrolling, exam reports, student dropout, teacher dropout, and changes to school infrastructure (such as new additions or damage). Data is collected using an offline mobile device with software installed and used by a trained district officer, as well as online via the Internet (done by the school head teacher). Software was reportedly developed to support this in 2016, which currently supports primary and secondary education, but may be expanded to include the TVET and higher education sub-sectors as well. Daily, monthly, and annual backups of data are undertaken.

The software is able to generate wide range of reports, including students report, teacher reports, school reports, class reports, subjects reports, academic year reports, financial reports, districts reports, school authority reports, exam reports, and student transfer reports. This data is used for future planning and decision-making.

Key challenges in implementing EMIS in Galmudug are related to financial challenges and scarcity of technical expertise. It is also reported that the system could be further strengthened by decentralizing more data capture to the school level.

4.2 Hirshabelle

The Hirshabelle Ministry of Education reportedly captures data on primary and secondary education in the Hiiraan and Middle Shabelle regions of Somalia through its EMIS Department. The Department comprises the following personnel:

Number of people	Position	Educational level	Function/Role
1	Head of EMIS	IT/computer technology	Data analysing, developing system, capacity building for enumerators
1	Policy and planning unit	Community development	Setting ministry policy include EMIS, guiding head of EMIS strategy and policy
18	school supervisors and data collectors	Different education levels	Data collection, weekly and monthly school supervision.

Data is reportedly collected twice annually, at the beginning and end of the academic year to enable verification of increases/decreases in student enrolments throughout the year. Data is collected through a printed survey, covering students (basic information and levels of education), teachers (educational backgrounds and subjects provided), schools (school location, classes, and services provided), and school infrastructure (water supply, electricity, buildings, toilets, etc). Data is captured in MS Excel, as there no specialist EMIS software within the Ministry. Data verification is done by sharing it with DEOs and REOs to check and correct any errors. This data is used to plan for State-level projects, to analyse enrolment trends and respond accordingly, and to identify teacher capacity gaps.

Key challenges identified in Hirshabelle include:

- Shortage of EMIS professionals;
- Poor data collection;
- Shortage of resource required to collect data in distant regions and villages;
- Lack of a reliable specialized EMIS software application; and
- Lack of capacity building initiatives.

4.3 Puntland

The Puntland Ministry of Education and Higher Education is currently planning the development of a new EMIS, which will cover all nine regions of the State. This initiative is being managed by the EMIS Unit within the Department of Policy and Planning. IT will cover all education subsectors and is intended to integrate other existing systems within the Ministry – examinations, finance, and teacher databases – to generate reliable and up-to-date information. The following personnel are currently involved in this initiative:

Number of people	Position	Educational level	Function/Role
1	Manager	Master of management information system	Initiative developer (software developer)
3	Technical team	All are IT specialists	Initiative developer (software developer)

Number of people	Position	Educational level	Function/Role
1	EMIS Coordinator	Master of Financial Management, PGD of educational management and Administration	Technically helping on developing educational indicators, designing all the tools needed and how the overall reports look like.

The proposed process to implement this new system is to:

- 1) Review and update the current EMIS subsector questionnaire
- 2) Develop new EMIS software, which integrates finance, examination and other necessary requirements; and
- 3) Institutionalize the system in the nine regions.

Data collection is expected to be both electronic and manual (the latter in remote, hard-to-reach areas). It is anticipated that full data will be collected once annually, while other more time-sensitive data will be collected quarterly. The new system and tools will be managed by local consultants (the Waabari Solution and Security Service Company). Data will be backed up on an external hard drive.

This initiative is planned as part of the activities of the Global Partnership for Education Programme (2017-2020) in Puntland, which is managed by UNICEF. The full scope of this activity is described as follows:

Output 3.1: EMIS is decentralised, expanded, with data collected, processed, analysed and disseminated to support effective quality assurance and continuous improvement on key education performance indicators.

Activities:

1. *Develop a plan for the replacement of the current EMIS software including detailed specifications and requirements of new software aligned to global tools developed by UNESCO (OpenEMIS);*
2. *Identify, select and install new EMIS software;*
3. *Expand EMIS capacity to link with and capture essential data from other departments;*
4. *Update EMIS data collection tools;*
5. *Train relevant central, regional and district level staff on the new system;*
6. *Train relevant central, regional and district level staff on data collection tools, advanced Excel, SPSS, data processing, analysis, verification, utilization and dissemination;*
7. *Conduct training of trainers (TOT) training;*
8. *Conduct training of head teachers;*
9. *Collect, process and analyse data annually (by relevant regional and district level staff)*
10. *Verify and validate data annually (by central level staff)*
11. *Publish and disseminate data annually (by central level staff)*
12. *Develop and approve EMIS Decentralize Terms of Reference that captures the responsibility of regional and district levels responsibilities.*
13. *Assess, design system and purchase the necessary equipment for a decentralised EMIS at district, regional and central levels;*
14. *Decentralize and implement EMIS activities at district and regional levels;*
15. *Recruit nine regional EMIS technical officers (50 per cent female) and provide incentives;*
16. *Provide incentives for one EMIS technical coordinator and one EMIS technical officer based at the central level.*

4.4 Somaliland

The Ministry of Education Department of Planning's EMIS Unit is currently planning the implementation of a new State-level EMIS, with support provided by UNESCO. This activity is still in its planning phases. It is intended to cover all education sectors, but the precise scope of data coverage is still to be decided. Likewise, although it is expected that data collection from schools will take place via printed surveys, this

is still to be finalized. The process is expected to collect data from schools at least annually, but potentially some datasets may be collected more frequently. Data will be used for global reporting on Sustainable Development Goal 4, education planning, and monitoring and evaluation of national policies and strategies.

The intention currently is to deploy the StatEduc2 Software System in Somaliland. According to documentation on the system:

StatEduc2.0 is a free application developed by the UNESCO Institute for Statistics (UIS) and distributed without commercial license subject to a formal request directed to the Institute...StatEduc2.0 is based on a 3-tier architecture composed of three layers: Presentation tier (data display through an Internet Browser), Application tier (data processing by a web-server) and Data tier (on a database system). StatEduc2.0 can operate in standalone mode, local area network (LAN) or wide area network. It is 'Internetready' and can be used from remote computers or 'tablets'.

StatEduc2.0 uses a database abstraction layer' which allows access to all existing Database Management Systems (DBMS). Countries wishing to implement StatEduc2.0 are free to use the DBMS of their choice: Microsoft Access, Microsoft SQL Server, Oracle, MySQL, etc. StatEduc2.0 is a multi-year and multilingual application which can integrate all sub-sectors of education (preschool, primary, secondary, etc.).

Terms of Reference have been developed to procure a consultant to support this implementation process. The expected duties of the appointed consultant will be:

- Review and finalization of the primary and secondary questionnaire;
- Development of TVET and pre-primary questionnaire;
- Analysis of questionnaires for Primary and Secondary sub-sectors;
- Design a relational database building on the questionnaires;
- Customization of StatEduc2 software to meet the data capture, processing and validation (consistencies control) needs;
- Design and automation of annual abstract generator tool;
- Training on database maintenance to meet changes which may happen on questionnaires;
- Training on StatEduc2 customization and adaptive maintenance;
- Training on automation of annual yearbook production and maintenance;
- Remote technical assistance and guidance.

4.5 South West

The Ministry of Education, Culture and Higher Education of South West collects data annually on primary and secondary education. The following personnel are in place to support this activity:

Number of people	Position	Educational level
1	Policy and planning director	Degree 1 of university
6	Inspector Education of Regions&(REOs)	Degree 1 of university
15	District Education Officers(DEOs)	Degree 1 of university
1	EMIS head unit	Degree 1 of university
1	General archive officer	Degree 1 of university
1	Admin/finance director	Degree 1 of university
1	State inspector.	Degree 1 of university.

Data on students and teachers are collected through this process and shared with the MoECHE. Data analysis is done using MS Excel and MS Word. It is used to evaluate the quality of education in the State, as well as to identify gaps and analyse educational needs and areas for improvement. The main challenge faced by this process is security concerns, which make it difficult to collect data from all districts and

villages. The Ministry also feels the process would be strengthened if data requirements were standardized and data could be collected twice a year.

4.6 World Vision

In support of the above activities, World Vision provide capacity building support to teachers and community education committees (CECs) at the primary education level, in Southwest State (Baidoa, Dolow), Puntland (Garowe), and Somaliland (Bura). This capacity-building support is offered by three project personnel, the Protection and Education Technical Specialist and Project Managers, though it is reported that there is need for a dedicated information system officer to implement it most effectively.

As part of this process, World Vision collects data annually through focus group discussions, informant interviews, and household surveys, which is used to plan programmes to meet children's wellbeing needs (including education). This data is shared with donors, project staff, and other project partners. It is backed up on offsite external hard drives, as well as on the World Vision Knowledge Management Website.

4.7 Relief International

As part of its programme work in the Girls' Education Challenge (named Educate Girls end Poverty), Relief International works with 228 schools across Banadir, Puntland, Galmudug, HirShabelle and Somaliland. Of the 228 schools, 173 are Primary and 55 schools are Secondary schools. To support this work, it has established a Monitoring and Management Information System (MMIS) to collect project monitoring data and improve its programmes. This system has been developed using internal capacity, and will be extended into other non-education sectors in which Relief International is currently active in Somalia.

The MMIS collects both quantitative and qualitative data. In terms of quantitative data, school profile data is collected, which captures: student enrolments by grade and gender and by school level; school infrastructure; CECs' data; teachers' data; data of student girls supported with bursaries; boys' and girls' club member profiles; classroom observation data; attendance spot checks; attendance data of girls supported with bursaries; and Post Distribution Monitoring (PDMs). Data is disaggregated by independent variables such as rural vs urban, IDPs vs non-IDPs, 'conflict affected', and 'drought-affected'. In terms of qualitative data, focus group discussions are conducted with school girls and CECs and interviews are held with head teachers, teachers, and students. Different data are collected with different degrees of frequency, either monthly, termly, or annually (and some is collected on an ad hoc basis).

Quantitative data are collected through mobile phones using the ODK Collect App (see <https://opendatakit.org/>), which runs on Android Phones. Data is collected offline and then submitted online by enumerators in the field when they have access to internet. It is estimated that the shift from paper-based data collection to use of the ODK Collect App has reduced the time of data collection by up to 80%. Qualitative data (open-ended questions) are recorded on paper and then uploaded to the system. ODK allows users either to collect data on a smart phone or to enter data through a webpage, which gives flexibility in data collection approaches.

Currently, the MMIS accepts data entry directly into the system. However, as it is still under testing, most data is collected via the ODK Collect App, stored on an external server and exported into Ms Excel. From there, Ms Excel datasets are exported into the MMIS using software called SqlYog, which requires a skilled database administrator. However, in future, data collected through ODK will be directly linked to the MMIS to remove the need for manual data exports. This will be done using a suitable data transfer technique (such as JSON).

The MMIS incorporates a data analysis feature that generates reports for project indicators that are pre-defined within the system. This is supported with use of other data analysis tools, such as Stata and Ms Excel. The MMIS is hosted at Godaddy.com, which provides backup and restore features to protect the data.

Currently, data access is limited to key Relief International staff and its partners. However, the findings are shared with other stakeholders. When data is shared, identities are removed from the datasets for identity protection purposes. Data is used to inform project decisions, to plan new projects, and to adjust/improve existing projects' delivery. Data is also analysed for reporting and for learning purposes.

A key lesson learned from this initiative is the importance of finding the right enumerators, which can be challenging. Investing in securing and training enumerators is key to ensuring quality data. It has been noted that it can also be challenging to ensure that quality, accurate data is shared by head teachers, who sometimes give inaccurate enrolment figures to maximize benefits they might receive. This can be tackled by doing unannounced attendance spot checks and comparing attendance for that day with reported figures.

5 Summary of Key Initiatives

5.1 Initiatives

Drawing from the information above, the table below provides a comparative summary of identified initiatives:

Table 1 EMIS-related Initiatives in Somalia

Initiative	Description	Coverage	Development Partner	Data collection and distribution	Data collection method	Software used
Annual Statistical Yearbook	Preparation of annual statistics on Somalia education system Supported by State-level data collection activities in Benadir, HirShabelle, Galmudug, South-West, and Jubbaland	All states	Not confirmed for next cycle	Annual, resources allowing Publication of Annual Yearbook in print and as PDF	Printed questionnaires completed in the field by enumerators	Pineapples
ESPIG	Strengthen system capacity to regulate, manage and monitor schools; building staff capacity to use improved approaches; building synergies with development partners; and support district offices to carry out regular monitoring activities	Benadir HirShabelle Galmudug South-West Jubbaland	GPE Care International	In support of MoECHE activity above	Not applicable	Not applicable
GPE Puntland Programme	Procurement and Installation of a new EMIS software; Database maintenance; Training of central, regional and district level staff, as well as head teachers, on the new system; EMIS tools printing; Training of Trainers; Incentives for regional EMIS technical officers	Puntland	GPE Unicef	Likely annual initially	To be determined	OpenEMIS, SPSS, MS Excel
Somaliland EMIS	Deployment of EMIS software and training of users	Somaliland	UNESCO	Annual Likely publication of Annual Yearbook in print and as PDF	Printed questionnaires completed in the field by enumerators	StatEduc2
Girls' Education Challenge	Data collection (qualitative and quantitative) and project monitoring for the Girls' Education Challenge	Banadir Puntland Galmudug HirShabelle Somaliland	DFID Relief International	Varying, according to project data requirements Access online but restricted to project partners	Use of offline mobile app on Android mobile devices, with upload to central server when devices are connected to the Internet	ODK Collect App, Relief International MMIS (import into MYSQL database using SqlYog), MS Excel

5.2 Scope of Data Coverage

For this analysis, only limited access to data and systems has been possible, while several of the above initiatives are either in the planning phase or (in the case of State-level activities) focus on providing data to the national annual statistics survey. Given this, there is limited information on the scope of data coverage of initiatives and the location of this information. The main sources of information in this regard are Annual Yearbooks at Federal and State level, which are published and distributed in hard copy and as PDF files. Though there are websites for the MoECHE and State Ministries, it is difficult to find the Yearbooks on these sites, so the websites of development partners are a more reliable source of documents. Documents sourced for this review were either received via email or sourced from the Unicef website (<https://www.unicef.org/somalia/>).

The table below provides a comparative sense of the scope of coverage of Yearbooks at the Federal level and from Somaliland and Puntland. As can be seen, the latest Yearbooks available in each case are now somewhat out of date. The documents used for this analysis are listed below:

- Federal Republic of Somalia: Education Statistics Yearbook 2013/2014;
- Republic of Somalia: Education Statistics Yearbook 2013/2014;
- Puntland State of Somalia: Education Statistics Yearbook 2013/2014.

Table 2 Scope of data coverage of Annual Yearbooks

Indicator	Federal	Puntland	Somaliland
Primary			
Primary (incl. IQS & ABE) Grade 1 Gross Intake Rate (GIR)	✓	✓	✓
Primary (incl. IQS & ABE) Grade 1 Net Intake (NIR)	✓	✓	✓
Primary (incl. IQS & ABE) Gross Enrolment Rate (GER)	✓	✓	✓
Primary (incl. IQS & ABE) Net Enrolment Rate (NER)	✓	✓	✓
Primary (incl. IQS) Apparent Intake Rate (AIR)	✓		✓
Urban/Rural Enrolment (incl. IQS)			✓
Enrolment by locality	✓	✓	✓
Enrolment by authority (government vs. non-government)	✓	✓	✓
Enrolment by ownership	✓		✓
Percentage of primary incl. IQS qualified teachers (secondary school completion and above)	✓	✓	✓
Percentage of primary incl. IQS certified teachers (Teaching certificate and above)	✓	✓	✓
Primary (incl. IQS) enrolment by Distance to Schools and Mode of Transportation			✓
Primary Pupil-Textbook Ratio	✓	✓	✓
Primary Pupil-Teacher Ratio	✓	✓	✓
Primary Pupil-Classroom Ratio	✓	✓	✓
Number of teachers employed (incl. ABE)	✓	✓	✓
Number of schools counted in the given year (incl. ABE)	✓	✓	✓
Number of classrooms counted in the given year	✓	✓	✓
Primary (incl. IQS) Grade 1 dropout rate	✓	✓	✓
Primary (incl. IQS) overall dropout rate	✓	✓	✓
Primary (incl. IQS) repetition rates	✓	✓	✓
Primary (incl. IQS) promotion rates	✓	✓	✓
Primary (incl. IQS) survival rates to Grade 5	✓	✓	✓

Indicator	Federal	Puntland	Somaliland
Enrolment of students with special needs	✓	✓	✓
Gender Parity Index (GPI) using the GER	✓	✓	✓
GG Gender Gap	✓	✓	✓
Percentage of female students	✓	✓	✓
Percentage of female teachers	✓	✓	✓
Teacher salary payment by region, gender, and source of payment (incl. ABE)	✓	✓	✓
Shift type	✓	✓	✓
Feeding Program (incl. ABE)			✓
School Type			✓
Availability and type of water		✓	✓
Secondary			
Secondary Gross Enrolment Rate by gender	✓	✓	✓
Secondary Net Enrolment Rate by gender	✓	✓	✓
Enrolment by locality	✓	✓	✓
Enrolment by authority (government vs. non-government)	✓	✓	✓
Enrolment of Secondary by Distance to School and Mode of Transportation			✓
Percentage of secondary qualified teachers (Diploma and Above)	✓	✓	✓
Enrolment by ownership	✓		✓
Percentage of secondary certified teachers (Teaching certificate and above)	✓	✓	✓
Secondary Pupil-Textbook Ratio	✓	✓	✓
Secondary Pupil-Teacher Ratio	✓	✓	✓
Secondary Pupil-Classroom Ratio	✓	✓	✓
Number of teachers employed	✓	✓	✓
Number of schools counted in the given year	✓	✓	✓
Number of classrooms counted in the given year		✓	✓
Gender Parity Index (GPI) using the GER	✓	✓	✓
GG Gender Gap	✓	✓	✓
Percentage of female students	✓	✓	✓
Percentage of female teachers	✓	✓	✓
Enrolment of students with special needs by region, gender, and type of impairment	✓	✓	✓
Teacher salary payment by region, gender, and source of payment	✓	✓	✓
Shift type	✓	✓	✓
Availability and type of water		✓	✓
Examination Results of Grades 8 and Form Four including numbers of students who were promoted for both		✓	✓
Form Four Candidates who achieved 50% and above by region and gender in the year		✓	✓
Feeding Program			✓
Non-formal Education			
Enrolment in Non-Formal Education (NFE)		✓	✓
Number of teachers employed counted in the given year		✓	✓
Number of schools counted in the given year		✓	✓

Indicator	Federal	Puntland	Somaliland
Number of qualified and Certified Non-Formal Education Teachers by region		✓	✓
Technical and Vocational Education and Training			
Enrolment in TVET by Region, District, Institution, and gender		✓	✓
Number of teachers employed and the pupil-to-teacher ratio by Region, District, Institution, and gender		✓	✓
Higher Education			
Enrolment in Higher education by Region, District, Institution, and gender		✓	
Number of teaching staff employed, the number of schools, and pupil-to-teacher ratio by Region, District, Institution, and gender		✓	

5.3 Issues for Consideration

5.3.1.1 Implementing the ESSP

It is encouraging that the MoECHE has developed a detailed ESSP and that this is accompanied by a strong sense of ownership on the part of the Director-General of the Ministry to lead its implementation. This level of political support for EMIS implementation is an essential ingredient for success. The ESSP also includes a frank and detailed overview of key challenges faced in EMIS in the country, while the plan contains all of the key elements needed for success (although the precise sequence and arrangement of the Action Plan might benefit from some re-sequencing and re-organization to cluster activities in a more logical configuration and to reflect activities in a clearer sequence that starts with prerequisite activities needed to move onto other activities). The main concern about the ESSP is the delay in its implementation, which can most usefully be resolved by ensuring that there is strong coordination between the Central Ministry, States, and all participating development partners. On the plus side, though, there are various factors observed during a March 2018 World Bank mission to Somalia that can support implementation of the ESSP:

- 1) Strong leadership from the PS and DG of the MoECHE during meetings, combined with a clear directive that EMIS implementation will be a Ministry-led initiative.
- 2) A strong initial focus on defining priority indicators for EMIS within the MoECHE to ensure that subsequent implementation is kept as streamlined and realistic as possible.
- 3) Completion of recent processes to reduce the extent of the Annual Statistical Survey from 27 pages to its current length of around 13 pages, which reflects an operational understanding of the importance of prioritization for successful EMIS implementation.
- 4) A comparatively well resourced EMIS unit, with functional computers, air condition for ICT equipment, clear evidence of periodic updates and improvements to the EMIS software (which have been handled internally), delegation of operational responsibilities within the EMIS team, and evidence from presentations that responsible people have a good grasp on their processes and challenges.

5.3.1.2 Software Applications in Use

The actual software used for EMIS at Federal level has not been reviewed as part of preparing this report, so it is not possible to comment at first hand on its technical integrity and soundness. Likewise, it has not been possible to assess how indicators are calculated and statistics are produced, to verify the methodological soundness of this. However, from review of the documents supplied and a brief review of the Pineapples website, it seems it may be necessary to replace the current EMIS software in future, though it appears to be relatively functional currently. However, this need will likely become more urgent

over time, given the apparent lack of proper support systems for that software, which means it will become increasingly difficult to support in a context of rapid technological change.

As has been noted above, in Somaliland, UNESCO is planning to deploy StatEduc2 to function as a State-level EMIS in that State. In Puntland, the GPE Programme Document indicates that the Programme is exploring the use of OpenEMIS (<https://www.openemis.org/>), an open source software platform conceived by Unesco and with technical support now provided by a non-profit organization called the Community Systems Foundation or CSF (<https://www.communitysystemsfoundation.org/>). Review of technical documentation on the OpenEMIS website and a short telephone interview with the Senior Programme Advisory at CSF indicate that this may be a suitable application for use in Somalia. Most importantly, though, a strategy will need to be devised to ensure that different projects reach agreement on a common platform design for use across the three zones of Somalia, so that data can be seamlessly integrated and shared across a Federal education system.

A few technical concerns about OpenEMIS were noted in the EMIS Technical Assessment. Some of these now seem to be out of date (unsurprising given that the report was written in 2015), but others remain valid. The report recommends that a bespoke EMIS application should be developed for Somalia to take account of specific, 'unique' requirements in the country. However, this is a potentially challenging suggestion, particularly in an operational context where technical skills are limited and long-term sustainability of software applications is compromised by not keeping them current. The advantage of vibrant open-source software communities is that keeping software current is inexpensive and typically requires minimal technical expertise.

Of course, the validity of this depends on how well aligned the software application is to the EMIS business requirements of the country and, in the case of OpenEMIS and StatEduc2, on verifying how active the software development community around the application is. If those communities are active, any technical limitations of Open EMIS and StatEduc2 can be resolved by integrating those new requirements into the main modules of the software itself. If this is done using open-source software, these changes can be done within the framework of the development community and constitute a contribution of the programme to the community. Importantly, these modifications will then automatically be integrated into any future upgrades. Again, though, this assessment can only be meaningfully completed when a prior exercise is completed to define precisely the business requirements of EMIS in Somalia (at Federal and States levels) and use this to prepare a detailed functional specification for an EMIS.

5.3.1.3 Aligning the Activities of Key Players

This highlights a concern flagged in the 2016 EMIS Review Report that EMIS in Somalia is currently the domain of an almost bewildering number of players, each of which likely has their own 'unique' requirements for data to meet their organizational reporting demands and is deploying different systems to meet these needs. The GPE Programme design notes a need to develop EMIS according to 'key education performance indicators', but any consultative effort to define these performance indicators might be compromised if there is excessive consultation about what they should be. A key reason for failure of EMIS systems, both in terms of their technical maintenance and the challenges of regular, timeous data collection, is a tendency to over-elaborate their design by defining too many data collection requirements, and this is exacerbated the more consultation there is with more players over what the key indicators should be. In a context of limited capacity and technical challenges with data migration from the periphery to the centre, there is an imperative to keep the definition of 'key education performance indicators' as tightly defined as possible and to ensure that there is a clearly defined rationale for collecting data, in terms of the central decision-making process that the data needs to support. In simple terms, if it cannot be explained how a data point is expected to influence a central management decision, then that data should not be collected.

Resolving this problem also requires discipline over time, as there is an ongoing risk that different actors may wish to modify data collection requirements. For example, the EMIS Technical Assessment notes that ‘the current EMIS system was reported to be inflexible, requiring ‘UNICEF consultants’ to make changes to the questionnaire format’. While a flexible design is important, this begs a question of what changes were being made to the questionnaire format and why. Although there may have been valid reasons for the changes, the reality is that many year-on-year changes made to EMIS are driven by short-term political motivations rather than some meaningful, sustained educational management imperative; and often these changes have the effect of making trend analysis over time impossible. Thus, mechanisms need to be established to ensure that any annual changes made are defensible in terms of good EMIS practice and will not undermine longitudinal trend analysis. Commitments by the MoECHE to define key indicators are a positive sign that it will be possible to maintain such discipline in Somalia over the coming years.

6 Possible Next Steps

To take forward more effective implementation of EMIS across Somalia, the MoECHE might consider a few immediate steps to build on the work being done already at various levels. These include:

- 1) Organize a workshop to convene key EMIS stakeholders from all states and involved donor organizations to discuss how to move forward and coordinate activities, based on current EMIS status and activities (for which this report might serve as a knowledge base for discussion) and the ESSP.
- 2) Create a platform via the MoECHE website to share data and data reports which have been completed by different states, donors, and other development partners.
- 3) Create a list of key education indicators that should be collected and shared annually or bi-annually. The focus of defining these should be on timeliness and accuracy, and usefulness for monitoring and decision-making.

Appendix One: ESSP Strategic Goals, Strategies, and Actions

6.1 Overall Goal

To become an authority on education statistics in the education sector in Somalia ensuring collection of accurate, reliable and timely statistics whose independent and professional integrity is accepted by all stakeholders.

6.2 Strategic Goal One: Improved dissemination and use of education statistics.

Dissemination and use of statistics involves identifying mechanisms that increase user engagement, user satisfaction, timely availability, and access of statistical information: aligning statistical outputs to user needs, developing and managing data dissemination portals.

6.2.1.1 Strategic Objective 1.1: To increase availability, access and usage of education statistics, information and services.

Initiatives:

The above objective will be achieved through the following activities:

- 1) Develop an education statistics dissemination strategy to ensure optimal use and dissemination of data generated by the EMIS.
- 2) Strengthen and maintain the use of social media platforms (Facebook, twitter, SMS).
- 3) Regularly update and maintain MOEC&HE website with statistics.
- 4) Regularly produce the annual statistical abstract.
- 5) Use Modern Possibilities for visualization, GIS and customizing numeric information in education statistics.

6.2.1.2 Strategic Objective 1.2: To improve the satisfaction of education statistics users.

Initiatives:

The above strategy will be achieved through the following actions:

- 1) Establish and maintain a Register for key education statistics users, stakeholder contacts, workshops participants and information requests.
- 2) Involve the users in determination of the scope of data and information requirements.
- 3) Undertake user satisfaction surveys; post dissemination; dissemination workshop and internet-based evaluation/ feed-back forms.

6.2.1.3 Strategic Objective 1.3: To improve the use of education statistics.

Initiatives:

The above objective will be achieved through the following actions:

- 1) Train key users to interpret and use Statistics.
- 2) Initiate education statistics clinics and community outreach programmes.
- 3) Package statistics in a user-friendly manner for public dissemination.
- 4) Develop an education statistics dissemination and feedback system.

6.3 Strategic goal 2: Mainstream Quality Assurance in Education statistical production

Quality Assurance involves development and/or adoption of standards and guidelines, quality assessments, statistical audits and certification, documentation, quality improvements, analytical and methodological research.

6.3.1.1 Strategic Objective 2.1: To improve the quality of education data produced and disseminated.

Initiatives:

The above objective will be achieved through the following initiatives:

- 1) Develop, standardize and harmonize data collection tools for all administrative data.
- 2) Develop guidelines on collection/compilation and processing of administrative data.
- 3) Review and audit methodologies and data collection instruments in use for the production of administrative data within the education sector.
- 4) Support data quality, audit and certification.

6.4 Strategic goal 3: Strengthened Human Resource Development and Management

Human Resource development and management involves identification of mechanisms for planning, building and maintaining manpower capacity and ensuring an enabling environment for education statistics management.

6.4.1.1 Strategic Objective 3.1: To develop capacity of education statistics producers, managers and users.

Initiatives:

The above objective will be achieved through the following initiatives:

- 1) Train education data producers, managers and users both at professional and sub-professional levels in the following areas:
 - a) Data collection (Smart Phones) for both office and field staff.
 - b) Data Management (Database Design and Management).
 - c) Statistical methods (Data Analysis, and Forecasting).
 - d) Survey methodology & sampling design.
 - e) Geo Information Systems (GIS).
- 2) Recruit and train statistician and support staff.
- 3) Provide technical support to the State, Region, and District data producing units including departments, allied autonomous bodies, and districts to enhance the quality of data collection, analysis, dissemination and use of education statistics.

6.4.1.2 Strategic Objective 3.2: Strengthen capacity of Ministry officials to manage statistical data

Initiatives:

The above objective will be achieved through the following initiatives:

- 1) Equip Ministry officials with skills, and tools for modern information management.
- 2) Study statistics systems in some countries where the costs are lower than in Somalia and implement recommendations.
- 3) Improve ICT and develop robust data base system.

Appendix 2: Primary School Annual Education Census Questionnaire

About the Primary School Annual Survey

The purpose of this data collection is to gain accurate information about:

- Schools
- Pupils
- Teachers
- School and Classroom facilities
- Education Resources
- School Management

The data collected will be used to:

- allocate Government and education partners' resources to schools
- provide essential staffing, classrooms and resources to schools
- identify teacher training needs
- monitor education sector rehabilitation programmes and general education provisions
- assist with improving education policy and planning

This survey questionnaire has five sections:

- Section 1 Collects general information about the school (the school profile).
- Section 2 Collects education data about student enrolments and classes, including data about repeaters, and grade progression etc.
- Section 3 Collects detailed information about teachers and teacher training.
- Section 4 Collects education data about school and classroom facilities and educational resources.
- Section 5 Collects detailed information about school management.

This survey is conducted by the:

**Department of Policy and Planning, EMIS Unit
Ministry of Education (MoE)**

This information provided to the MoE is collected under the provisions of the Education Act and may not be disclosed to unauthorised persons or used for non-disclosed purposes.

Survey Collection Details

Write your name, the date you completed this form, and your signature in the table below.

Survey Collection Details	Name	Date	Signature
Completed by Head Teacher			
or by Deputy Head Teacher			
Received by DEO			
Received at Central MoEHE			
Entered into EMIS			

Note: REOs should submit the number and the list of schools that have successfully completed the questionnaire form.

Section 1: About Your School

Record your primary School, Accelerated Basic Education Centre / Integrated Quranic School profile details.

Identity	Establishment
EMIS ID <input type="text"/>	Year Established: <input type="text"/>
School Name <input type="text"/>	Sponsor: MoEHE <input type="checkbox"/> Private <input type="checkbox"/> NGO <input type="checkbox"/>
Number of Shifts 1 <input type="checkbox"/> 2 <input type="checkbox"/>	Location: Urban <input type="checkbox"/> Rural <input type="checkbox"/>
	School Type: Primary <input type="checkbox"/> IQS <input type="checkbox"/> ABE <input type="checkbox"/>
Site and Location	Contacts
Village <input type="text"/>	Contact Name <input type="text"/>
District <input type="text"/>	Address <input type="text"/>
Region <input type="text"/>	Telephone <input type="text"/>
	Email <input type="text"/>

Section 2: About Your Pupils

2a: Whole School Enrolment

Record the number of pupils enrolled at your school this year by age, gender and class level. Enrolment is the number of students registered in each class/level at the beginning of this school year.

Current School Year From (Month/Year) To (Month/Year)

IQS/ABE Standard Age	Level 1 Class 1		Level 2 Class 2		Level 3 Class 3		Level 4 Class 4		Level 5 Class 5		Class 6		Class 7		Class 8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		
25																		
26																		
27																		
28																		
29																		
30																		
Sub Total																		
Class Total																	=	<input type="text"/>

↑
Total Enrolment at Your School

2b: Boarders (if applicable)

If your school takes boarders, record the number of students boarding at your school according to their gender and class level.

IQS / ABE Standard	Level 1		Level 2		Level 3		Level 4		Level 5		Class 6		Class 7		Class 8			
	Class 1		Class 2		Class 3		Class 4		Class 5		Class 6		Class 7		Class 8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Sub Total																		
Class Total																	=	

↑

Total Boarders at Your School

2c: Repeaters

Record the number of pupils who are repeating a class level this year according to the class level and gender.

IQS / ABE Standard	Level 1		Level 2		Level 3		Level 4		Level 5		Class 6		Class 7		Class 8			
	Class 1		Class 2		Class 3		Class 4		Class 5		Class 6		Class 7		Class 8			
	Age	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Sub Total																		
Class Total																	=	

↑

Total Repeaters at Your School

2e: Distance travelled to school

Record how far your students travel to get to school according to their gender and mode of travel

Distance	Mode of Travel			
	On Foot		By Transport	
	M	F	M	F
less than 1km				
1-2km				
2-3km				
3-4km				
4-5km				
more than 5km				
Mode Total				

2g: Pupils with Disabilities

Record the number of pupils who have a disability, according to the type of disability, the class level they are enrolled in, and their gender.

Disability	IQS / ABE Standard	Level 1		Level 2		Level 3		Level 4		Level 5		Class 6		Class 7		Class 8		
		Class 1		Class 2		Class 3		Class 4		Class 5		Class 6		Class 7		Class 8		
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Mental																		
Visual																		
Hearing																		
Limb (movement)																		
Other																		
Sub Total																		
Class Total																	=	

↑

Total Pupils with Disabilities

Section 3: About Your Staff

Staff Table Codes

Record the details of all the staff employed at your school in the tables on the following pages using the codes below as appropriate.

Staff abbreviations

Gender	Marital Status	Citizenship	Salary Paid By?	Position/Role	Highest Teaching Qualification	Highest Non-teaching Qualification
M = Male F = Female	M = Married S = Single	So = Somali O = Other	M = Ministry of Education C = Community S = School NGO = Non-government Organization	CT = Class Teacher DHT = Deputy Head Teacher HT = Head Teacher O = Other	TD = Teacher Diploma B. Ed = Bachelor of Education M. Ed = Master of Education PhD. Ed = Doctor of Education O = Other	PSC = Primary school Certificate SSC = Secondary school Certificate GD = Graduate Diploma Bach = Bachelor Degree Mast = Master's Degree PhD = Doctorate Degree

3a: Teaching Staff

If the teaching staffs are more than 34, please copy and attach additional copy.

Personal Details									Employment conditions			Duties	Qualifications & experiences						
Staff No	First Name	Father Name	Class P. N	Gender	Year of Birth (YYYY)	Marital	Citizenship	ID/Document	Paid?	Scale	Salary Amount	Salary	Position /Role	Highest Teaching	Highest Non-Teaching Qualification	Year started Teaching	No. of years Teaching	No. of Years at this school	Trained in SCOTT?
1									Y N										Y N
2									Y N										Y N

Personal Details									Employment conditions			Duties	Qualifications & experiences							
Staff No	First Name	Father Name	Class E. N	Gender	Year of Birth (YYYY)	Marital	Citizenship	ID/Document	Paid?	Salary Scale	Salary Amount	Salary	Position /Role	Highest Teaching	Highest Non-Teaching Qualification	Year started Teaching	No. of years Teaching	No. of Years at this school	Trained in SCOTT?	
3									Y N											Y N
4									Y N											Y N
5									Y N											Y N
6									Y N											Y N
7									Y N											Y N
8									Y N											Y N
9									Y N											Y N
10									Y N											Y N
11									Y N											Y N
12									Y N											Y N
13									Y N											Y N
14									Y N											Y N
15									Y N											Y N
16									Y N											Y N
17									Y N											Y N
18									Y N											Y N

Personal Details									Employment Conditions			Duties	Qualifications & experiences						
Staff No	First Name	Father Name	Class/E.N	Gender	Year of Birth (YYYY)	Marital	Citizenship	ID/Document	Paid?	Salary Scale	Salary Amount	Salary	Position /Role	Highest Teaching	Highest Non-Teaching Qualification	Year started Teaching	No. of years Teaching	No. of Years at this school	Trained in SCOTT?
19									Y N										Y N
20									Y N										Y N
21									Y N										Y N
22									Y N										Y N
23									Y N										Y N
24									Y N										Y N
25									Y N										Y N
26									Y N										Y N
27									Y N										Y N
28									Y N										Y N
29									Y N										Y N
30									Y N										Y N
31									Y N										Y N
32									Y N										Y N
33									Y N										Y N
34									Y N										Y N

Section 4: About your school Building, Ground and Resources

4a: School site size

In the table below record the size of your school site in total, and within that, the size of your playground and garden. Size should be recorded in metres.

School site size	Size		
	Length (m)	Width (m)	Area (m ²)
Total Area	<input type="text"/>	<input type="text"/>	<input type="text"/>
Playground	<input type="text"/>	<input type="text"/>	<input type="text"/>

4c: School Building

Record the details of the school rooms listed in the table below. Record the size of each room in m², and the year the room was built. Tick to indicate whether the building is constructed from temporary or permanent materials. Circle G, F or P to indicate whether the room is in Good, Fair or Poor condition.

Rooms	Number	Year	Buildint Type		Condition
		Built	Temp.	Perm.	
Head Teacher's Office	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	G F P
Staff Room	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	G F P
Library	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	G F P
Kitchen	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	G F P
Store Room	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	G F P
Dormitory	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	G F P
Special Needs Room	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	G F P

4d: Classrooms and Furniture

In the table below record the size and condition details for each classroom in your school. Also record the number of pieces of student and teacher furniture in each classroom. Use G, F or P to indicate if condition is Good, Fair or Poor.

Classroom			Student furniture			Teacher Furniture				
Classroo	Room size (sq. m)	Condition (circle)	Forms (no.)	Desks (no.)	Condition (circle)	Teacher Chair	Teacher desk (no.)	Blackboard (no.)	Whiteboard (no.)	Condition (circle)
1		G F			G F					G F
2		G F			G F					G F
3		G F			G F					G F
4		G F			G F					G F
5		G F			G F					G F
6		G F			G F					G F
7		G F			G F					G F
8		G F			G F					G F
9		G F			G F					G F
10		G F			G F					G F
11		G F			G F					G F
12		G F			G F					G F
13		G F			G F					G F

Classroom			Student furniture			Teacher Furniture				
Classroom	Room size (sq. m)	Condition (circle)	Forms (no.)	Desks (no.)	Condition (circle)	Teacher Chair	Teacher desk (no.)	Blackboard (no.)	Whiteboard (no.)	Condition (circle)
15		G F			G F					G F
16		G F			G F					G F
17		G F			G F					G F
18		G F			G F					G F
19		G F			G F					G F
20		G F			G F					G F
21		G F			G F					G F
22		G F			G F					G F
23		G F			G F					G F
24		G F			G F					G F
25		G F			G F					G F
26		G F			G F					G F
27		G F			G F					G F
28		G F			G F					G F
29		G F			G F					G F
30		G F			G F					G F
31		G F			G F					G F
32		G F			G F					G F
33		G F			G F					G F
34		G F			G F					G F

4f: Water Supply

Record the details of your water supply, including the number of water sources available, and whether they are useable and drinkable.

Water Supply	Rain Water						Capacity (L)
	Piped Water		Well		Tank		
No. available	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	→ <input type="text"/>
Is it drinkable?	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Is it used?	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Is it enough?	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Is it treated?	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
<i>If yes, treatment type:</i>							
Chlorine	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Aqua tabs	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	
Other:	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	

4g: Toilets

Record the number of toilets you have at your school for students and staff. Tick Y (Yes) or N (No) to indicate whether the toilets are clean, in use, and connected to a reliable water supply.

Toilets	No. of Student												No. of Staff Toilets					
	Toilets			Clean?			Water Connected?			Toilets			Clean?			Water Connected?		
	M	F	Shared	Y	N	Y	N	Y	N	M	F	Shared	Y	N	Y	N	Y	N
Flush toilet	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pit Toilet	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4h: Sanitation Facilities

Write Y or N in the boxes to indicate whether you have hand washing and sanitation facilities available for boys, girls, and/or shared facilities. Tick Y (Yes) or N (No) to indicate if the facilities are used.

Sanitation Facilities	Available to Students (Y/N)				Are they used?		Available to Staff (Y/N)			Are they used?	
	M	F	Shared	Y	N	M	F	Shared	Y	N	
	Hand Washing	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
Presence of Soap/Ash/Sand	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4i: Power Supply

Record the power supply type(s) available at your school, and tick Y or N to indicate whether they are in working condition.

Power Supply	Available?		Number	Working?	
Mains	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Solar/Water	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Generator	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>

4j: Facilities for Disabled

Tick Y (Yes) or N (No) to indicate whether your school has accessible ramps, toilets or other adaptations for pupils with disabilities. If you have made other adaptations, please record the details of these in the space provided.

Facilities for Disabled	Available?		
Ramps	Y <input type="checkbox"/>	N <input type="checkbox"/>	If Other Adaptations, please specify
Toilets	Y <input type="checkbox"/>	N <input type="checkbox"/>	
Other Adaptations	Y <input type="checkbox"/>	N <input type="checkbox"/>	

4k: Facilities Management

Record the details of your rubbish disposal method, and your repairs and maintenance program.

Garbage Disposal	
How often do you collect garbage?	Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Fortnightly <input type="checkbox"/> Monthly <input type="checkbox"/>
Main methods of garbage disposal:	Collection <input type="checkbox"/> Burial <input type="checkbox"/> Burn <input type="checkbox"/> Other <input type="checkbox"/>
If Other, please specify 	

4l: Other Resources and Equipment

Record whether or not the resources and equipment listed in the table below are available at your school, and the number that you have. Circle G, F, or P to indicate if the resource is in Good, Fair or Poor condition.

Communications	Available?		Number	Functioning	
Telephone	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Radio Telephone	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Internet/Email	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>

Equipment	Available?		Number	Functioning	
Cassette/CD Player	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Video Player/Recorder	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
DVD Player	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Television	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Radio	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Duplicator	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Photocopier	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Typewriter	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Computer	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Computer Printer	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Scanner	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>
Digital Camera	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	Y <input type="checkbox"/>	N <input type="checkbox"/>

4m: Other Resources and Equipment – Cont....

Feeding Program

Does your school has a feeding programme?

Y N

Males

Females

How many pupils are on feeding program?

Special Needs	Available		Number	Condition		
Braille Typewriter	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	G <input type="checkbox"/>	F <input type="checkbox"/>	P <input type="checkbox"/>
Braille Books	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	G <input type="checkbox"/>	F <input type="checkbox"/>	P <input type="checkbox"/>
Trained Signers	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	G <input type="checkbox"/>	F <input type="checkbox"/>	P <input type="checkbox"/>
Wheelchairs	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	G <input type="checkbox"/>	F <input type="checkbox"/>	P <input type="checkbox"/>
Other Aids	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="text"/>	G <input type="checkbox"/>	F <input type="checkbox"/>	P <input type="checkbox"/>

If Other Aids, please specify

4n: Pupils text books and teachers guides

Record the number of textbooks, teacher's guides and readers you have at the school for each class level in the following curriculum areas. Use Core Subject Codes provided below to indicate the core subject in the table heading.

		<i>Somali</i>	<i>Arabic</i>	<i>English</i>	<i>Maths</i>	<i>Social Studies</i>	<i>Sciences</i>	<i>Religion</i>
Textbooks		No.	No.	No.	No.	No.	No.	No.
Level 1	Class 1							
Level 2	Class 2							
Level 3	Class 3							
Level 4	Class 4							
Level 5	Class 5							
	Class 6							
	Class 7							
	Class 8							
Teacher Guides		No.	No.	No.	No.	No.	No.	No.
Level 1	Class 1							
Level 2	Class 2							
Level 3	Class 3							
Level 4	Class 4							
Level 5	Class 5							
	Class 6							
	Class 7							
	Class 8							
Readers		No.	No.	No.	No.	No.	No.	No.
Level 1	Class 1							
Level 2	Class 2							
Level 3	Class 3							
Level 4	Class 4							
Level 5	Class 5							
	Class 6							
	Class 7							
	Class 8							

4a: Curriculum

Write the name of the curriculum you use at your school in the space provided.

Curriculum

Curriculum Name:

Section 5: School Management

5a: School Management Arrangements

If your school has a CEC, record the details of its operations and membership in the table below. If your school does not have a CEC, tick N.

School Management

School has a CEC? Y N

No. of meetings this school year

No. of Members: M F

5b: CEC Support Rating

On the scale below rate the support you currently receive from your CEC.

CEC Support

Excellent

Very Good

Good

Fair

Poor

CEC Support Rating:

This is to certify that all the information provided in this survey form was accurate at the time of completion:

Head Teacher's Name

Date

Signature

Thank you for participating in the Primary School Annual Survey!

Please send this survey form as soon as possible to your Regional Education Office.

Only the DEO can use this section

DEO USE ONLY

This is to certify that all the information provided in this questionnaire is correct to the best of my knowledge.

Name

Date

Signature

Appendix 3: Innovative EMIS practices in the developing world

EduTrac, Uganda

EduTrac is an innovative mobile phone-based data collection system deployed by UNICEF Uganda in partnership with the Ministry of Education and Sports (MoES). Established in 2011, EduTrac takes advantage of new communication infrastructure to strengthen the monitoring of education service delivery towards improving quality of education in Uganda. It provides districts with a tool to identify bottlenecks at the school level, facilitates tracking of accountability for resolution of issues arising from EduTrac reports, helps to improve planning for education, while at the same time EduTrac complements the existing Education Management Information System.²

The EduTrac tool is set up as a real time information management system that is easy to deploy and manage without investing in expensive hardware. It is an open source application that can be completely customized by any organisation. The system that has been developed can be used to collect any kind of numerical data via SMS, which is available on all types of phones and provides the results on a web-based dashboard.³

Phase I of EduTrac started in May 2011 and involved 4 months of data collection. This included registering and training 725 reporters at 275 schools in 4 districts. This was followed by a redesign to increase ease and accuracy for reporters and some changes to the data collected. Phase II started in January 2012: EduTrac collected data from 17 more districts, bringing the total participating districts to 21. Currently, work is being done to scale EduTrac nationally in Uganda to a total of 34 districts.⁴

Education Quality Improvement Programme (EQUIP), Afghanistan

This World Bank project which ran from 2005 to 2009 aimed to increase equitable access to quality basic education, especially for girls, through school grants, teacher training, and strengthened institutional capacity with support from communities and private providers. The objective of the project was to develop an EMIS and help build capacity of the Ministry of Education (MoE) officials for its effective use. The component was to support annual data collection from schools to promote the use of data in planning and decision making. It would also support the MoE in undertaking a household survey to assess the status of schooling of children, direct and indirect cost of schooling, and any other opportunities and constraints concerning education.⁵

Afghanistan is a good example of how an EMIS can be used to strengthen the monitoring systems in a country, even in fragile contexts. A heavy investment of \$460 million was made into the EQUIP project in 2004. When the project began, no sophisticated EMIS was in use in the country, and data were

² Center for Education Innovations. (nd). EduTrac. Retrieved June 1, 2018 from <https://educationinnovations.org/program/edutracs>

³ Center for Education Innovations. (nd). EduTrac. Retrieved June 1, 2018 from <https://educationinnovations.org/program/edutracs>

⁴ Center for Education Innovations. (nd). EduTrac. Retrieved June 1, 2018 from <https://educationinnovations.org/program/edutracs>

⁵ Abdul-Hamid, H. (2015). Lessons Learned from World Bank Education Management Information System Operations: Portfolio Review, 1998–2014. Retrieved June 1, 2018 from <https://openknowledge.worldbank.org/bitstream/handle/10986/26330/9781464810565.pdf?sequence=2>

collected using paper-based census forms, which was unreliable and unsafe. With the growth of the education sector, and the support from young IT professionals, the government started to understand the power of data for decision making. Various technological initiatives were undertaken to collect and disseminate education data in a timely manner. The key achievement of the project was the development of multiple systems capturing education data:

- Student Management System,
- School Management System,
- Human Resource Management System,
- Geographical Information System (GIS),
- Certificate Generation System,
- Infrastructure Management System, and
- Centrally Hosted Education Information System.

The EMIS was able to provide the following:

- 1) Improved accuracy through comprehensive electronic system of data collection, management, and analysis;
- 2) Improved transparency through a single centralized Ministry portal to provide comprehensive data to all stakeholders; and
- 3) Increased efficiency through the introduction of new technologies such as GIS and mobile applications to ensure data analysis happens in real time; and
- 4) Improved local decision making as provinces manage their own data.⁶

EMIS Support to the Ministry of General Education and Instruction, Republic of South Sudan

The Education Management Information System (EMIS) Support project makes available reliable and timely national, county and village education statistics for the world's newest country, the Republic of South Sudan and all 10 states. The project — which reaches 98 percent of all known schools at all education levels, covering more than 1.7 million students — prepares the national and state governments, education officials and staff to collect, understand, and use education data.⁷

The project collaborates with the central government to create evidence-based approaches to allocating education funds to the states. Using the most current historical data and a simple graphic presentation, FHI 360 experts equip government officials to estimate operating and capital costs by simulating enrolment and calculating teacher, textbooks and classroom requirements annually. Donors also use the EMIS information to verify trends and prepare estimates for planning. To support decentralized decision making, the project helped establish Education Planning and Budgeting units in all 10 states. The units have computers, training manuals and resource guides. Trainings in data analysis, data interpretation and policy briefs is conducted regularly. Approximately 60 planning personnel routinely support state governors.⁸

⁶ Abdul-Hamid, H. (2015). Lessons Learned from World Bank Education Management Information System Operations: Portfolio Review, 1998–2014. Retrieved June 1, 2018 from

<https://openknowledge.worldbank.org/bitstream/handle/10986/26330/9781464810565.pdf?sequence=2>

⁷ FHI 360. (nd). Education Management Information System (EMIS) Support to the Ministry of General Education and Instruction, Republic of South Sudan. Retrieved June 1, 2018 from <https://www.fhi360.org/projects/education-management-information-system-emis-support-ministry-general-education-and>

⁸ FHI 360. (nd). Education Management Information System (EMIS) Support to the Ministry of General Education and Instruction, Republic of South Sudan. Retrieved June 1, 2018 from <https://www.fhi360.org/projects/education-management-information-system-emis-support-ministry-general-education-and>

The project draws on current, appropriate and cost-effective technology. Because South Sudan does not have national radio or television, the project provided VSAT satellite Internet capabilities to a variety of national and state level offices. The project introduced smartphones that access regional cell networks to transfer data from county and state sites and is introducing low-cost tablets to speed school-level data entry and review. Using a customized 'K-Mobile' cellphone-based system, FHI 360 experts collected photographic, geo-positioning and verification data for more than 2,000 schools and made the information available in Google Earth format via the Internet.⁹

Eneza, Kenya

Eneza Education (formerly known as MPrep) was founded by Kenyan teachers aiming to utilize SMS technology in the classroom with the goal of improving student learning. The programme seeks to provide quality educational resources to remote schools in Kenya, and eventually in other countries. The technology provides students with a tool to study and learn, as well as a means to collect important data on students' learning outcomes, that can then be used to advise and inform both teachers and parents.¹⁰

Students in classes 7 and 8 use the mobile phone programme as a study tool to take quizzes related to the national curriculum. They type an activation code into a mobile phone to start taking the quiz on a particular topic that is being taught in class. Students are directed to answer the questions and receive feedback, tips, and mini-lessons based on their answers. Teachers can track students' performances as the data from the mobile phones is collected and fed back to a central location, and made accessible to teachers and parents. This data can then be used to assist parents and teachers in identifying students' strengths and weaknesses, enabling them to provide additional support where needed. Schools are also able to access country-wide data of students' scores from other schools.

Eneza Education is currently working on developing the SMS assessment system on topics taught in class, to a multi-media learning platform that is accessible to more schools and students through ICT.¹¹

7 VISHWAS, India

The VISHWAS programme brings in help to enhance the academic level of the school's students and performance of the school staff through its reporting system. This Android-based application is divided into two parts. The first part, called the 'Employee Feedback System,' is installed on the mobiles of on-field employees, and the other part, called the 'Manager Reporting System,' is installed on the manager's mobile.¹²

The programme facilitates online reporting about Zilla Parishad schools by school inspectors. A government on-field employee visits the schools and collects school-related data to send to the manager in real time using the online mobile application. The reported data include school attendance, the midday meal, surprise test results, regular exam results, school infrastructure details,

⁹ FHI 360. (nd). Education Management Information System (EMIS) Support to the Ministry of General Education and Instruction, Republic of South Sudan. Retrieved June 1, 2018 from <https://www.fhi360.org/projects/education-management-information-system-emis-support-ministry-general-education-and-instruction>

¹⁰ Center for Education Innovations. (nd). Eneza Education. Retrieved June 4, 2018 from <https://educationinnovations.org/program/eneza-education-mprep>

¹¹ Center for Education Innovations. (nd). Eneza Education. Retrieved June 4, 2018 from <https://educationinnovations.org/program/eneza-education-mprep>

¹² Centre for Education Innovations. (nd). VISHWAS. Retrieved June 1, 2018 from <https://educationinnovations.org/program/vishwas-visiting-information-schools-handled-attendance-system>

accounting information details, school photos, latitude and longitude details, and audio and video recordings.

The programme provides details about the visit paid by the on-field employee, or school inspector, to the school. This includes the start and end time of the visit and the total time spent at the school. The system can accurately verify the correct location (latitude and longitude) of the employee's visit using its global positioning system (GPS) and can highlight the targets that are not achieved by the on-field employee. Using their mobiles, employees will be able to send the real time information on the status of the visited schools along with the photo. At the same time, the manager will be in a position to identify the falsely claimed targets whereas he could also identify the employees who are not attending the targets regularly. This application also helps to reduce corruption at the school level and helps the government to accurately estimate the midday meal budget for the district, thus saving money.¹³

A Note on Mobile Data Collection

There is growing interest globally in the use of mobile devices to support data collection for various sub-systems of EMIS, particularly for annual statistical surveys and for other forms of rapid surveying. A growing number of case studies attest to the possibilities and challenges of harnessing this technology, from countries as diverse as Afghanistan¹⁴, South Sudan¹⁵, Turkey¹⁶, and Zambia¹⁷. This growth in use stems from the significant potential value that use of mobile devices offers large-scale data collection activities of any kind. Trucano summarized these potential benefits as follows in a 2014 blog post:

- *Speed*: Collecting data using a mobile phone can greatly speed up the data collection process. Where network availability allows for near-instantaneous transmission of data to a central coordinating group, the reduced time that elapses between local data collection and delivery can save weeks or even months of time in the overall data collection process. In addition, an early warning system of sorts can be established, allowing survey coordinators to quickly identify potential problems with data collection efforts and (potentially) correct them in almost real time.
- *Accuracy*: Digital data capture at the source can greatly reduce transcription errors, and data transmission over mobile networks may ensure that no data are lost 'in transit'. Capture and transmission of data digitally may also ensure that it is easier to store and access them at later dates, should this be required.

¹³ Centre for Education Innovations. (nd). VISHWAS. Retrieved June 1, 2018 from

<https://educationinnovations.org/program/vishwas-visiting-information-schools-handled-attendance-system>

¹⁴ Da Silva, S. & Valsangkar, P. (2015). The Impact of Education Management Information Systems: The Case of Afghanistan. Retrieved February 20, 2018 from <http://blogs.worldbank.org/education/impact-education-management-information-systems-case-afghanistan>.

¹⁵ Moses, K. & Cheng, X. (2013). Education Management Information System (EMIS) Support to the Ministry of General Education and Instruction, Republic of South Sudan. Retrieved February 20, 2018 from <https://www.fhi360.org/projects/education-management-information-system-emis-support-ministry-general-education-and>.

¹⁶ Koç, T. et al. (2016). Acceptance and usage of a mobile information system in higher education: An empirical study with structural equation modelling. Retrieved February 20, 2018 from https://www.researchgate.net/publication/304000005_Acceptance_and_usage_of_a_mobile_information_system_in_higher_education_An_empirical_study_with_structural_equation_modeling.

¹⁷ Ommundsen, S. (2017). Designing an Education Management Information System - A case study on the introduction of a digital, mobile-to-web Education Management Information System in Zambia. Retrieved February 20, 2018 from <https://www.duo.uio.no/handle/10852/56898?show=full>.

- *Ubiquity, familiarity and convenience:* Enumerators and survey respondents may, at a general level, already be quite comfortable using a mobile phone (and indeed may be using their own personal device), even if they have not used it specifically as part of data collection efforts. Such devices may be widely available already in target populations, who may be accustomed to their use in a variety of contexts.
- *Training:* Because people may already know how to use the devices for many purposes, less technical training may be necessary in some circumstances. In addition, on smart phones, and to a lesser extent with feature phones, help files and on-screen prompts may provide useful relevant supporting documentation and guidance that may reinforce messages from training that does occur, and potentially obviate the need for some sorts of training altogether.
- *Low power:* Compared with devices such as laptops, mobile phones may be much easier to keep charged, as they require much less power and because many fast, low-cost charging options may be available in local communities because people are already utilizing such devices extensively for other purposes as part of their daily lives.
- *Combining with other data:* Depending on the functionality of the phone used, textual data captured via mobile phone can be combined with data in other formats such as photographic images, audio, and video, as a way to substantiate the information provided by text. If a building being surveyed is noted as ‘damaged’, for example, an accompanying picture can provide further documentation. In addition, GPS or geo-locationary data can be passively collected and transmitted along with survey data. This can be used to help map the location of hospitals or schools, or to offer ‘proof’ that an enumerator actually visited a place that she has claimed to visit.
- *Low cost:* All of these characteristics and affordances may mean that data collection enabled through the use of mobile phones can be done at substantially lower costs than is possible via traditional means.¹⁸

He goes on to note that:

In some circumstances, the comparison between data collection via traditional means and enabled through the use of mobile phones may be a false one. Indeed, in addition to improving the efficiency of data collection efforts when compared with traditional, largely paper-based practices, mobile data collection may also offer options for data collection that simply aren't feasible, or even possible, using other tools or methods.¹⁹

However, as a Better Evaluation website article points out, mobile data collection (MDC) is not appropriate for all forms of data collection. Although the article relates to evaluation, its observations apply also to the various sub-systems of EMIS:

An important first step is figuring out whether or not MDC is appropriate for your evaluation. Most evaluations use surveys, which MDC is well-suited for, and generally a subset of available platforms cater best to creating surveys (as opposed to crowd-sourcing information, sending information out, or providing information on demand). If you are collecting a lot of quantitative information and very little qualitative information, MDC is likely to work well. However, if you are collecting many long, open-ended responses, MDC is unlikely to be the most efficient method; you could still record answers on mobile phones or tablets and either transcribe answers manually or use voice to text software, but typing in long answers on phones is likely to be disruptive to the interview process.²⁰

¹⁸ Trucano, M. (2014). Using mobile phones in data collection: Opportunities, issues and challenges. Retrieved February 25, 2018 from <http://blogs.worldbank.org/edutech/using-mobile-phones-data-collection-opportunities-issues-and-challenges>.

¹⁹ *ibid.*

²⁰ Bruce, K. et al. (2017). Mobile Data Collection. Retrieved February 25, 2018 from http://www.betterevaluation.org/en/evaluation-options/mobile_data_collection.

It goes on to list some additional issues for consideration in harnessing MDC:

- What is the network coverage in the area where you'll be collecting data? While you don't need network coverage to collect data, lack of coverage could affect when data become available online.
- What power sources are available to evaluators? Will phones need to have a long battery life? Will you be able to recharge phones in vehicles?
- What is your policy on mobile device use, ownership and replacement? Are data collectors allowed to use mobile device for personal purposes? Who pays for airtime? What happens if a mobile device is lost or stolen?
- Consider the lifespan of the technology in which you invest. If you plan to re-use mobile device, take this into consideration; you may want to invest more in mobile device that won't be obsolete in a year, or ensure that they have certain capabilities that the initial survey may not require.
- Ensure you have stakeholder buy-in for MDC. Getting buy-in from project stakeholders for the use of MDC is sometimes challenging. It's important to clearly see and articulate the advantages of MDC, and to understand common challenges and solutions to those challenges so that they can be realistically addressed—and to understand when MDC might not be advantageous.
- Be aware of security risks of sending data. If you send data through via the Internet, the platform encryption should be very strong and secure. This is not true of data sent by SMS.²¹

Where there is interest in harnessing MDC to support data collection for one or more sub-systems in EMIS, the following should be considered:

- 1) Use of mobile technology can only work successfully when there is an underlying system design that will inform the structure and technical aspects of MDC tools and apps and into which collected data can be exported in some form (ideally automatically). Thus, any MDC project will need to be accompanied by one or more of the actions outlined in the previous section, particularly those pertaining to use of common codes (Item 1), definition of clear business requirements (Item 3), and rationalization of survey designs (Item 4).
- 2) If MDC is envisaged to take place over a large geographical area, the most efficient, and possibly only secure and reliable, mechanism for collecting data is likely to be via online data submission. While the data collection process can take place offline and temporarily stored on the mobile device, this will require that the device is able to connect to the Internet, via WiFi or cellular technology, to enable data transmission. More importantly, this will require that the central database needs to be reliably available online so that when mobile devices are connected to the Internet, the data transfer process can proceed uninterrupted. In most instances, this will require that the server-side application be hosted in a secure hosting environment, rather than within the Ministry of Education (especially if the latter is susceptible to regular Internet outages).
- 3) Strategies to ensure that mobile devices can be repaired and/or replaced when they are not working should be considered, when planning the long-term sustainability of MDC initiatives. There is a long legacy of ICT infrastructure rollout projects in education systems, particularly in low-income countries, that have failed due to inadequate sustainability planning.
- 4) There is likely to a need for significant change management and capacity building to accompany MDC activities, especially at the outset. There may be significant political resistance to this kind of data collection for various reasons, which should be factored into project design.
- 5) Before making large-scale investments in a specific solution, there is generally a case to be made for piloting the proposed solution before taking it to scale. To be meaningful, such pilots should include external evaluation and should include criteria against which the decision to continue, adapt, or abandon the proposed solution can be measured before taking it to scale.

²¹ ibid (adapted).

Trucano has an additional blog post of issues to consider when harnessing MDC that is worth reading. It can be found at <http://blogs.worldbank.org/edutech/using-mobile-phones-data-collection-some-questions-consider>.